Research Report

Nihon University School of Medicine

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Research Report 2022

Nihon University School of Medicine

Table of Contents

Research Report 2022
Nihon University School of Medicine
《Paper of the Year 2022》

Ⅰ Overall category

		Paper
1	Name	Kobayashi H, et al.
	Journal	Results of untargeted analysis using the SOMAscan proteomics platform indicates novel associations of circulating proteins with risk of progression to kidney failure in diabetes. Kidney International. 2022;102(2):370-381.
	Division	Division of Nephrology, Hypertension and Endocrinology
2	Name	Endo-Umeda K, et al.
	Journal	Myeloid LXR (Liver X Receptor) deficiency induces inflammatory gene expression in foamy macrophages and accelerates atherosclerosis. Arteriosclerosis, Thrombosis, and Vascular Biology. 2022;42(6):719-731.
	Division	Division of Biochemistry

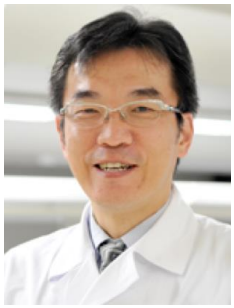
Ⅱ Young category

		Paper
1	Name	Kobayashi H, et al.
	Journal	Neuroblastoma suppressor of tumorigenicity 1 is a circulating protein associated with progression to end-stage kidney disease in diabetes. Science Translational Medicine. 2022;14(657):eabj2109.
	Division	Division of Nephrology, Hypertension and Endocrinology
2	Name	Oshima Y, et al.
	Journal	Midazolam exhibits antitumour and anti-inflammatory effects in a mouse model of pancreatic ductal adenocarcinoma. British Journal of Anaesthesia. 2022;128(4):679-690.
	Division	Division of Anesthesiology

Division of Respiratory Medicine

Chair and Professor, Yasuhiro Gon, M.D., Ph.D.

Developing Intellectual and Future Innovation



The human respiratory system is persistently exposed to the external environment and comprises primary defense mechanisms against invading pathogens and environmental stresses that enter the body via the airways. These stressors can induce cellular dysfunction and airway inflammation, including immunological or allergic responses, subsequently resulting in the development of lung disease. Hence, it is crucial to comprehensively clarify the pathogenesis of pulmonary diseases and identify clues for developing new therapies against these diseases. Dr. Yasuhiro Gon, M.D., Ph.D., is a clinician-scientist with expertise in the fields of pathophysiology and new therapeutic strategies for pulmonary diseases.

Functional analysis of stress-induced human immune cells (mast cells).

Stress is one of the leading environmental factors involved in the exacerbation and severity of asthma conditions. To address "Why does stress affect asthma?", Dr. Gon and colleagues generated NOG IL-3/GM CSF/IL-5 transgenic (Tg) mice (Tri-Tg mice), possessing immune cells (such as human mast cells, eosinophils, and ILC2) important in the pathogenesis of asthma, by transplanting human stem cells to successfully reproduce human IL-33-induced asthma. Using humanized mice, the team plan to analyze the function of stress-induced human immune cells (mast cells) and elucidate a novel molecular mechanism (brain-lung correlation) of asthma pathogenesis.

Mitochondrial DNA Release Mechanism and Fibrosis Induced by Iron Metabolism in Idiopathic Pulmonary Fibrosis

Aging and smoking are risk factors for exacerbating idiopathic pulmonary fibrosis. Alveolar epithelial damage and subsequent epithelial-mesenchymal transition (EMT) in the repair process have been proposed as potential mechanisms underlying the pathogenesis of idiopathic pulmonary fibrosis but remain poorly explored.

Mitochondrial damage and iron metabolism are involved in EMT in the lung. Moreover, iron chelation was shown to inhibit lung fibrosis in a bleomycin-induced model of pulmonary fibrosis. In this study, the team plan to focus on mitochondrial DNA (mtDNA) as a second messenger regulating progressive lung fibrosis and elucidate the mechanism of extracellular mtDNA release by iron metabolism and fibrosis.

Identification of cancer antigen-specific autoantibodies in lung cancer.

Various autoantibodies have been detected in the sera of patients with cancer, among which cancer antigen-specific autoantibodies are suggested to negatively regulate anti-tumor immune responses. Using protein arrays that can solidify more than 20,000 proteins, the team have previously identified and selected several cancer-testis antigen-specific autoantibodies from serum samples of patients with lung cancer in the non-responder group as candidates for predicting therapeutic response. Importantly, the team aim to select the most appropriate therapy by identifying novel biomarkers in blood samples capable of predicting the therapeutic effect of immune checkpoint inhibitors.

PUBLICATION LIST 2022
Division of Respiratory Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Takahashi M, Mizumura K, Gon Y, Shimizu T, Kozu Y, Shikano S, Iida Y, Hikichi M, Okamoto S, Tsuya K, Fukuda A, Yamada S, Soda K, Hashimoto S, Maruoka S.	Iron-Dependent Mitochondrial Dysfunction Contributes to the Pathogenesis of Pulmonary Fibrosis	Frontiers in Pharmacology	2022;12:643980.	5.6
2	Gon Y, Maruoka S, Mizumura K.	Omalizumab and IgE in the Control of Severe Allergic Asthma.	Frontiers in Pharmacology	2022;13:839011.	5.6
3	Kodama K, Imai T, Asai Y, Kozu Y, Hayashi K, Shimizu T, Gon Y, Ootsuka S.	Incidence and risk factors for hyperkalaemia in patients treated for COVID-19 with nafamostat mesylate.	Journal of Clinical Pharmacy and Therapeutics	2022;47(7):1070-1078.	2.0
4	Suzuki R, Kamio N, Sugimoto K, Maruoka S, Gon Y, Kaneko T, Yonehara Y, Imai K.	Periodontopathic Bacterium Fusobacterium nucleatum Affects Matrix Metalloproteinase-9 Expression in Human Alveolar Epithelial Cells and Mouse Lung.	in vivo	2022;36(2):649-656.	2.3
5	Namkoong H, Edahiro R, Takano T, Hayashi K, Shimizu T, Kozu Y, Hiranuma H, Gon Y, Kanai T, Fukunaga K, Okada Y, et al.	DOCK2 is involved in the host genetics and biology of severe COVID-19	Nature	2022;609(7928): 754–760.	64.8
6	Wang QS, Edahiro R, Namkoong H, Hayashi K , Shimizu T, Kozu Y, Hiranuma H, Gon Y, Okada Y, et al.	The whole blood transcriptional regulation landscape in 465 COVID-19 infected samples from Japan COVID-19 Task Force	Nature Communications	2022;13(1):4830.	16.6
7	Iida Y, Nakanishi Y, Shimizu T, Nomoto M, Nakagawa Y, Ito R, Takahashi N, Masuda S, Gon Y.	Comprehensive genetic analysis of histological components of combined small cell carcinoma.	Thoracic Cancer	2022;13(16):2362-2370.	2.9
8	Murata N, Yamada A, Fujito H, Hashimoto N, Nagao T, Tanaka Y, Fukumoto K, Arai R, Wakamatsu Y, Ebuchi Y, Monden M, Kojima K, Hayashi K, Gon Y, Okumura Y.	Cardiovascular manifestations identified by multi-modality imaging in patients with long COVID	Frontiers in Cardiovascular Medicine	2022;9:968584.	3.6
9	Hayama K, Izaki S, Hayashi K, Kurosawa Y, Yamada S, Shimizu T, Gon Y, Fujita H.	A case of acute exacerbation of chronic spontaneous urticaria due to COVID-19 immediately after omalizumab administration	Postepy Dermatologii i Alergologii	2022;39(6):1171-1173.	1.4
10	Shaku F, Ishiburo M, Miwa M, Maruoka S.	Mental Health Status before and during the COVID-19 Pandemic in Patients First Visiting a Psychosomatic Internal Medicine Clinic in Tokyo, Japan	International Journal of Environmental Research and Public Health	2022;19(4):2488.	Not available
11	Nakagawa Y, Shinizu T, Hiranuma H, Gon Y.	Successful treatment of refractory brain metastases from ALK-positive lung cancer with lorlatinib	Thoracic Cancer	2022;13(9):1431-1435.	2.9
12	Takahashi N, Matsumoto T, Nakatsuka Y, Murase K, Tabara Y, Takeyama H, Minami T, Hamada S, Kanai O, Tanizawa K, Nakamoto I, Kawaguchi T, Setoh K, Tsutsumi T, Takahashi Y, Handa T, Wakamura T, Komenami N, Morita S, Hirai T, Matsuda F, Nakayama T, Chin K, Nagahama Study Group.	Differences between subjective and objective sleep duration according to actual sleep duration and sleep-disordered breathing: the Nagahama Study	Journal of Clinical Sleep Medicine	2022;18(3):851-859.	4.3

PUBLICATION LIST 2022
Division of Respiratory Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
13	Hamada S, Handa T, Tanabe N, Sato S, Tanizawa K, Sato A, Morita S, Chin K, Hirai T.	Evaluation of respiratory rate monitoring performance using a home oxygen monitoring device among patients with interstitial lung disease and chronic obstructive pulmonary disease	Sarcoidosis, Vasculitis and Diffuse Lung Diseases	2022;39(1):e2022007.	1.6
14	Kogo M, Sato S, Muro S, Matsumoto H, Nomura N, Tashima N, Oguma T, Sunadome H, Nagasaki T, Murase K, Kawaguchi T, Tabara Y, Matsuda F, Chin K, Hirai T.	Development of airflow limitation, dyspnoea, and both in the general population: the Nagahama study	Scientific Reports	2022;12(1):20060.	4.6
15	Eguchi K, Yabuuchi T, Nambu M, Takeyama H, Azuma S, Chin K, Kuroda T.	Investigation on factors related to poor CPAP adherence using machine learning: a pilot study	Scientific Reports	2022;12(1):19563.	4.6

Division of Cardiology

Chair and Professor, Yasuo Okumura, M.D., Ph.D.

Superior research saves human life

We aim to enhance research capabilities to clarify pathogenesis, pathophysiology of various cardiovascular diseases, and to develop novel diagnostic and therapeutic measures, by means of several imaging modalities and animal resources.

Ischemic heart disease and intravascular imaging

We are a member of the Tokyo CCU Network and have published several clinical studies based on our knowledge of intensive care with Impella and ECMO for cardiogenic shock and severe acute myocardial infarction. We have used a rapid technical expansion of intravascular imaging modalities such as intravascular ultrasound, optical coherence tomography, and angioscopy to observe the in-vivo status of the coronary artery. We are performing imaging of various tissue components including lipids, collagen fibers, calcified tissues, macrophages, and neo-microvessels to clarify the pathophysiological mechanism of acute coronary syndrome, in which coronary plaque, local thickening of the coronary arterial wall, results in a dramatic rupture toward the lumen.

Furthermore, our research interest is not only the coronary artery but also the aorta. Non-obstructive general angioscopy (NOGA) has emerged as a new method for evaluating atherosclerotic plaques in the aorta. NOGA allows for plaque characteristics of the aortic intima in vivo and visualizes the scattering debris of ruptured plaques which are cholesterol crystals. We are exploring aortic atherosclerosis detected by NOGA and the clinical events by conducting several multicenter observational studies.

Non-invasive Imaging

Ischemic indices derived from SPECT imaging provide plentiful evidence to predict a prognosis in patients with CAD. We perform approximately 1,400 nuclear cardiology diagnostic tests in a year, which allows us to obtain a lot of valuable data for prognostic prediction. On the basis of the accumulated prognostic database, we have published several articles about risk stratification of future cardiac events in patients with CAD.

Arrhythmia

Our major research project aims to elucidate the underlying mechanism of tachyarrhythmia, including atrial fibrillation, supraventricular tachycardia, and ventricular tachycardia through both preclinical animal and clinical studies. We have already developed the new diagnostic criteria for supraventricular tachycardia to diagnose orthodromic reciprocating tachycardia via a nodoventricular/nodofascicular pathway. Ongoing clinical research focuses on developing novel ablation strategies for atrioventricular nodal reentrant tachycardia and left ventricular summit-originating premature ventricular contractions. Collaborating with Nihon University's affiliated hospitals and medical institutions nationwide, we actively conduct multicenter studies on ablation catheter utility and arrhythmia epidemiology, driving evidence establishment in Japan.

Heart Failure

Our heart failure (HF) team is dedicated to providing comprehensive care for severe HF patients, closely collaborating with cardiac surgeons. Not only do we offer advanced ventricular support devices such as Impella and implantable ventricular assist devices as a bridge to heart transplantation, but we also provide a well-rounded care approach that includes cardiac rehabilitation and palliative care. Furthermore, our HF team is engaged in numerous clinical trials aiming to develop innovative treatment strategies that can improve the prognosis of HF patients and prevent HF deterioration. Some recent studies have shed new light on our practice. In one study, we investigated the benefits of early initiation of Dapagliflozin, a Sodium-glucose co-transporter-2 inhibitor, in patients hospitalized for acute HF. Our findings demonstrated that an early start of Dapagliflozin treatment was associated with a shorter hospital stay, suggesting a significant improvement in patient outcomes. Additionally, our team has been working with cutting-edge technology like machine learning and deep learning technology to advance our understanding of HF. For example, we used a deep learning approach to estimate the pulmonary arterial wedge pressure from chest radiographs in ADHF patients. In our commitment to continuously enhance HF care, we have been registering all patients admitted to our hospital with decompensated HF into the SAKURA HF registry. Through these efforts, we hope to elucidate the unique features of elderly HF patients, helping to avert a potential HF pandemic in our aging society in the near future.

PUBLICATION LIST 2022
Division of Cardiology

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1	Murata N, Fukamachi D, Matsumoto N, Tachibana E, Oiwa K, Matsumoto M, Kojima T, Ichikawa M, Nomoto K, Arima K, Okumura Y.	Clinical outcomes for intracoronary imaging strategies at different medical facilities in Japanese patients with coronary artery disease: the SAKURA imaging PCI Registry	Heart and Vessels	2022;37(1):12-21.	1.5
2	Otsuka N, Okumura Y, Kuorkawa S, Nagashima K, Wakamatsu Y, Hayashida S, Ohkubo K, Nakai T, Hao H, Takahashi R, Taniguchi Y.	Actual tissue temperature during ablation index-guided high-power short-duration ablation versus standard ablation: Implications in terms of the efficacy and safety of atrial fibrillation ablation.	Journal of Cardiovascular Electrophysiology	2022;33(1):55-63.	2.7
3	Watanabe R, Nagashima K, Wakamatsu Y, Otsuka N, Yokoyama K, Matsumoto N, Otsuka T, Suzuki S, Hirata A, Murakami M, Takami M, Kimura M, Fukaya H, Nakahara S, Kato T, Hayashi H, Iwasaki YK, Shimizu W, Nakajima I, Harada T, Koyama J, Okumura K, Tokuda M, Yamane T, Tanimoto K, Momiyama Y, Nonoguchi N, Soejima K, Ejima K, Hagiwara N, Harada M, Sonoda K, Inoue M, Kumagai K, Hayashi H, Yazaki Y, Satomi K, Watari Y, Okumura Y, AF Ablation Frontier Registry Investigators.	Different Determinants of the Recurrence of Atrial Fibrillation and Adverse Clinical Events in the Mid-Term Period After Atrial Fibrillation Ablation	Circulation Journal	2022;86(2):233-242	3.3
4	Daisuke Fukamachi , Yasuo Okumura , Masashi Tanaka	Dynamic pulmonary circulation without contrast media for an acute pulmonary thromboembolism	European Heart Journal-Cardiovascular Imaging	2022;23(5):e235.	6.3
5	Kojima K, Komatsu S, Kakuta T, Fukamachi D, Kimura S, Fujii H, Matsuura M, Dai K, Matsuoka H, Higuchi Y, Ueda Y, Asakura M, Yutani C, Okumura Y, Eikelboom JW, Hirayama A, Kodama K, EAST-NOGA study group.	Aortic plaque burden predicts vascular events in patients with cardiovascular disease: The EAST-NOGA study	Journal of Cardiology	2022;79(1):144-152.	2.5
6	Hayashida S, Nagashima K, Kurokawa S, Arai M, Watanabe R, Wakamatsu Y, Otsuka N, Yagyu S, Iso K, Okumura Y.	Modified ablation index: a novel determinant of a successful first-pass left atrial posterior wall isolation	Heart and Vessels	2022;37(5):802-811.	1.5
7	Miyagawa M, Yoda S, Arai R, Yasuo Okumura.	Enhanced Computed Tomography of Type 2 Myocardial Infarction	Internal medicine	2022;61(6):925-926.	1.2
8	Fujito H, Kitano D, Saito Y, Toyama K, Fukamachi D, Aizawa Y, Miyagawa M, Yoda S, Okumura Y.	Association between the health insurance status and clinical outcomes among patients with acute heart failure in Japan	Heart and Vessels	2022;37(1):83-90.	1.5
9	Wakamatsu Y, Nagashima K, Iso K, Sonoda K, Watanabe R, Arai M, Otsuka N, Hayashida S, Yagyu S, Hirata S, Kurokawa S, Ohkubo K, Nakai T, Okumura Y.	Resetting of atrial tachycardia by a scanned extrastimulus at a downstream site on a multielectrode catheter: a simple diagnostic maneuver for locating the macroreentrant atrial tachycardia circuit	Journal of Interventional Cardiac Electrophysiology	2022;63(1):39-47.	1.8
10	Kitano D, Migita S, Li Y, Takahashi R, Taniguchi Y, Kurosawa T, Sudo M, Haruta H, Hiro T, Takayama T, Mitsumata M, Matsumoto T, Okumura Y, Hirayama A.	Effect of Rivaroxaban and Clopidogrel Combination Therapy on In-Stent Responses After Everolimus-Eluting Stent Implantation in a Porcine Coronary Model	Journal of Atherosclerosis and Thrombosis	2022;29(1):69-81.	4.4
11	Saito Y, Nakai T, Ikeya Y, Kogawa R, Otsuka N, Wakamatsu Y, Kurokawa S, Ohkubo K, Nagashima K, Okumura Y.	Prognostic value of the MELD-XI score in patients undergoing cardiac resynchronization therapy	ESC Heart Failure	2022;9(2):1080-1089.	3.8

PUBLICATION LIST 2022
Division of Cardiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
12	Saito Y, Nakai T, Ikeya Y, Kogawa R, Otsuka N, Wakamatsu Y, Kurokawa S, Ohkubo K, Nagashima K, Okumura Y.	Clinical significance of the albumin-bilirubin score in patients with heart failure undergoing cardiac resynchronization therapy	Heart and Vessels	2022;37(7):1136-1145.	1.5
13	Arai R, Fukamachi D, Migita S, Miyagawa M, Ohgaku A, Koyama Y, Fujito H, Fukumoto K, Ebuchi Y, Monden M, Takei N, Tamaki T, Kojima K, Murata N, Iida K, Kitano D, Okumura Y.	Prognostic Significance of a Combination of Cardiogenic Shock and the Critical Culprit Lesion Location in ST-Elevation Myocardial Infarctions	International Heart Journal	2022;63(2):191-201.	1.5
14	Miyagawa M, Okumura Y, Fukamachi D, Fukuda I, Nakamura M, Yamada N, Takayama M, Maeda H, Yamashita Y, Ikeda T, Mo M, Yamazaki T, Hirayama A.	Clinical Implication of the Right Ventricular/Left Ventricular Diameter Ratio in Patients with Pulmonary Thromboembolismnt	International Heart Journal	2022;63(2):255-263.	1.5
15	Saito Y, Omae Y, Fukamachi D, Nagashima K, Mizobuchi S, Kakimoto Y, Toyotani J, Okumura Y.	Quantitative estimation of pulmonary artery wedge pressure from chest radiographs by a regression convolutional neural network	Heart and Vessels	2022;37(8):1387-1394.	1.5
16	Fujito H, Yoda S, Hatta T, Miyagawa M, Tanaka Y, Fukumoto K, Suzuki Y, Matsumoto N, Okumura Y.	Prognostic value of the normalization of left ventricular mechanical dyssynchrony after revascularization in patients with coronary artery disease	Heart and Vessels	2022;37(8):1395-1410.	1.5
17	Miyagawa M, Murata N, Katsunori Fukumoto K, Kojima K, Fukamachi D, Okumura Y.	Utility of Coronary Computed Tomography Angiography in Acute Coronary Syndrome Associated With Infectious Endocarditis	Circulation Journal	2022;86(11):1786.	3.3
18	Mizobuchi S, Saito Y, Fujito H, Miyagawa M, Kitano D, Toyama K, Fukamachi D, Okumura Y.	Prognostic importance of improving hepatorenal function during hospitalization in acute decompensated heart failure	ESC Heart Failure	2022;9(5):3113-3123.	3.8
19	Saito Y, Okumura Y, Nagashima K, Fukamachi D, Yokoyama K, Matsumoto N, Tachibana E, Kuronuma K, Oiwa K, Matsumoto M, Nishida T, Kojima T, Hanada S, Nomoto K, Sonoda K, Arima K, Takahashi F, Kotani T, Ohkubo K, Fukushima S, Itou S, Kondo K, Ando H, Ohno Y, Onikura M, Hirayama A.	Low alanine aminotransferase levels are independently associated with mortality risk in patients with atrial fibrillation.	Scientific Reports	2022;12(1):12183.	4.6
20	Ebuchi Y, Kojima K, Murata N, Fukamachi D, Okumura Y.	Serial Changes of Aortic Vulnerable Plaques Observed via Non-Obstructive General Angioscopy	International Heart Journal	2022;63(5):999-1003.	1.5
21	Murata N, Yamada A, Fujito H, Hashimoto N, Nagao T, Tanaka Y, Fukumoto K, Arai R, Wakamatsu Y, Ebuchi Y, Monden M, Kojima K, Hayashi K, Gon Y, Okumura Y.	Cardiovascular manifestations identified by multi-modality imaging in patients with long COVID.	Frontiers in Cardiovascular Medicine	2022;9:968584.	3.6
22	Fukamachi D, Okumura Y, Matsumoto N, Tachibana E, Oiwa K, Ichikawa M, Haruta H, Nomoto K, Arima K, Hirayama A.	Edoxaban Monotherapy in Nonvalvular Atrial Fibrillation Patients with Coronary Artery Disease.	Journal of Interventional Cardiology	2022;2022:5905022.	2.1
23	Naoki Hashimoto , Daisuke Kitano , Takehiro Tamaki , Yutaka Koyama , Akimasa Yamada , Kinta Hatakeyama , Hiroyuki Hao , Yasuo Okumura	Autopsy and Cardiac Magnetic Resonance Image Case of Bevacizumab-Related Cardiomyopathy.	Journal of cardiovascular development and disease	2022;9(7):208.	2.4

PUBLICATION LIST 2022
Division of Cardiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
24	Hayashida S, Nagashima K, Iso K, Okumura Y, Scheinman MM.	A troubling tachycardia	Heart Rhythm	2022;19(6):1031-1032.	5.5
25	Riku Arai , Nobuhiro Murata , Kosaku Kinoshita, Yasuo Okumura	Cardiotoxicity of Aconite Poisoning Evaluated by Multimodalities.	Circulation-Cardiovascular imaging	2022;15(8):e014143.	7.5
26	Sudo M, Shamekhi J, Sedaghat A, Aksoy A, Zietzer A, Tanaka T, Wilde N, Weber M, Sinning J-M, Grube E, Veulemans V, Adam M, Kelm M, Baldus S, Nickenig G, Zimmer S, Tiyerili V, Al-Kassou B.	Predictive value of the Fibrosis-4 index in patients with severe aortic stenosis undergoing transcatheter aortic valve replacement	Clinical research in cardiology	2022;111(12):1367-1376.	5.0
27	Sudo M, Sugiura A, Treiling L, Al-Kassou B, Shamekhi J, Kütting D, Wilde N, Weber M, Zimmer S, Nickenig G, Sedaghat A.	Baseline PA/BSA ratio in patients undergoing transcatheter aortic valve replacement - A novel CT-based marker for the prediction of pulmonary hypertension and outcome	International journal of cardiology	2022;348:26-32.	3.5
28	Sugai S, Matsumoto N, Makita A, Kuronuma K, Suzuki Y, Yoda S, Okumura Y, Amano Y.	Clinical Utility of a Slow 201Tl Washout Rate in the Detection of Multi-Vessel Coronary Artery Disease Using a Simultaneous Acquisition Rest 99 mTc/Stress 201Tl Protocol and a Semiconducting Gamma Camera.	Circulation Journal	2022;86(9):1409-1415.	3.3
29	Suzuki Y, Matsumoto N, Yoda S, Amano Y, Okumura Y.	Coronary artery calcium score: Current status of clinical application and how to handle the results	Journal of Cardiology	2022;79(5):567-571.	2.5
30	Akutsu N, Hori K, Mizobuchi S, Ogaku A, Koyama Y, Fujito H, Arai R, Ebuchi Y, Migita S, Morikawa T, Tamaki T, Kojima K, Murata N, Nishida T, Kitano D, Fukamachi D, Okumura Y.	Clinical Importance of the LDL-C/Apolipoprotein B Ratio for Neointimal Formation after Everolimus-Eluting Stent Implantations	Journal of Atherosclerosis and Thrombosis	2022;29(4):536-550.	4.4
31	Fujito H, Fukamachi D, Akutsu N, Saito Y, Okumura Y.	Myocardial Ischemia due to Rapid Atrial Fibrillation Revealed Using the Instantaneous Wave-Free Ratio.	International Heart Journal	2022;63(1):147-152.	1.5
32	Fukamachi D,Okumura Y, Fukuda I, Nakamura M, Yamada N, Takayama M, Maeda H, Yamashita T, Ikeda T, Mo M, Yamazaki T, Hirayama A, J'xactly Investigators.	Characteristics and clinical outcomes of Japanese patients with venous thromboembolism receiving under-dose rivaroxaban: subanalysis of J'xactly.	Current Medical Research and Opinion	2022;38(7):1059-1068.	2.3
33	Fukamachi D, Yamada A, Ohgaku A, Koyama Y, Fujito H, Arai R, Ebuchi Y, Migita S, Morikawa T, Monden M, Takei N, Tamaki T, Kojima K, Akutsu N, Murata N, Saito Y, Daisuke Kitano D, Sudo M, Okumura Y.	Protective effect of the Impella on the left ventricular function after acute broad anterior wall ST elevation myocardial infarctions with cardiogenic shock: cardiovascular magnetic resonance imaging strain analysis.	BMC Cardiovascular Disorders	2022;22(1):201.	2.1
34	Tani S, Imatake K, Suzuki Y, Yagi T, Takahashi A, Matsumoto N, Okumura Y.	Combined higher frequency fish consumption and healthy lifestyle may lower the triglyceride/HDL-C ratio in middle-aged Japanese males: Anti-atherosclerotic effect of fish consumption.	Annals of Nutrition and Metabolism	2022;78(3):166-176.	3.9

PUBLICATION LIST 2022
Division of Cardiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
35	Usuda K, Kato T, Tsuda T, Tada H, Niwa S, Usui S, Sakata K, Hayashi K, Furusho H, Kawashiri M, Takamura M, Otsuka T, Suzuki S, Hirata A, Murakami M, Takami M, Kimura M, Fukaya H, Nakahara S, Shimizu W, Iwasaki YK, Hayashi H, Harada T, Nakajima I, Okumura K, Koyama J, Tokuda M, Yamane T, Momiyama Y, Tanimoto K, Soejima K, Nonoguchi N, Ejima K, Hagiwara N, Harada M, Sonoda K, Inoue M, Kumagai K, Hayashi H, Satomi K, Yazaki Y, Watari Y, Arai M, Watanabe R, Yokoyama K, Matsumoto N, Nagashima K, Okumura Y, on behalf of the AF Ablation Frontier Registry.	Impact of sinus rhythm maintenance on major adverse cardiac and cerebrovascular events after catheter ablation of atrial fibrillation: insights from AF frontier ablation registry.	Heart and Vessels	2022;37(2):327-336.	1.5
36	Nakai T, Ikeya Y, Kogawa R, Okumura Y	Cardiac resynchronization therapy: Current status and near-future prospects.	Journal of Cardiology	2022;79(3):352-357.	2.5
37	Asakura M, Hibi K, Shimizu W, Fujii K, Suwa S, Okumura Y, Mano T, Igeta M, Okamoto R, Ishihara M.	Design and rationale of the EVOCATION trial: A prospective, randomized, exploratory study comparing the effect of evolocumab on coronary microvascular function after percutaneous coronary intervention in patients with stable coronary artery disease.	Journal of Cardiology	2022;79(1):105-109.	2.5
38	Aizawa Y, Nakai T, Ikeya Y, Kogawa R, Saito Y, Toyama K, Yumikura T, Otsuka N, Nagashima K, Okumura Y.	AV timing in pacemaker patients with first-degree AV block: which is preferable, intrinsic AV conduction or pacing?	Heart and Vessels	2022;37(8):1411-1417.	1.5
39	Ebuchi Y, Nagaoka T, Fukamachi D, Kojima K, Akutsu N, Murata N, Saito Y, Kitano D, Yokota H, Yamagami S, Okumura Y.	Comprehensive assessment of systemic arteriosclerosis in relation to the ocular resistive index in acute coronary syndrome patients.	Scientific Reports	2022;12(1):2321.	4.6
40	Ono K, Iwasaki YK, Akao M, Ikeda T, Ishii K, Inden Y, Kusano K, Kobayashi Y, Koretsune Y, Sasano T, Sumitomo N, Takahashi N, Niwano S, Hagiwara N, Hisatome I, Furukawa T, Honjo H, Maruyama T, Murakawa Y, Yasaka M, Watanabe E, Aiba T, Amino M, Itoh H, Ogawa H, Okumura Y, Aoki-Kamiya C, Kishihara J, Kodani E, Komatsu T, Sakamoto Y, Satomi K, Shiga T, Shinohara T, Suzuki A, Suzuki S, Sekiguchi Y, Nagase S, Hayami N, Harada M, Fujino T, Makiyama T, Maruyama M, Miake J, Muraji S, Murata H, Morita N, Yokoshiki H, Yoshioka K, Yodogawa K, Inoue H, Okumura K, Kimura T, Tsutsui H, Shimizu W, Japanese Circulation Society and Japanese Heart Rhythm Society Joint Working Group.	JCS/JHRS 2020 Guideline on Pharmacotherapy of Cardiac Arrhythmias.	Circulation Journal	2022;86(11):1790-1924.	3.3
41	Matsuo R, Tani S, Matsumoto N, Okumura Y.	Assessment of sex differences in associations between sleep duration and lipid/glucose metabolism in urban Japan: a cross-sectional study.	Heart and Vessels	2022;37(9):1583-1595.	1.5
42	Watanabe M, Aonuma K, Murohara T, Okumura Y, Morimoto T, Okada S, Nakamura S, Uemura S, Kuwahara K, Takayama T, Doi N, Nakajima T, Horii M, Ishigami K, Nomoto K, Abe D, Oiwa K, Tanaka K, Koyama T, Sato A, Ueda T, Soeda T, Saito Y, PREVENT CINC-J Investigators.	Prevention of Contrast-Induced Nephropathy After Cardiovascular Catheterization and Intervention With High-Dose Strong Statin Therapy in Japan - The PREVENT CINC-J Study.	Circulation Journal	2022;86(9):1455-1463.	3.3

PUBLICATION LIST 2022
Division of Cardiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
43	Tani S, Imatake K, Suzuki Y, Yagi T, Takahashi A, Matsumoto N, Okumura Y.	The Frequency and Amount of Fish Intake Are Correlated with the White Blood Cell Count and Aerobic Exercise Habit: A Cross-sectional Study.	Internal medicine	2022;61(11):1633-1643.	1.2
44	Tani S, Atsumi W, Imatake K, Suzuki Y, Yagi T, Takahashi A, Matsumoto N, Okumura Y.	Associations of higher fish consumption and lifestyle with lower monocyte/HDL-C ratio in a Japanese population: Implication for the anti-atherosclerotic effect of fish consumption.	Journal of Cardiology	2022;80(5):402-409.	2.5
45	Ishihara M, Asakura M, Hibi K, Okada K, Shimizu W, Takano H, Suwa S, Fujii K, Okumura Y, Mano T, Tsujita K, Igeta M, Okamoto R, Suna S.	Evolocumab for prevention of microvascular dysfunction in patients undergoing percutaneous coronary intervention: the randomised, open-label EVOCATION trial.	EuroIntervention	2022;18(8):e647-e655.	6.2
46	Iso T, Matsue Y, Mizukami A, Tokano T, Isoda K, Suwa S, Miyauchi K, Yanagisawa N, Okumura Y, Minamino T.	Daprodustat for anaemia in patients with heart failure and chronic kidney disease: A randomized controlled study.	ESC Heart Failure	2022;9(6):4291-4297.	3.8
47	Yamashita T, Fukuda I, Nakamura M, Yamada N, Takayama M, Maeda H, Ikeda T, Mo M, Yamazaki T, Okumura Y, Hirayama A, J'xactly Investigators.	Clinical Outcome After Discontinuation of Anticoagulation Therapy in Japanese Patients With Venous Thromboembolism - Insights From the J'xactly Study.	Circulation Reports	2022;4(8):371-377.	Not available
48	Fukamachi D, Okumura Y.	Giant Coronary-Artery Aneurysm.	New England Journal of Medicine.	2022;387(11):e23.	158.5
49	Watanabe R, Okumura Y.	What Are the Optimal Anticoagulation Strategies Before, During, and After Catheter Ablation of Atrial Fibrillation?	Circulation Journal	2022;87(1):63-64.	3.3
50	Tani S, Imatake K, Suzuki Y, Yagi T, Takahashi A, Matsumoto N, Okumura Y.	Inadequate sleep duration may attenuate the anti-inflammatory effects of fish consumption in a healthy Japanese population: A cross-sectional study.	British Journal of Nutrition	2022;129(12):1-11.	3.6
51	Matsumoto N, Suzuki Y, Okumura Y.	Myocardial scar reduction after cardiac resynchronization therapy assessed by gated myocardial perfusion SPECT.	Journal of Nuclear Cardiology	2022;29(5):2580-2582.	2.4
52	Iida K, Hiro T, Fukamachi D, Sudo M, Nishida T, Akutsu N, Murata N, Kogo T, Kojima K, Mineki T, Tamaki T, Migita S, Morikawa T, Okumura Y.	Three-Dimensional Fluid Dynamical Features of Coronary Plaque Rupture Provoking Acute Coronary Syndrome.	Journal of Atherosclerosis and Thrombosis	2022;29(4):464-473.	4.4
53	Akutsu N, Hori K, Mizobuchi S, Ogaku A, Koyama Y, Fujito H, Arai R, Ebuchi Y, Migita S, Morikawa T, Tamaki T, Kojima K, Murata N, Nishida T, Kitano D, Fukamachi D, Okumura Y.	Clinical Importance of the LDL-C/Apolipoprotein B Ratio for Neointimal Formation after Everolimus-Eluting Stent Implantations.	Journal of Atherosclerosis and Thrombosis	2022;29(4):536-550.	4.4
54	Suzuki Y, Matsumoto N, Sugai S, Makita A, Yumikura T, Yoda S, Amano Y, Okumura Y.	Relationship Among Coronary Artery Calcium Score, Myocardial Perfusion SPECT and Risk Stratification of Coronary Artery Disease.	Annals of Nuclear Cardiology	2022;8(1):113-116.	Not available
55	Sugai S, Matsumoto N, Makita A, Kuronuma K, Suzuki Y, Yoda S, Okumura Y, Amano Y.	A Pitfall of Simultaneous Acquisition Stress 201Tl/rest 99mTc Dual-isotope Myocardial Perfusion Single-photon Emission Computed Tomography with a Semiconductor Gamma Camera.	Annals of Nuclear Cardiology	2022;8(1):120-122.	Not available

PUBLICATION LIST 2022
Division of Cardiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
56	Suzuki Y, Matsumoto N, Yoda S, Amano Y, Okumura Y.	Optimal Protocol of Myocardial Perfusion Imaging for Reduction of Radiation Exposure.	Annals of Nuclear Cardiology	2022;8(1):109-112.	Not available
57	Kuronuma K, Yagi T, Sugai S, Hayashida S, Iso K, Iida K, Atsumi W, Tachibana E, Kunimoto S, Suzuki Y, Tani S, Matsumoto N, Okumura Y, Sakatani K.	Effect of Atorvastatin on Microcirculation Evaluated by Vascular Occlusion Test with Peripheral Near-Infrared Spectroscopy.	Advances in Experimental Medicine and Biology	2022;1395:351-356.	Not available
58	Hirata M, Nagashima K, Watanabe R, Wakamatsu Y, Otsuka N, Hayashida S, Hirata S, Sawada M, Kurokawa S, Okumura Y.	Novel "red-bull sign" during cavotricuspid isthmus ablation: Indication of an ablation catheter stuck in the subeustachian pouch.	Journal of Arrhythmia	2022;38(6):1028-1034.	2.0
59	Matsunaga Y, Fukamachi D, Okumura Y, Matsumoto N.	ST-elevation myocardial infarction after COVID-19 infection in a young man with Kawasaki disease.	Clinical Case Reports	2022;10(11):e6526.	0.7
60	Fukamachi D, Okumura Y.	Growing giant coronary artery aneurysm.	European Heart Journal	2022;43(48):5065.	39.3
61	Okumura Y	ABC Pathway: A Pivotal Strategy for the Integrated Care Management of Atrial Fibrillation.	JACC Asia	2022;2(4):430-432.	Not available
62	Hisatake S, Ikeda T, Fukuda I, Nakamura M, Yamada N, Takayama M, Maeda H, Yamashita T, Mo M, Yamazaki T, Okumura Y, Hirayama A, J'xactly Investigators.	Rivaroxaban Treatment for Patients With Unprovoked or Provoked Venous Thromboembolism - Subanalysis of the J'xactly Study.	Circulation Reports	2022;4(10):490-498.	Not available
63	Sasa Y, Nakai T, Ikeya Y, Kogawa R, Otsuka N, Kurokawa S, Nagashima K, Iida K, Okumura Y, Kunimoto S.	Bradyarrhythmia Suspected to be Associated with Sleep Apnea Syndrome.	International Heart Journal	2022;63(2):393-397.	1.5
64	Sawada M, Nagashima K, Wakamatsu Y, Otsuka N, Hayashida S, Hirata S, Hirata M, Kurokawa S, Okumura Y.	Successful bailout of complications during hot balloon ablation.	Heart Rhythm Case Reports	2022 Aug 12;8(11):748-751.	Not available

Division of Gastroenterology and Hepatology

Chair and Professor, Hirofumi Kogure, M.D., Ph.D.

Compassionate Gastroenterologists with Exceptional Skills and Scientific Minds

Dr. Hirofumi Kogure graduated from the University of Tokyo, receiving an M.D. degree in 2001, and subsequently earned a Ph.D. from the Graduate School of Medicine at the University of Tokyo in 2009. His clinical and research interests include therapeutic ERCP, interventional EUS, biliary stenting, and benign biliary diseases such as biliary stones, acute cholangitis, and benign biliary strictures. He is especially an expert in double-balloon endoscope-assisted ERCP.

In the pancreaticobiliary field, we have extensive experience providing advanced endoscopic treatment for patients difficult to treat with standard procedures, such as ERCP using a balloon endoscope and transluminal drainage and stone therapy using EUS for cases with surgically altered anatomy.

In the gastrointestinal field, we perform curative endoscopic treatments such as endoscopic submucosal dissection (ESD) for neoplasms in the esophagus, stomach, or colon. We also perform metal stent placements to alleviate malignant gastrointestinal obstructions. Additionally, we utilize double-balloon endoscopy and capsule endoscopy to examine the entire small intestine comprehensively.

In the liver field, our multidisciplinary approach encompasses hepatocellular carcinoma treatments like radiofrequency ablation, hepatic arterial chemoembolization, molecular target drugs, as well as endoscopic and interventional radiology procedures for esophagogastric varices. Furthermore, we employ ultrasound elastography to diagnose fatty liver disease progression.

We actively accommodate emergencies, including gastrointestinal bleeding, intestinal obstruction, acute cholangitis/cholecystitis, and acute pancreatitis. Additionally, we collaborate closely with digestive surgeons to ensure seamless care for patients with gastrointestinal cancer.

Biliary Tract and Pancreas

We are developing biomarkers related to prognostic factors for pancreatic and biliary tract cancer as translational research and building early diagnosis of pancreatic cancer in collaboration with other departments and the community. We are also involved in the JCOG Hepatobiliary and Pancreatic Oncology Group and JON-HBP (Japan Oncology Network in Hepatobiliary and Pancreas), aiming to develop pancreatic and biliary tract cancer treatments. We also actively participate in joint research with other centers on malignant biliary obstruction and acute pancreatitis. We work on developing endoscopes and devices for safer and more reliable pancreaticobiliary endoscopic treatment.

Gastrointestinal Tract

We analyze the characteristics of early gastric cancer according to different periods in a large cohort of patients undergoing ESD. Additionally, we actively participate in several multicenter studies, including a physician-initiated clinical trial assessing the efficacy and safety of a novel sedative for gastrointestinal endoscopic procedures.

Liver

We are conducting basic research on hepatitis viruses, chronic liver diseases and hepatocarcinogenesis. We are also investigating the prevention, pathophysiology and treatment of viral hepatitis caused by oral infection. We are developing an artificial intelligence-based diagnostic support system for non-alcoholic steatohepatitis.

We strive to provide the latest and most advanced clinical practices, leveraging extensive patient data, particularly for those afflicted with malignant diseases. Moreover, our goal is to explore novel facets of illnesses and develop innovative strategies through clinical, basic, and epidemiological studies in our area.

PUBLICATION LIST 2022
Division of Gastroenterology and Hepatology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kobayashi K, Ogasawara S, Takahashi A, Seko Y, Unozawa H, Sato R, Watanabe S, Moriguchi M, Morimoto N, Tsuchiya S, Iwai K, Inoue M, Ogawa K, Ishino T, Iwanaga T, Sakuma T, Fujita N, Kanzaki H, Koroki K, Nakamura M, Kanogawa N, Kiyono S, Kondo T, Saito T, Nakagawa R, Suzuki E, Ooka Y, Nakamoto S, Tawada A, Chiba T, Arai M, Kanda T, Maruyama H, Nagashima K, Kato J, Isoda N, Aramaki T, Itoh Y, Kato N.	Evolution of Survival Impact of Molecular Target Agents in Patients with Advanced Hepatocellular Carcinoma.	Liver Cancer	2022;11(1):48-60.	13.8
2	Mizutani T, Nirei K, Kanda T, Honda M, Ishii T, Arima S, Yamana Y, Matsumoto N, Matsuoka S, Moriyama M.	Left Gastric Vein Width Is an Important Risk Factor for Exacerbation of Esophageal Varices Post Balloon-Occluded Retrograde Transvenous Obliteration for Gastric Varices in Cirrhotic Patients.	Medicina	2022;58(2):205.	2.6
3	Tan PO, Soh AYS, Kusano C, Lee YY, Gotoda T.	Is There an Increasing Incidence of Gastroesophageal Junctional Adenocarcinoma and Barrett Esophagus in Asia? A Review of Diagnostic Conundrums.	Digestion	2022;103(1):37-44.	3.2
4	Suzuki S, Kusano C, Horii T, Ichijima R, Ikehara H.	The Ideal Helicobacter pylori Treatment for the Present and the Future.	Digestion	2022;103(1):62-68.	3.2
5	Hatta W, Gotoda T, Koike T, Uno K, Asano N, Imatani A, Masamune A.	Is Additional Gastrectomy Required for Elderly Patients after Endoscopic Submucosal Dissection with Endoscopic Curability C-2 for Early Gastric Cancer?	Digestion	2022;103(1):83-91.	3.2
6	Gotoda T.	Paradigm Shift in Recent Perspectives on Gastric Cancer.	Digestion	2022;103(1):5-6.	3.2
7	Sasaki-Tanaka R, Shibata T, Okamoto H, Moriyama M, Kanda T.	Favipiravir Inhibits Hepatitis A Virus Infection in Human Hepatocytes.	International Journal of Molecular Sciences	2022;23(5):2631.	5.6
8	Esaki M, Tamura Y, Ichijima R, Suzuki S, Iwamoto M, Minoda Y, Moriyama M, Gotoda T.	Efficacy and timing of gastrografin administration after ileus tube insertion in patients with adhesive small bowel obstruction.	Arab Journal of Gastroenterology	2022;23(1):45-51.	1.4
9	Iwamoto M, Kato K, Kusumi Y, Masuda S, Nakayama T, Moriyama M.	Celiac Disease Diagnosed after Gastrectomy for Gastric Cancer.	Internal Medicine	2022;61(3):323-328.	1.2
10	Hagiwara K, Ichijima R, Gotoda T, Yamashita H.	Timing of Kocher maneuver in laparoscopic endoscopic cooperative surgery for duodenum tumor: Before or after endoscopic submucosal dissection?	Endoscopy International Open	2022;10(2):E224-E225.	2.6
11	Ishii T, Hoshino K, Honda M, Yamana Y, Sasaki-Tanaka R, Kumagawa M, Kanezawa S, Mizutani T, Matsumoto N, Masuzaki R, Nirei K, Yamagami H, Moriyama M, Kanda T.	A Case of Recent Liver Injury Induced by Benzbromarone.	Reports	2022;5(1):8.	0.9

PUBLICATION LIST 2022
Division of Gastroenterology and Hepatology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
12	Suzuki S, Ikehara H, Gotoda T.	Should large sessile serrated lesions be treated with cold snare polypectomy?	Digestive Endoscopy	2022;34(3):485-487.	5.5
13	Esaki M, Yamakawa S, Ichijima R, Suzuki S, Kusano C, Ikehara H, Minoda Y, Ihara E, Gotoda T.	Self-completion method of endoscopic submucosal dissection using the Endosaber for treating colorectal neoplasms (with video).	Scientific Reports	2022;12(1):5821.	4.6
14	Nishida N, Yamakawa M, Shiina T, Mekada Y, Nishida M, Sakamoto N, Nishimura T, Iijima H, Hirai T, Takahashi K, Sato M, Tateishi R, Ogawa M, Mori H, Kitano M, Toyoda H, Ogawa C, Kudo M, JSUM A. I. investigators.	Artificial intelligence (AI) models for the ultrasonographic diagnosis of liver tumors and comparison of diagnostic accuracies between AI and human experts.	Journal of Gastroenterology	2022;57(4):309-321.	6.3
15	Esaki M, Maehara R, Nagatomo S, Nishioka K, Minoda Y, Ogino H, Ihara E.	Application of traction-method to hybrid endoscopic submucosal dissection for gastrointestinal tumors.	Endoscopy	2022;54(4):E160-E161.	9.3
16	Kudo Y, Kudo S, Miyachi H, Ichimasa K, Ogawa Y, Kouyama Y, Sakurai T, Ikeda M, Saito Y, Kamada T, Gotoda T.	Changes in halitosis value before and after Helicobacter pylori eradication: A single-institutional prospective study.	Journal of Gastroenterology and Hepatology	2022;37(5):928-932.	4.1
17	Ogawa K, Kanzaki H, Chiba T, Ao J, Qiang N, Ma Y, Zhang J, Yumita S, Ishino T, Unozawa H, Kan M, Iwanaga T, Nakagawa M, Fujiwara K, Fujita N, Sakuma T, Koroki K, Kusakabe Y, Kobayashi K, Kanogawa N, Kiyono S, Nakamura M, Kondo T, Saito T, Nakagawa R, Ogasawara S, Suzuki E, Nakamoto S, Muroyama R, Kanda T, Maruyama H, Mimura N, Kato J, Motohashi S, Kato N.	Effect of Atezolizumab plus Bevacizumab in Patients with Hepatocellular Carcinoma Harboring CTNNB1 Mutation in Early Clinical Experience.	Journal of Cancer	2022;13(8):2656-2661.	3.9
18	Sasaki-Tanaka R, Nagulapalli Venkata KC, Okamoto H, Moriyama M, Kanda T.	Evaluation of Potential Anti-Hepatitis A Virus 3C Protease Inhibitors Using Molecular Docking.	International Journal of Molecular Sciences	2022;23(11):6044.	5.6
19	Masuzaki R, Kanda T, Sasaki R, Matsumoto N, Nirei K, Ogawa M, Karp SJ, Moriyama M, Kogure H.	Suppressors of Cytokine Signaling and Hepatocellular Carcinoma.	Cancers	2022;14(10):2549.	5.2
20	Gotoda T, Ono H.	Stomach: Endoscopic resection for early gastric cancer.	Digestive Endoscopy	2022;34 Suppl 2:58-60.	5.5
21	Kanda T, Sasaki-Tanaka R, Nakamoto S.	Hepatitis A Virus Infection and Molecular Research.	International Journal of Molecular Sciences	2022;23(13):7214.	5.6
22	Kanzaki H, Chiba T, Kaneko T, Ao J, Kan M, Muroyama R, Nakamoto S, Kanda T, Maruyama H, Kato J, Zen Y, Kotani A, Sekiba K, Otsuka M, Ohtsuka M, Kato N.	The RNA-Binding Protein ELAVL1 Regulates Hepatitis B Virus Replication and Growth of Hepatocellular Carcinoma Cells.	International Journal of Molecular Sciences	2022;23(14):7878.	5.6
23	Matsumoto N, Ogawa M, Kaneko M, Arima S, Kumagawa M, Watanabe Y, Hirayama M, Masuzaki R, Kanda T, Moriyama M.	Contrast-enhanced ultrasonography for blood flow detection in hepatocellular carcinoma during lenvatinib therapy.	Journal of Medical Ultrasonics	2022;49(3):425-432.	1.8

PUBLICATION LIST 2022
Division of Gastroenterology and Hepatology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
24	Ikegami C, Kanda T, Ishii T, Honda M, Yamana Y, Tanaka RS, Kumagawa M, Kanezawa S, Mizutani T, Yamagami H, Matsumoto N, Masuzaki R, Hayashi K, Nirei K, Takayama T, Moriyama M.	COVID-19 After Treatment With Direct-acting Antivirals for HCV Infection and Decompensated Cirrhosis: A Case Report.	In Vivo	2022;36(4):1986-1993.	2.3
25	Ogura K, Ichijima R, Ikehara H.	Traction-assisted endoscopic submucosal dissection for esophageal neoplasms using a novel traction device.	Digestive Endoscopy	2022;34(5):103-104.	5.5
26	Kogure H, Nakai Y, Fujishiro M.	How should needle tract seeding be addressed in endoscopic ultrasound-guided fine-needle aspiration?	Digestive Endoscopy	2022;34(5):958-959.	5.5
27	Ikehara H, Kusano C, Gotoda T.	Magnifying chromoendoscopy or image enhanced endoscopy with magnification?	Digestive Endoscopy	2022;34(5):963-964.	5.5
28	Kanda T, Sasaki-Tanaka R, Ishii T, Abe H, Ogawa M, Enomoto H.	Acute Liver Failure and Acute-on-Chronic Liver Failure in COVID-19 Era.	Journal of Clinical Medicine	2022;11(14):4249.	3.9
29	Korenaga M, Murata K, Izumi N, Tamaki N, Yokosuka O, Takehara T, Sakamoto N, Suda G, Nishiguchi S, Enomoto H, Ikeda F, Yanase M, Toyoda H, Genda T, Umemura T, Yatsuhashi H, Yamasaki K, Ide T, Toda N, Kanda T, Nirei K, Ueno Y, Haga H, Nishigaki Y, Nakane K, Omata M, Mochizuki H, Aoki Y, Imamura M, Kanto T, Mizokami M.	No increased risk of hepatocellular carcinoma after eradication of hepatitis C virus by direct-acting antivirals, compared with interferon-based therapy.	Global Health & Medicine	2022;4(4):216-224.	2.6
30	Sugano K, Spechler SJ, El-Omar EM, McColl KEL, Takubo K, Gotoda T, Fujishiro M, Iijima K, Inoue H, Kawai T, Kinoshita Y, Miwa H, Mukaisho KI, Murakami K, Seto Y, Tajiri H, Bhatia S, Choi MG, Fitzgerald RC, Fock KM, Goh KL, Ho KY, Mahachai V, O'Donovan M, Odze R, Peek R, Rugge M, Sharma P, Sollano JD, Vieth M, Wu J, Wu MS, Zou D, Kaminishi M, Malfertheiner P.	Kyoto international consensus report on anatomy, pathophysiology and clinical significance of the gastro-oesophageal junction.	Gut	2022;71(8):1488-1514.	24.5
31	Zhang L, Jiang X, Wang G, Kanda T, Yokosuka O, Zhai C, Zhang L, Liu P, Zhao Z, Li Z.	Effects of Let-7c on the processing of hepatitis B virus associated liver diseases.	Infectious Agents and Cancer	2022;17(1):46.	3.7
32	Sasaki-Tanaka R, Shibata T, Moriyama M, Okamoto H, Kogure H, Kanda T.	Amantadine and Rimantadine Inhibit Hepatitis A Virus Replication through the Induction of Autophagy.	Journal of Virology	2022;96(18):e0064622.	5.4
33	Iwao A, Ichijima R, Ikehara H.	Usefulness of the "elastic traction device" in gastric endoscopic submucosal dissection.	Digestive Endoscopy	2022;34(6):e139-e140.	5.5
34	Sasaki-Tanaka R, Ray R, Moriyama M, Ray RB, Kanda T.	Molecular Changes in Relation to Alcohol Consumption and Hepatocellular Carcinoma.	International Journal of Molecular Sciences	2022;23(17):9679.	5.6

PUBLICATION LIST 2022
Division of Gastroenterology and Hepatology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
35	Kuniyoshi N, Imazu H, Nomura S, Hamana S, Osawa R, Yamada K, Fujisawa M, Moriyama M.	Endoscopic biliary drainage using a 4-Fr catheter for biliary obstruction: a pilot study.	Minimally Invasive Therapy & Allied Technologies	2022;31(7):1035-1040.	1.7
36	Fukuda K, Nakai Y, Mizuno S, Sato T, Noguchi K, Kanai S, Suzuki T, Hakuta R, Ishigaki K, Saito K, Saito T, Takahara N, Hamada T, Kogure H, Fujishiro M.	Endoscopic Bridge-and-Seal of Bile Leaks Using a Fully Covered Self-Expandable Metallic Stent above the Papilla.	Journal of Clinical Medicine	2022;11(20):6019.	3.9
37	Ichijima R, Ikehara H, Maeda T, Sugita T, Horii T, Iwao A, Ogura K, Kusano C, Kondo Y, Suzuki T, Gotoda T.	First dose-ranging study of remimazolam in Japanese patients undergoing gastrointestinal endoscopy: Phase II investigator-initiated clinical trial.	Digestive Endoscopy	2022;34(7):1403-1412.	5.5
38	Moriyama M, Kanda T, Midorikawa Y, Matsumura H, Masuzaki R, Nakamura H, Ogawa M, Matsuoka S, Shibata T, Yamazaki M, Kuroda K, Nakayama H, Higaki T, Kanemaru K, Miki T, Sugitani M, Takayama T.	The proliferation of atypical hepatocytes and CDT1 expression in noncancerous tissue are associated with the postoperative recurrence of hepatocellular carcinoma.	Scientific Reports	2022;12(1):20508.	4.6
39	Kusano C, Singh R, Lee YY, Soh YSA, Sharma P, Ho KY, Gotoda T.	Global variations in diagnostic guidelines for Barrett's esophagus.	Digestive Endoscopy	2022;34(7):1320-1328.	5.5
40	Nasu T, Esaki M, Shoguchi Y, Bai X, Minoda Y, Ogino H, Ihara E.	Application of intralesional traction assistance with traction wire to endoscopic submucosal dissection for colorectal neoplasms.	Endoscopy	2022;54(S 02):E784-E785.	9.3
41	Shoguchi Y, Esaki M, Minoda Y, Bai X, Ogino H, Ihara E, Ogawa Y.	Innovative endoscopic submucosal dissection for early gastric neoplasm using intralesional traction and snaring techniques.	Endoscopy	2022;54(S 02):E865-E866.	9.3
42	Kanda T, Matsumoto N, Ishii T, Arima S, Shibuya S, Honda M, Sasaki-Tanaka R, Masuzaki R, Kanezawa S, Ogawa M, Yamazaki S, Aramaki O, Kogure H, Okamura Y.	Liver Transplantation from a Human Leukocyte Antigen-Matched Sibling Donor: Effectiveness of Direct-Acting Antiviral Therapy against Hepatitis C Virus Infection.	Reports	2022;5(4):49.	0.9

Division of Neurology

Chair and Professor, Hideto Nakajima, M.D., Ph.D.

Do More Science !

My name is Hideto Nakajima, Professor of Neurology. I have been conducting pathophysiological analyses and animal experiments on central nervous system (CNS) herpes simplex virus infections in neuroinfectious diseases, as well as clinical and basic research on immune-related neurological diseases, including multiple sclerosis and neuromyelitis optica. Additionally, I conduct clinical research on amyotrophic lateral sclerosis and spinal and bulbar muscular atrophy.

In recent years, the pathophysiology of autoimmune encephalitis, such as anti-NMDA receptor encephalitis, has been elucidated. We have established a system for comprehensive analysis of neuronal cell surface antibodies, including anti-NMDA receptor antibodies, by tissue-based assays and cell-based assays using frozen rat brain sections and primary hippocampal cultured cells. Our aim is to establish an algorithm for treatment and outcome evidence.

・Neuroimmune diseases: Leading a multicenter study to establish a rapid screening method for anti-neural antibodies in patients with autoimmune encephalitis, studying the clinical presentation and pathophysiology of autoimmune encephalitis as well as autoimmune encephalitis secondary to infectious encephalitis, conducting clinical and basic studies on multiple sclerosis and neuromyelitis optica, examining clinical studies related to electrophysiological findings and prognosis in Guillain-Barré syndrome, researching GAD antibody-related diseases, and investigating the outcomes of anti-NMDA receptor encephalitis.

・Neuroinfectious diseases: Conducting observational studies on the impact of multiplex PCR testing on the diagnosis and prognosis of neuroinfectious diseases, analyzing herpes simplex virus infections of the central nervous system, and performing immunological analyses using a mouse model of herpes simplex encephalomyelitis.

・Epilepsy: Conducting studies on the background pathophysiology, clinical features, and prognosis of acute symptomatic seizures and epilepsy.

・Motor Neuron Disease: Analyzing the pathophysiology by studying the transcriptional activity of the androgen receptor in spinal and bulbar muscular atrophy, and researching the pathogenesis and prognosis of amyotrophic lateral sclerosis.

We aim to attract people to our department by introducing the field of neurology in an easy-to-understand way and to train medical professionals with a research mindset. Furthermore, we promise to disseminate highly original research results from Nihon University that are directly linked to clinical practice. Under the themes of "Establishment of treatment strategies for acute encephalitis", " Understanding the crosstalk between infectious diseases and immune disorders" and "Elucidation of the pathogenesis of neurological intractable diseases and development of treatment approaches to improve patients' QOL", we will engage in medical treatment and research to overcome neuroinfectious diseases and neurological intractable diseases.

To learn more about our clinical, research, and educational programs, please visit our website. (https://nichidaishinkei.jp/).

PUBLICATION LIST 2022
Division of Neurology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Hirose S, Hara M, Kamei S, Dalmau J, Nakajima H.	Characteristics of clinical relapses and patient-oriented long-term outcomes of patients with anti-N-methyl-D-aspartate receptor encephalitis.	Journal of Neurology	2022;269(5):2486-2492.	6.0
2	Yokota Y, Ishihara M, Ninomiya S, Mitsuke K, Kamei S, Nakajima H.	Locked-in Syndrome Due to Meningovascular Syphilis: A Case Report and Literature Review.	Internal Medicine	2022;61(10):1593-1598.	1.2
3	Mizoguchi T, Hara M, Hirose S, Nakajima H.	Novel qEEG Biomarker to Distinguish Anti-NMDAR Encephalitis From Other Types of Autoimmune Encephalitis.	Frontiers in Immunology	2022;13:845272.	7.3
4	Hirose S, Sudo N, Okada M, Natori N, Akimoto T, Hara M, Nakajima H.	Intramedullary spinal cord abscess associated with right-to-left shunt via right superior vena cava draining into left atrium: A case report.	Medicine (Baltimore).	2022;101(26):e29740.	1.6
5	Mizoguchi T, Hara M, Nakajima H.	Neurosyphilis presenting as autoimmune limbic encephalitis: A case report and literature review.	Medicine (Baltimore).	2022;101(33):e30062.	1.6
6	Hara M, Ishihara M, Nakajima H.	Use of the FilmArray® Meningitis/Encephalitis panel to detect pathogenic microorganisms in cerebrospinal fluid specimens: a single-center retrospective study.	Journal of International Medical Research	2022;50(10):300060522112 9561.	1.6
7	Akimoto T, Hara M, Tasaki K, Kurosawa Y, Nakamoto T, Hirose S, Mizoguchi T, Yokota Y, Ninomiya S, Nakajima H.	Delayed encephalopathy after COVID-19: A case series of six patients.	Medicine (Baltimore).	2022;101(42):e31029.	1.6
8	Wada T, Higashiyama Y, Kunii M, Jono T, Kobayashi T, Kubota S, Tada M, Hara M, Kimura A, Doi H, Takeuchi H, Tanaka F.	Ocular flutter as the presenting manifestation of autoimmune glial fibrillary acidic protein astrocytopathy.	Clin Neurol Neurosurg.	2022;219:107307.	1.9
9	Tanaka K, Tani T, Ogawa K, Kinoshita M, Tanaka M	Trial of cytotoxic T cell induction in mice as an ex vivo model of paraneoplastic neurologic syndrome with anti-Hu antibodies.	Clinical and Experimental Neuroimmunology	2022;13 (4): 316-322	Not available
10	Obinata D, Funakoshi D, Takayama K, Hara M, Niranjan B, Teng L, Lawrence MG, Taylor RA, Risbridger GP, Suzuki Y, Takahashi S, Inoue S.	OCT1-target neural gene PFN2 promotes tumor growth in androgen receptor-negative prostate cancer.	Scientific Reports	2022;12(1):6094.	4.6
11	Funakoshi D, Obinata D, Fujiwara K, Yamamoto S, Takayama K, Hara M, Takahashi S, Inoue S.	Antitumor effects of pyrrole-imidazole polyamide modified with alkylating agent on prostate cancer cells.	Biochemical and Biophysical Research Communications	2022;623:9-16.	3.1

Division of Hematology and Collagen Disease

Chair and Professor, Hideki Nakamura, M.D., Ph.D.

Investigation for pathogenesis and care for the patients with hematopoietic and rheumatic diseases.

BRIEF PERSONAL HISTORY

Nagasaki University School of Medicine (1992); MD
Nagasaki University Graduate School of Medicine (1999); PhD
A fellow member of the American College of Rheumatology (2012-present).
Professor and Chair, Division of Hematology and Rheumatology Department of Medicine Nihon University School of Medicine (2020-present).
Visiting Scientist, National Research and Development Agency Rikagaku Kenkyusho(2020-present).
Postdoctoral fellow. Division of Rheumatology, Immunology and Allergy, Brigham & Women's Hospital, Harvard Medical School (Prof. Paul Anderson) (2001-2003).

RESERCH

HEMATOLOGY and ONCOLOGY

We performed several prospective and retrospective clinical studies for hematologic malignancies, resulting in outstanding findings.
Our oncology physicians choose the best chemotherapy for each cancer patient. Nurses, pharmacists, and comfort care team members also take care of those patients.
Mechanisms of development in leukemia, lymphoma, myeloma, and myeloproliferative neoplasms are investigated in our laboratory.

RHEUMATOLOGY

In clinical research, this cardiac involvement may have serious consequences and can contribute to worsening of a patient's cardiac-related morbidity and mortality, in rheumatic disease (RD). Our researches have revealed subclinical cardiac involvement in RD, using a cardiovascular magnetic resonance.

In basic research, Epstein-Barr virus (EBV) has been implicated in the pathogenesis of rheumatoid arthritis (RA) on the basis of indirect evidence.
Our researches have revealed development of erosive arthritis closely resembling RA in humanized mice inoculated with EBV.

We are also interested in involvement of human T-cell leukemia virus type 1 (HTLV-1) in the pathogenesis for primary Sjögren's syndrome (SS). Our researchers are investigating the mode of infection of HTLV-1 to SS salivary gland epithelial cells and the impact on autoantibody production. Furthermore, we plan to investigate the involvement of the innate immune system, centering on toll-like receptors, in SS pathology.

FUTURE DIRECTION

In hematology and oncology group, our aim is the improvement for hematologic and other malignancies through clinical studies and translational researches.

In rheumatology group, we intend to clarify the pathogenesis of RA and SS to prevent of these diseases as well as subclinical cardiac involvement in RD.

PUBLICATION LIST 2022
Division of Hematology and Collagen Disease

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kitamura N, Sugiyama K, Nagasawa Y, Hamaguchi M, Kobayashi H, Takei M.	Involvement of Epstein-Barr virus in the development and spontaneous regression of methotrexate-associated lymphoproliferative disorder in patients with rheumatoid arthritis.	Clinical and Experimental Rheumatology	2022;40(7):1330-1335.	3.7
2	Iriyama N, Miura K, Uchino Y, Takahashi H, Nakagawa M, Iizuka K, Hamada T, Koike T, Kurihara K, Nakayama T, Takei M, Hatta Y, Nakamura H.	Relationship between Carnitine Deficiency and Tyrosine Kinase Inhibitor Use in Patients with Chronic Myeloid Leukemia.	chemotherapy	2022;67(2):96-101.	3.3
3	Iizuka K, Morishita S, Nishizaki Y, Iizuka Y, Iriyama N, Ochiai T, Yanagisawa N, Yasuda H, Ando J, Gotoh A, Takei M, Hatta Y, Nakamura H, Nakayama T, Komatsu N.	von Willebrand factor activity levels are influenced by driver mutation status in polycythemia vera and essential thrombocythemia patients with well-controlled platelet counts.	European Journal of Haematology	2022;109(6):779-786.	3.1
4	Tsutsumi D, Hayama T, Miura K, Uchiike A, Tsuboi S, Otsuka S, Hatta Y, Kishikawa Y.	A novel rituximab administration protocol to minimize infusion-related adverse reactions in patients with B-cell lymphoma.	International Journal of Clinical Pharmacy	2022;44(2):366-373.	2.4
5	Nishiyama-Fujita Y, Nakazato T, Iriyama N, Tokuhira M, Ishikawa M, Sato E, Takaku T, Sugimoto K, Fujita H, Fujioka I, Tsuchiya S, Kimura Y, Iwanaga E, Komatsu N, Asou N, Kizaki M, Hatta Y, Kawaguchi T.	Outcomes of adolescents and young adults with chronic-phase chronic myeloid leukaemia treated with tyrosine kinase inhibitors.	Annals of Medicine	2022;54(1):1244-1254.	4.4
6	Sugiura I, Doki N, Hata T, Cho R, Ito T, Suehiro Y, Tanaka M, Kako S, Matsuda M, Yokoyama H, Ishikawa Y, Taniguchi Y, Hagihara M, Ozawa Y, Ueda Y, Hirano D, Sakura T, Tsuji M, Kamae T, Fujita H, Hiramoto N, Onoda M, Fujisawa S, Hatta Y, Dobashi N, Nishiwaki S, Atsuta Y, Kobayashi Y, Hayakawa F, Ohtake S, Naoe T, Miyazaki Y.	Dasatinib-based 2-step induction for adults with Philadelphia chromosome-positive acute lymphoblastic leukemia.	Blood Advances	2022;6(2):624-636.	7.6
7	Takahashi H, Miura K, Nakagawa M, Nishimaki H, Ito S, Nukariya H, Kurihara K, Endo T, Koike T, Hamada T, Iizuka K, Ohatake S, Iriyama N, Nakayama T, Masuda S, Hatta Y, Nakamura H.	Pirarubicin-based intensive chemotherapy followed by consolidative high-dose chemotherapies for peripheral T-cell lymphomas: A noncomparative phase 2 study.	Hematological Oncology	2022;40(5):1094-1096.	3.3
8	Yasuda T, Sanada M, Kawazu M, Kojima S, Tsuzuki S, Ueno H, Iwamoto E, Iijima-Yamashita Y, Yamada T, Kanamori T, Nishimura R, Kuwatsuka Y, Takada S, Tanaka M, Ota S, Dobashi N, Yamazaki E, Hirose A, Murayama T, Sumi M, Sato S, Tange N, Nakamura Y, Katsuoka Y, Sakaida E, Kawamata T, Iida H, Shiraishi Y, Nannya Y, Ogawa S, Taniwaki M, Asou N, Hatta Y, Kiyoi H, Matsumura I, Horibe K, Mano H, Naoe T, Miyazaki Y, Hayakawa F.	Two novel high-risk adult B-cell acute lymphoblastic leukemia subtypes with high expression of CDX2 and IDH1/2 mutations.	Blood	2022;139(12):1850-1862.	20.3
9	Asatani S, Kobayashi H, Nagasawa Y, Nishihara M, Tanikawa Y, Hamaguchi M, Yoshizawa S, Tsuzuki H, Sugiyama K, Tsukamoto M, Kitamura N, Nakamura H.	Successful treatment for eosinophilic granulomatosis with polyangiitis causing severe myocarditis followed by cardiac magnetic resonance.	Modern Rheumatology Case Reports	2022;6(2):248-253.	0.8

Division of Nephrology, Hypertension and Endocrinology

Chair and Professor, Masanori Abe, M.D., Ph.D.

The Translational Research on Kidney Disease & Hypertension

The Division of Nephrology, Hypertension and Endocrinology in the Department of Internal Medicine at Nihon University School of Medicine has been involved in medical care and education. Prof. Abe conducted studies at four research laboratories.

Lab of Advanced Nephrology

Laboratory of Advanced Nephrology has been involved in clinical research on diabetic kidney disease, hypertension, renal anemia, mineral and bone disorder, cardiovascular disease, diet therapy, lifestyle, drug therapy, team approach, improvement of quality of life, in patients with chronic kidney disease (CKD). Renal replacement therapy including hemodialysis, peritoneal dialysis, continuous renal replacement therapy, sustained low-efficiency dialysis (SLED), and plasma exchange are performed for patients with acute kidney injury (AKI) in our hospital.

We have been focusing on microcirculating system and hemodynamics in the kidney. We have reported the efficacy of N- or T-type calcium channel blockers in patients with CKD. Furthermore, we reported the role of RAS inhibitors, DPP-4 inhibitors, and SGLT2 inhibitors in diabetes patients with CKD. Recently, we reported the novel findings of SGLT2 inhibitors for kidney protection and erythropoiesis. In addition, we have carried out basic research such as regeneration therapy using dedifferentiated fat cells in animal models.

Lab of Glomerulonephritis

Laboratory of Glomerulonephritis has been focusing on the studies of primary and secondary kidney diseases, particularly on minimal change nephrotic syndrome, IgA nephropathy, lupus nephritis, and ANCA- associated glomerulonephritis. Basic researches are performed using immunohistochemical techniques and enzyme-linked immunosorbent assay (ELISA) to measure various biomarkers to identify the pathophysiology and the mechanism of renal injuries. Clinical studies include case control study, cohort study, and case report, presenting new perspective on kidney diseases. Case conference is held once weekly and discusses medical problem and respective treatment.

Lab of Endocrinology & Metabolism

We are currently focusing on the following areas.

1) Pyrrole-Imidazole (PI) polyamide

PI polyamides were composed of freely designed repeat units of N-methylpyrrole and N-methylimidazole amino acids. Initiation of gene transcription requires binding of transcription factors to the cognate DNA response elements in the gene promoter region. PI polyamides compete with transcription factors by covering the transcription factor binding sites in the gene promoter region. We developed and reported PI polyamides targeting ABCA1, Sar1b, LOX1, TGF-β, and CTGF as novel gene-regulating agents.

2) Obesity, hypertension, and clock genes

The rhythms of numerous biological phenomena are controlled by the biological clock. We have reported the differential oscillation of circadian clock genes in obese subjects compared to that in healthy subjects and these differences were attenuated by body weight reduction. Based on these data in humans, we are now investigating the role of circadian clocks in obesity and hypertension in animal models of these diseases.

Lab of Comprehensive Chronic Kidney Disease Research

Laboratory of Comprehensive Chronic Kidney Disease Research has been established in 2018. It involved in basic and clinical research to establish the permanent cure therapy of CKD. We are focusing on the development of novel technique for peritoneal dialysis (PD) and home hemodialysis, and implementation of human resources development for renal replacement therapy. We are focusing on the diabetic nephropathy.

PUBLICATION LIST 2022

Division of Nephrology, Hypertension, and Endocrinology

List No.	Author	Paper	Journal	Publication year ; volume ; page	Impact Factor
1	Otsuki T, Fukuda N, Chen L, Ueno T, Otsuki M, Abe M.	TWIST1 transcriptionally upregulates complement 3 in glomerular mesangial cells from spontaneously hypertensive rats.	Hypertension Research	2022;45(1):66-74.	5.4
2	Abe M, Shiga H, Tatsumi H, Endo Y, Kikuchi Y, Suzuki Y, Doi K, Nakada TA, Nagafuchi H, Hattori N, Hirohashi N, Moriguchi T, Yamaga O, Nishida O.	Results of the 2018 Japan Society for Blood Purification in Critical Care survey: current status and outcomes	Renal Replacement Therapy	2022;8(1):58.	1.2
3	Hasegawa T, Noma H, Hamano T, Abe M, Wada A, Honda H, Ito Y, Masakane I, Nitta K.	Association between the use of exchange devices for peritoneal dialysis fluids and peritonitis incidence: A nationwide cohort study.	Peritoneal Dialysis International	2022;42(2):177-184.	2.8
4	Maruyama Y, Nakayama M, Abe M, Yokoo T, Minakuchi J, Nitta K.	Association between serum β2-microglobulin and mortality in Japanese peritoneal dialysis patients: A cohort study.	PLoS One	2022;17(4):e0266882.	3.7
5	Utsunomiya K, Maruyama T, Shimizu S, Matsumoto T, Endo M, Kobayashi H, Kano K, Abe M, Fukuda N.	Implantation of dedifferentiated fat cells ameliorated antineutrophil cytoplasmic antibody glomerulonephritis by immunosuppression and increases in tumor necrosis factor-stimulated gene-6.	Stem Cell Research & Therapy	2022;13(1):319.	7.5
6	Murashima M, Hamano T, Nishiyama T, Tsuruya K, Ogata S, Kanda E, Abe M, Masakane I, Nitta K.	Performance Status Modifies the Association Between Vitamin D Receptor Activator and Mortality or Fracture: A Prospective Cohort Study on the Japanese Society for Dialysis Therapy (JSDT) Renal Data Registry.	Journal of Bone and Mineral Research	2022;37(8):1489-1499.	6.2
7	Otsuki T, Fukuda N, Chen L, Tsunemi A, Abe M.	Twist-related protein 1 induces epithelial-mesenchymal transition and renal fibrosis through the upregulation of complement 3.	PLoS One	2022;17(8):e0272917.	3.7
8	Haze T, Yano Y, Hatano Y, Tamura K, Kurihara I, Kobayashi H, Tsuiki M, Ichijo T, Wada N, Katabami T, Yamamoto K, Okamura S, Kai T, Izawa S, Yoshikawa Y, Yamada M, Chiba Y, Tanabe A, Naruse M, JPAS/JRAS Study Group.	Association of achieved blood pressure after treatment for primary aldosteronism with long-term kidney function.	Journal of Human Hypertension	2022;36(10):904-910.	2.7
9	Kometani M, Yoneda T, Karashima S, Takeda Y, Tsuiki M, Yasoda A, Kurihara I, Wada N, Katabami T, Sone M, Ichijo T, Tamura K, Ogawa Y, Kobayashi H, Okamura S, Inagaki N, Kawashima J, Fujita M, Oki K, Matsuda Y, Tanabe A, Naruse M.	Effect of Intraprocedural Cortisol Measurement on ACTH-stimulated Adrenal Vein Sampling in Primary Aldosteronism.	Journal of the Endocrine Society	2022;6(9):bvac104.	4.1
10	Nomura M, Kurihara I, Itoh H, Ichijo T, Katabami T, Tsuiki M, Wada N, Yoneda T, Sone M, Oki K, Yamada T, Kobayashi H, Tamura K, Ogawa Y, Inagaki N, Yamamoto K, Otsuki M, Yabe D, Izawa S, Takahashi Y, Suzuki T, Yasoda A, Tanabe A, Naruse M, JPAS/JRAS Study Group.	Association of cardiovascular disease risk and changes in renin levels by mineralocorticoid receptor antagonists in patients with primary aldosteronism.	Hypertension Research	2022;45(9):1476-1485.	5.4

PUBLICATION LIST 2022
Division of Nephrology, Hypertension, and Endocrinology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
11	Naruse M, Katabami T, Shibata H, Sone M, Takahashi K, Tanabe A, Izawa S, Ichijo T, Otsuki M, Omura M, Ogawa Y, Oki Y, Kurihara I, Kobayashi H, Sakamoto R, Satoh F, Takeda Y, Tanaka T, Tamura K, Tsuiki M, Hashimoto S, Hasegawa T, Yoshimoto T, Yoneda T, Yamamoto K, Rakugi H, Wada N, Saiki A, Ohno Y, Haze T.	Japan Endocrine Society clinical practice guideline for the diagnosis and management of primary aldosteronism 2021.	Endocrine Journal	2022;69(4):327-359.	2.0
12	Katabami T, Matsuba R, Kobayashi H, Nakagawa T, Kurihara I, Ichijo T, Tsuiki M, Wada N, Ogawa Y, Sone M, Inagaki N, Yoshimoto T, Takahashi K, Yamamoto K, Izawa S, Kakutani M, Tanabe A, Naruse M.	Primary aldosteronism with mild autonomous cortisol secretion increases renal complication risk.	European Journal of Endocrinology	2022;186(6):645-655.	5.8
13	Teruyama K, Naruse M, Tsuiki M, Kobayashi H.	Novel chemiluminescent immunoassay to measure plasma aldosterone and plasma active renin concentrations for the diagnosis of primary aldosteronism.	Journal of Human Hypertension	2022;36(1):77-85.	2.7
14	Kobayashi H, Looker HC, Satake E, D'Addio F, Wilson JM, Saulnier PJ, Md Dom ZI, O'Neil K, Ihara K, Krolewski B, Badger HS, Petrazzuolo A, Corradi D, Galecki A, Wilson PC, Najafian B, Mauer M, Niewczas MA, Doria A, Humphreys BD, Duffin KL, Fiorina P, Nelson RG, Krolewski AS.	Neuroblastoma suppressor of tumorigenicity 1 is a circulating protein associated with progression to end-stage kidney disease in diabetes.	Science Translational Medicine	2022;14(657):eabj2109.	17.1
15	Kobayashi H, Looker HC, Satake E, Saulnier PJ, Md Dom ZI, O'Neil K, Ihara K, Krolewski B, Galecki AT, Niewczas MA, Wilson JM, Doria A, Duffin KL, Nelson RG, Krolewski AS.	Results of untargeted analysis using the SOMAscan proteomics platform indicates novel associations of circulating proteins with risk of progression to kidney failure in diabetes.	Kidney International	2022;102(2):370-381.	19.6

Division of Diabetes and Metabolism

Chair and Professor, Hisamitsu Ishihara, M.D., Ph.D.

Management of metabolic diseases for healthy life expectancy

The Division of Diabetes and Metabolism was launched in 2008, when Prof. Hisamitsu Ishihara assumed his present post at Nihon University School of Medicine. As a physician-scientist, Ishihara has studied mechanisms of insulin and glucagon secretion for more than 35 years. He unraveled the so-called "pyruvate paradox of insulin secretion" (Ishihara et al., J Clin Invest, 1999) and identified an important role of zinc ions released from islet β-cells in glucagon secretion from α-cells (Ishihara et al., Nat Cell Biol, 2003). Since islet β-cell loss has been regarded as a major cause of diabetes, mechanisms of stress-mediated β-cell loss have been another important research subject for Prof. Ishihara. By analyzing β-cells under stress conditions, his research group discovered that translational control by eukaryotic initiation factor 4E-binding protein 1 plays an important role in β-cell death (Yamaguchi et al.., Cell Metabolism 2008). Prof. Ishihara has continued the pancreatic islet cell research here and established a novel research system using an insulin secreting cell model (Furukawa et al., J Diabetes Invest, 2021).

This division has now taken care of approximately 4,000 patients with diabetes and related metabolic disorders. While working on daily medical practice, we study pathogenesis of metabolic diseases, hoping to contribute to progresses in the medical science and to provide better treatment strategies. Our research projects have focused on the following three topics: 1) Molecular mechanisms of nutrient-regulated insulin and glucagon secretion from pancreatic islets of Langerhans. 2) Studies on diabetes and obesity drug mechanisms for establishing better treatment strategies. 3) Studies for prevention of obesity and cardiovascular complications in type 2 diabetes patients.

Molecular mechanisms of insulin and glucagon secretion from pancreatic islets. As described above, this is the lifework of Prof. Ishihara. Using the novel system established by ours and recent advances in molecular and cell biological techniques, studies are now carried out by young members under the supervision of Prof. Ishihara and the achievements are being published (Tanaka et al., Sci Rep, 2023).

Recently, we have started analyses of porcine islets, since porcine islets can be used for xenotransplantation in near future. We have a special facility for large animal experiments in the Itabashi campus. Although research progresses in porcine islet transplantation is rapid, there are still issues which should be resolved.

Studies on diabetes and obesity drug mechanisms for establishing better treatment strategies. Prof. Ishihara supervised a nation-wide clinical trial to show efficacy and safety of SGLT-2 inhibitors added to type 2 diabetes patients (Ishihara et al., Diabetes Obes Metab, 2016; Ishihara et al., Clin Drug Invest, 2019; Kitazawa et al., Diabetes Obes Metab, 2020). The results provide rationales for the use of these drugs with other agents. In addition, these clinical study results were supported by our *in vivo* studies employing animal models of diabetes (Koike et al., Int J Mol Sci, 2021). In addition, we are studying roles of glucagon dynamics in metabolic diseases for better treatment of affected patients (Kosuda et al., J Nippon Med Sch. 2022).

Studies for prevention of obesity and cardiovascular complications in type 2 diabetes patients. Since Dr. Yamamotoya has joined our group in April 2024, we have studied basic and clinical aspects of obesity (Yamamotoya et al., PNAS Nexus, 2024). Clinical studies focusing on risk factors of cardiovascular complications in elderly patients with diabetes and obesity are being conducted by associate Prof. Watanabe and colleagues. Novel strategies for evaluation of diabetes complications have been proposed (Saigusa et al., BMC Cardiovasc Disord, 2022, Watanabe et al., Heart Vessels, 2022). In addition, a role of uric acid in diabetes complications are studied by Fujishiro and colleagues (Fujishiro et al., Biomedicines, 2021).

These studies are being conducted in collaboration with the Prof. Makishima at the Division of Biochemistry, Prof. Asai at the Division of Pharmacology, and Prof. Hao at the Division of Pathology, Nihon University School of Medicine.

Although striking therapeutic advances in the field of metabolic diseases are now under way, many issues remain unsolved, such as diabetes treatment in elderly with dementia and prevention of type 1 diabetes. We hope that our clinical studies could contribute to further understandings of pathophysiology of diabetes and evaluation of diabetes complications, which are useful for extending healthy life expectancy. In addition, it is anticipated that basic research in our group should provide insights into novel therapeutic strategies, including regeneration and cell replacement therapies.

PUBLICATION LIST 2022

Division of Diabetes and Metabolism

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Saigusa T, Watanabe K, Hada Y, Ishii K, Kameda W, Susa S, Ishizawa K, Ishihara H.	Cardio-ankle vascular index is more closely associated than brachial-ankle pulse wave velocity with arterial damage and risk of cardiovascular disease in patients with diabetes.	BMC Cardiovascular Disorders	2022;22(1):365	2.1
2	Watanabe K, Takakubo N, Saigusa T, Nagasawa A, Yamana M, Ojima M, Kameda W, Susa S, Ishizawa K, Ishihara H.	Fibrosis-4 Index Is Closely Associated with Arterial Damage and Future Risk of Coronary Heart Disease in Type 2 Diabetes.	International Journal of Hypertension	2022;2022:2760027	1.9
3	Ishihara H.	Metabolism-secretion coupling in glucose-stimulated insulin secretion.	Diabetology International	2022;13(3):463-470.	2.2
4	Kosuda M, Watanabe K, Koike M, Morikawa A, Saito H, Kohno G, Ishihara H.	Glucagon Response to Glucose Challenge in Patients with Idiopathic Postprandial Syndrome.	Journal of Nippon Medical School	2022;89(1):102-107.	1.0
5	Tanaka S, Fujishiro M, Imatake K, Suzuki Y, Ishihara H, Tani S.	Impact of Female Sex on the Susceptibility to Hypernatremia Among Older Community-Dwelling Individuals in Japan.	International Journal of General Medicine	2022;15:777-785.	2.3
6	Yamamotoya T, Hasei S, Akasaka Y, Ohata Y, Nakatsu Y, Kanna M, Fujishiro M, Sakoda H, Ono H, Kushiyama A, Misawa H, Asano T.	Involvement of neuronal and muscular Trk-fused gene (TFG) defects in the development of neurodegenerative diseases.	Scientific Reports	2022;12(1):1966.	4.6
7	Watanabe K, Hada Y, Ishii K, Nagaoka K, Takase K, Kameda W, Susa S, Saigusa T, Egashira F, Ishihara H, Ishizawa K.	Aortic arch calcification with pericardial fat mass detected on a single chest X-ray image is closely associated with the predictive variables of future cardiovascular disease.	Heart and Vessel	2022;37(4):654-664.	1.5

Division of General Medicine

Chair and Professor, Tadateru Takayama, M.D., Ph.D.

Resaerch for accurate diagnosis and contribution to prevention of lifestyle-related diseases

The division of General Medicine in the Department of Medicine. at Itabashi hospital and Nihon University hospital has been involved in medical care, education and clinical research. We are actively conducting basic research on the themes of genetic analysis of lifestyle-related diseases and the application of molecular genetics to clinical diagnosis and treatment. Furthermore, we conduct clinical research on lifestyle-related diseases in collaboration with other clinical departments.

Chair and Professor Tadateru Takayama, M.D., PhD.
Professor, Division of General Medicine, Department of Medicine, Nihon University School of Medicine.
・Appointed July 1,2018
・Received MD in 1990 and PhD degrees from the Nihon University School of Medicine in 1996.
Main research:
General medicine (lifestyle-related diseases/community medicine),
Cardiovascular imaging (intravascular ultrasound/angioscopy)

Our aim is not only to train excellent general internists, but also to train general practitioners. With the cooperation of all other clinical departments, we aim to become proficient in primary care, focusing on outpatient and inpatient care centered on internal medicine diagnostics, and emergency care.

Innovative Therapy Research

Searching for novel cancer-related genes
In this project, we have tried to identify novel cancer-related genes. By screening aberrantly methylated regions in mouse skin tumor.

Clinical Research

1. Kidney Disease

We now focus on the role of hypertension-related, calcium-regulated gene (HCaRG/COOMD5) which highly expressed in the tubular fraction of the renal cortex and has been shown to inhibit proliferation and to accelerate differentiation in cultured cells. Recently, we found the role for HCaRG in the inhibition of tumor progression as a natural inhibitor of the ErbB signals in cancer and as a potential prognostic marker for renal cell carcinoma

2. Life-style related diseases (Diabetes Mulitas, Hypertension, Lipid disorder) and cardiovascular events.

We perform a study on prediction of cardiovascular events and primary prevention from clinical condition due to lifestyles such as diabetes, hypertension, dyslipidemia, hyperuricemia. And we study prevention of the cardiovascular illness.

3. Disorder of the vascular endothelial function

The study on vascular endothelial function vascular endothelial function is caused by early arteriosclerosis. We search about a factor promoting arteriosclerosis and consider about the effect such as exercise, a drug, taste, and the lifestyle. Also, I study the remedy. Specifically, we measure FMD, RH-PAT and compare them about various patients background. Furthermore, we measure vascular stiffness and study affecter to PWV about various patients background.

4. Symptom and diagnosis

The patients come to the hospital for various symptoms, and we examine those symptoms and association with the final diagnosis.
Also, we study the appropriate, effective diagnosis technique and device.

5. Epidemiological genetics

We focus to the research on the gene–environment interactions of the human longevity. We have now carried on a community based prospective study.

6. Infectious disease and infection control

The research projects focus on the clinical evaluation concerning infectious disease and infection control through the clinical practice.

PUBLICATION LIST 2022
Division of General Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Sato K, Osaka E, Fujiwara K, Fujii R, Takayama T, Tokuhashi Y, Nakanishi K.	miRNA-218 targets multiple oncogenes and is a therapeutic target for osteosarcoma	Oncology Reports	2022;47(5):92.	4.2
2	Nakamura H, Nagasawa Y, Kobayashi H, Tsukamoto M, Takayama T, Kitamura N.	Successful Treatment of SARS-CoV-2 Vaccination-related Activation of Rheumatoid Arthritis with Positive Findings for Epstein-Barr	Internal Medicine	2022;61(13):2073-2076.	2.1
3	Kitano D, Migita S, Li Y, Takahashi R, Taniguchi Y, Kurosawa T, Sudo M, Haruta H, Hiro T, Takayama T, Mitsumata M, Matsumoto T, Okumura Y, Hirayama A.	Effect of Rivaroxaban and Clopidogrel Combination Therapy on In-Stent Responses After Everolimus-Eluting Stent Implantation in a Porcine Coronary Model	Journal of Atherosclerosis and Thrombosis	2022;29(1):69-81.	4.4
4	Ikegami C, Kanda T, Ishii T, Honda M, Yamana Y, Sasaki-Tanaka R, Kumagawa M, Kanezawa S, Mizutani T, Yamagami H, Matsumoto N, Masuzaki R, Hayashi K, Nirei K, Takayama T, Moriyama M.	COVID-19 After Treatment With Direct-acting Antivirals for HCV Infection and Decompensated Cirrhosis: A Case Report	In Vivo	2022;36(4):1986-1993.	2.3

Division of Psychiatry

Chair and Professor, Masahiro Suzuki, M.D., Ph.D.

Striving for better mental health for all

About the Chair

Dr. Masahiro Suzuki graduated from Nihon University School of Medicine in 2002. In 2008, he earned his PhD for his work on the development of a computerized diagnostic tool for schizophrenia using a visual cognitive task. He then started research on sleep psychiatry, an academic field focusing on interrelations between sleep medicine and psychiatry. From 2015–2016, he was involved in the development of sleep manipulation therapy for drug-resistant depression, and studied the chronobiological basis of mood disorders at San Raffaele University in Milan, Italy. In 2020, he was appointed chair and professor of the Department of Psychiatry.

Our mission and activities

The mission of our department is to provide high-quality clinical care for individuals with mental health needs, perform cutting-edge research to expand our understanding of the mind for the future benefit of patients, and provide the finest education for students and young doctors, enabling them to become outstanding psychiatric practitioners and/or researchers. The department consists of four teams with the following subspecialties: mood disorders, cognitive neuroscience, sleep medicine, and psychogeriatrics. To achieve its mission, each team has made efforts in clinical practice, research, and student education. The teams often collaborate with each other to share knowledge and experience. The recent research activities of each team are as follows:

1) Mood disorders

The mood disorders team has made efforts to understand the pathophysiology of depression and bipolar disorder, and to develop methods for diagnosing and treating these disorders from the perspectives of sleep science and chronobiology. The team has reported the efficacy of chronobiological therapy, such as wake therapy and bright light therapy.

Since 2021, they have also been conducting a project to develop a diagnostic program for the early detection of depression based on sleep electroencephalograms (EEGs) , with support from the Japan Agency for Medical Research and Development (AMED).

2) Cognitive neuroscience

The cognitive neuroscience team aims to improve our understanding of psychiatric disorders using an interdisciplinary approach that seeks to elucidate the complex relationship between the mind and the brain. The team has identified a relationship between clinical symptoms and eye-movement characteristics during visual explorations in schizophrenia and Parkinson's disease. The team has also recently launched a new project to explore the cognitive processes associated with the negative symptoms of schizophrenia from the perspective of decision-making.

3) Sleep medicine

The sleep medicine team has reported a number of epidemiological findings on the relationship between sleep status and mental health in collaboration with the Division of Public Health and other research institutions. Clinical studies by the team are conducted at the Sleep Medicine Center of Itabashi Hospital. Furthermore, the team has been actively involved in multicenter governmental research projects, and contributed to the development of the "Sleep Guide 2023" (Ministry of Health, Labour and Welfare).

They have recently launched a new project, called the SWORDs project, as a collaborative study with the cognitive neuroscience team, which aims to understand the prevalence and associated factors of sleep-wake disorders in schizophrenia.

4) Psychogeriatrics

The psychogeriatrics team has conducted a longitudinal study on predictive factors for the onset of dementia in community-dwelling older people, in collaboration with the Tokyo Metropolitan Geriatric Medical Center.

Furthermore, they are conducting clinically oriented research on organic psychiatric disorders, making full use of EEG and functional imaging.

Collaboration with companies

Our department has been actively pursuing industry-academia collaborative research with companies having outstanding technology. We have researched the application of sleep EEGs in psychiatric diagnosis with SleepWell Corporation, which has developed a portable sleep EEGs device and its automatic analysis system using artificial intelligence. In collaborative studies with Kao Corporation, we have examined the effects of a hot eye mask that uses heat generating sheets on sleep.

PUBLICATION LIST 2022
Division of Psychiatry

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Yoshiike T, Utsumi T, Matsui K, Nagao K, Saitoh K, T Otsuki R, Aritake-Okada S, Suzuki M, Kuriyama K.	Mortality associated with nonrestrative short sleep or nonrestorative long time-in-bed in middle-aged and older adults	Scientific Reports	2022;12(1):189	4.6
2	Aoki Y, Takaesu K, Suzuki M, Okajima I, Takeshima M, Shimura A, Utsumi T, Kotorii N, Yamashita H, Kuriyama K, Watanabe N, Mishima K.	Development and acceptability of a decision aid for chronic insomnia considering discontinuation of benzodiazepine hypnotics	Neuropsychopharmacology Reports	2022;42(1):10-20	2.5
3	Kaneko Y, Konno C, Saitoh K, Furihata R, Kaneita Y, Uchiyama M, Suzuki M.	Association of insomnia symptoms and non-restorative sleep with Typus melancholicus: a Japanese general population survey	Sleep and Biological Rhythms	2022;20:391-395	1.1
4	Saitoh K, Yoshiike T, Kaneko Y, Utsumi T, Matsui K, Nagao K, Otsuki R, Aritake-Okada S, Kadotani H, Kuriyama K, Suzuki M.	Associations of nonrestorative sleep and insomnia symptoms with incident depressive symptoms over 1–2 years: longitudinal results from the Hispanic Community Health Study/Study of Latinos and Sueño Ancillary Study	Depression and Anxiety	2022;39(5):419-428	7.4
5	Wada T, Yamamoto Y, Takasughi Y, Ishii H, Uchiyama T, Saithoh K, Suzuki M, Uchiyama M, Yoshitane H, Fukada Y, Shimba S.	Adiponectin Regulates the Circadian Rhythm of Glucose and lipid metabolism	Journal of Endocrinology	2022;254(2):121-133	4.0
6	Utsumi T, Yoshiike T, Kaneita Y, Aritake-Okada S, Matsui K, Nagao K, Saitoh K, Otsuki R, Shigeta M, Suzuki M, Kuriyama K.	The association between subjective-objective discrepancies in sleep duration and mortality in older men	Scientific Reports	2022;12(1):18650	4.6
7	Furihata R, Otsuki R, Hasegawa N, Tsuboi T, Numata S, Yasui-Furukori N, Kashiwagi H, Hori H, Ochi S, Muraoka H, Onitsuka T, Komatsu H, Takeshima M, Hishimoto A, Nagasawa T, Takaesu Y, Nakamura T, Asami T, Miura K, Matsumoto J, Ohi K, Yasuda Y, Iida H, Ogasawara K, Hashimoto N, Ichihashi K, Yamada H, Watanabe K, Inada K, Hashimoto R	Hypnotic medication use among inpatients with schizophrenia and major depressive disorder: results of a nationwide study	Sleep Medicine	2022;89:23-30	4.8
8	Akashiba T, Inoue Y, Uchimura N, Ohi M, Kasai T, Kawana F, Sakurai S, Takegami M, Tachikawa R, Tanigawa T, Chiba S, Chin K, Tsuiki S, Tonogi M, Nakamura H, Nakatyama T, Narui K, Yagi T, Yamaichi M, Yamashiro Y, Yoshida M, Oga T, Tomita Y, Hamada S, Murase K, Mori H, Wada H, Uchiyama M, Ogawa H, Sato K, Nakata S, Mishima K, Momomura S	Sleep Apnea Syndrome (SAS) Clinical Practice Guidelines 2020	Sleep and Biological Rhythms	2022;20:5-37	1.1
9	Otsuki R, Matsui K, Yoshiike T, Nagao K, Utsuimi T, Tsuru A, Ayabe N, Hazumi M, Fukumizu M, Kuriyama K	Decrease in Social Zeitgebers Is Associated With Worsened Delayed Sleep-Wake Phase Disorder: Findings During the Pandemic in Japan	Frontiers in Psychiatry	2022;13:898600	4.7
10	Tsuru A, Matsui K, Kimura A, Yoshiike T, Otsuki R, Nagao K, Hazumi M, Utsumi T, Fukumizu M, Mukai Y, Takahashi Y, Sakamoto T, Kuriyama K.	Sleep disturbance and health-related quality of life in Parkinson's disease: A clear correlation between health-related quality of life and subjective sleep quality	Parkinsonism & Related Disorders	2022;98:86-91	4.1
11	Inoue Y, Uchiyama M, Umeuchi H, Onishi K, Ogo H, Kitajima I, Matsushita I, Nishino I, Uchimura N	Optimal dose determination of enerisant (TS-091) for patients with narcolepsy: two randomized, double-blind, placebo-controlled trials	BMC Psychiatry	2022(1);22:141	4.4

PUBLICATION LIST 2022
Division of Psychiatry

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
12	Uchiyama M, Kambe D, Imadera Y, Kajiyama Y, Ogo H, Uchimura N	Effects of TS-142, a novel dual orexin receptor antagonist, on sleep in patients with insomnia: a randomized, double-blind, placebo-controlled phase 2 study	Psychopharmacology	2022;239(7):2143-2154	3.4
13	Uchiyama M, Ito K, Okumura Y, Yi J, Crawford B, Abe M	Medical Costs Associated with Insomnia Treatment with Suvorexant Monotherapy in Japan: Results from a Retrospective Cohort Study Using a Large-Scale Claims Database	Drugs-Real World Outcomes	2022;9(2):219-229	2.0
14	Hazumi M, Matsui K, Tsuru A, Otsuki R, Nagao K, Ayabe N, Utsumi T, Fukumizu M, Kawamura A, Izuhara M, Yoshiike T, Kuriyama K	Relationship between COVID-19-specific occupational stressors and mental distress in frontline and non-frontline staff	Heliyon	2022;8(8):e10310	4.0
15	Ogasawara M, Takeshima M, Esaki Y, Kaneko Y, Utsumi T, Aoki Y, Watanabe N, Suzuki M, Takaesu Y	Comparison of the efficacy and safety of quetiapine and lithium for bipolar depression: A systematic review and meta-analysis of randomized controlled trials	Neuropsychopharmacology Reports	2022;42(4):410-420	2.5

Division of Pediatrics and Child Health

Chair and Professor, Ichiro Morioka, M.D., Ph.D.

Transdisciplinary Team of Pediatrics

"Children are the world most important resources", this phrase is written in Chapter 1, Nelson's text book of Pediatrics. The text book also defined pediatrics as "pediatrics is a sole discipline concerned with all aspects of the well-being of infants, children and adolescents, including their health; their physical, mental, and psychological growth and development; and their opportunity to achieve full potential as adults". These concepts and the way of thinking are the basis of our mission.

Pediatrics is a clinical science, comprised of comprehensive pediatrics including child growth and development, and diverse subspecialties. All of these subspecialties are kinds of micro-cosmos with deep and broad basis. Accordingly, we have to learn a lot of things during residency. However, if we have a chance to get into the fields of basic science, we may know that the micro-cosmos is connecting each other with a common language of basic science.

Our department of pediatrics embrace following twelve subspecialties; pediatric cardiology, pediatric neurology, pediatric nephrology, pediatric hematology and oncology, pediatric infectious disease, pediatric allergy, pediatric rheumatology, pediatric endocrinology and diabetes mellitus, inherited metabolic disorders, pediatric intensive care (PICU), neonatology (NICU) and general pediatrics.

Each subspecialty group is comprised of three to twelve pediatricians to do clinical practice as well as research. However, those subspecialty groups collaborate with each other and work as a transdisciplinary team, especially for very sick children.

Our current researches are as follows;

1) Technical innovation and clinical study for neonates with hyperbilirubinemia.
2) Clinical research for mother-to-child infection.
3) Basic investigation of lipid metabolism and lipid profile in fetus and neonatal period.
4) Clinical research for pediatric infectious diseases and the prevention by vaccines.
5) Clinical study in patients with epilepsy.
6) Molecular pathophysiology in Kawasaki disease.
7) Novel therapeutics for refractory Kawasaki disease
8) Resuscitation in sudden cardiac arrest in schoolchildren.
9) Clinical efficacy of censor augmented insulin pump therapy in type 1 diabetes.
10) Development of the optimal conditioning regimen and preemptive donor lymphocyte infusion for refractory malignant disorders.
11) Clinical study of recombinant thrombomodulin for the treatment of disseminated intravascular coagulation in children.
12) Genetic investigation of pediatric hematological diseases.
13) Clinical research for chronic renal diseases in children.
14) Nutritional status and neural development of children and adult patients with phenylketonuria
15) Complication and metabolic status of children and adult patients with glycogen storage disease.
16) Clinical research for the introduction of neonatal mass screening
17) Clinical research for the pediatric patients with growth disorders
18) Investigation of the therapeutic effectiveness and development of cranial shape corrective helmets

Selected publications in 2022

Morioka I, et al. Medical care of newborns born to mothers with confirmed or suspected severe acute respiratory syndrome coronavirus 2 infections in Japan. *Pediatrics International.* 64 (1): e14855, 2022

Morohashi T, et al. β2-microglobulin measurement with dried urine spots for congenital anomalies of the kidney and urinary tract screening in 3-year-old children. *Pediatrics International.* 64 (1): e15077, 2022

Hijikata M, et al. A prospective cohort study of newborns born to mothers with serum *Toxoplasma gondii* immunoglobulin M positivity during pregnancy. *Journal of Infection and Chemotherapy.* 28 (4): 486-91, 2022

Katayama D, et al. A non-obese hyperglycemic mouse model that develops after birth with low birthweight. *Biomedicines.* 10 (7): 1642, 2022

Shimozawa K, et al. Ex vivo generation of regulatory T cells from liver transplant recipients using costimulation

PUBLICATION LIST 2022
Division of Pediatrics and Child Health

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1	Morioka I, Toishi S, Kusaka T, Wada K, Mizuno K, Committee of Neonatal Medicine in Japan Pediatric Society.	Medical care of newborns born to mothers with confirmed or suspected severe acute respiratory syndrome coronavirus 2 infections in Japan.	Pediatrics International	2022;64 (1):e14855.	1.4
2	Katsuta T, Shimizu N, Okada K, Tanaka-Taya K, Nakano T, Kamiya H, Amo K, Ishiwada N, Iwata S, Oshiro M, Okabe N, Kira R, Korematsu S, Suga S, Tsugawa T, Nishimura N, Hishiki H, Fujioka M, Hosoya M, Mizuno Y, Mine M, Miyairi I, Miyazaki C, Morioka I, Morishima T, Yoshikawa T, Wada T, Azuma H, Kusuhara K, Ouchi K, Saitoh A, Moriuchi H.	The clinical characteristics of pediatric coronavirus disease 2019 in 2020 in Japan.	Pediatrics International	2022;64 (1):e14912.	1.4
3	Urakami T, Yoshida K, Kuwabara R, Mine Y, Aoki M, Suzuki J, Morioka I.	Frequent scanning using flash glucose monitoring contributes to better glycemic control in children and adolescents with type 1 diabetes.	Journal of Diabetes Investigation	2022;13 (1):185-190.	3.2
4	Iwatani S, Hirayama K, Izumi A, Ikuta T, Nagano N, Yoshimoto S, Morioka I.	Time-fixed glucose oxidase-peroxidase method for measurement of serum unbound bilirubin levels.	Clinical Laboratory	2022;68:437-442.	0.7
5	Namiki T, Takano C, Aoki R, Trinh QD, Morioka I, Hayakawa S.	Parenchymal calcification is associated with the neurological prognosis in patients with congenital rubella syndrome.	Congenital Anomalies	2022;62 (1):38-41.	1.3
6	Yamaguchi H, Nozu K, Ishiko S, Nagase H, Ninchoji T, Nagano C, Takeda H, Unzaki A, Ishibashi K, Morioka I, Iijima K, Ishida A.	Epidemiological Impact of universal varicella vaccination on consecutive emergency department visits for varicella and its economic impact among children in Kobe city, Japan.	Journal of Infection and Chemotherapy	2022;28 (1):35-40.	2.2
7	Morohashi T, Wada N, Odaira S, Shimizu S, Takahashi S, Morioka I.	β2-microglobulin measurement with dried urine spots for congenital anomalies of the kidney and urinary tract screening in 3-year-old children.	Pediatrics International	2022;64 (1):e15077.	1.4
8	Hijikata M, Morioka I, Okahashi A, Nagano N, Kawakami K, Komatsu A, Kawana K, Ohyama S, Fujioka K, Tanimura K, Deguchi M, Sasai M, Yamamoto M, Yamada H.	A prospective cohort study of newborns born to mothers with serum Toxoplasma gondii immunoglobulin M positivity during pregnancy.	Journal of Infection and Chemotherapy	2022;28(4):486-491.	2.2
9	Myojin S, Pak K, Sako M, Kobayashi T, Takahashi T, Sunagawa T, Tsuboi N, Ishikura K, Kubota M, Kubota M, Igarashi T, Morioka I, Miyairi I.	Interventions for Shiga toxin-producing Escherichia coli gastroenteritis and risk of hemolytic uremic syndrome: a population-based matched case control study.	PLoS One	2022;17(2):e0263349.	3.7
10	Fuwa K, Nagano N, Iwata F, Okada T, Morioka I.	Cholesterol uptake capacity in cord blood of preterm infants.	Clinical Laboratory	2022;68:2181-2185.	0.7
11	Taguchi Y, Yagasaki H, Nagano N, Fuwa K, Morioka I.	Intracranial bleeding as a major problem among neonates with disseminated intravascular coagulation after the introduction of recombinant thrombomodulin.	Journal of Pediatric Hematology and Oncology	2022;44(3):e807-811.	0.3
12	Miyabayashi H, Nagano N, Kato R, Noto T, Hashimoto S, Saito K, Morioka I.	Reference values for cranial morphology based on three-dimensional scan analysis in 1-month-old healthy infants in Japan.	Neurologia medico-chirurgica (Tokyo)	2022;62(5):246-253.	1.9

PUBLICATION LIST 2022
Division of Pediatrics and Child Health

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
13	Miyabayashi H, Nagano N, Kato R, Noto T, Hashimoto S, Saito K, Morioka I.	Cranial shape in infants aged one month can predict the severity of deformational plagiocephaly at the age of six months.	Journal of Clinical Medicine	2022;11(7):1797.	3.9
14	Nagano N, Katayama D, Hara K, Sato Y, Tanabe S, Aoki M, Aoki R, Morioka I.	Percentile-based reference values of umbilical cord blood insulin-like growth factor-1 in Japanese newborns.	Journal of Clinical Medicine	2022;11(7):1889.	3.9
15	Urakami T, Terada H, Yoshida K, Kuwabara R, Mine Y, Aoki M, Shoji Y, Suzuki J, Morioka I.	Comparison of the clinical effects of intermittently scanned and real-time continuous glucose monitoring in children and adolescents with type 1 diabetes: A retrospective cohort study.	Journal of Diabetes Investigation	2022;13(10):1745-1752.	3.2
16	Harada R, Taniguchi-Ikeda M, Nagasaka M, Nishii T, Inui A, Yamamoto T, Morioka I, Kuroda R, Iijima K, Nozu K, Sakai Y, Toda T.	Assessment of upper limb muscles in patients with Fukuyama muscular dystrophy: noninvasive assessment using visual ultrasound muscle analysis and shear wave elastography.	Neuromuscular Disorders	2022;32(9):754-762.	2.8
17	Kato R, Nagano N, Hashimoto S, Saito K, Miyabayashi H, Noto T, Morioka I.	Three-dimensional versus two-dimensional evaluations of cranial asymmetry in deformational plagiocephaly using a three-dimensional scanner.	Children	2022;9(6):788.	2.4
18	Morioka I, Kakei Y, Omori T, Nozu K, Fujioka K, Takahashi N, Yoshikawa T, Moriuchi H, Ito Y, Oka A.	Oral valganciclovir therapy in infants aged ≤2 months with congenital cytomegalovirus disease: A multicenter, single-arm, open-label clinical trial in Japan.	Journal of Clinical Medicine	2022;11(13):3582.	3.9
19	Katayama D, Nagano N, Shimizu S, Nakazaki K, Matsuda K, Tokunaga W, Fuwa K, Aoki R, Morioka I.	A non-obese hyperglycemic mouse model that develops after birth with low birthweight.	Biomedicines	2022;10(7):1642.	4.7
20	Miyabayashi H, Nagano N, Kato R, Hashimoto S, Saito K, Noto T, Ohashi S, Masunaga K, Morioka I.	Cranial shapes of Japanese preterm infants at one month of age using a three-dimensional scanner.	Brain and Development	2022;44(10):690-698.	1.7
21	Takada K, Yamada-Shimodai S, Suzuki M, Trinh QD, Takano C, Kawakami K, Asai-Sato M, Komatsu A, Okahashi A, Nagano N, Misawa T, Yamaguchi K, Kawana K, Morioka I, Yamada H, Hayakawa S, Hao H, Komine-Aizawa S.	Restriction of SARS-CoV-2 replication in the human placenta.	Placenta	2022; 127: 73-76.	3.8
22	Abe Y, Tonouchi R, Hara M, Okada T, Jego EH, Taniguchi T, Koshinaga T, Morioka I.	Visceral fat area measured by abdominal bioelectrical impedance analysis in school-aged Japanese children.	Journal of Clinical Medicine	2022;11(14):4148.	3.9
23	Miyabayashi H, Nagano N, Hashimoto S, Saito K, Kato R, Noto T, Sasano M, Sumi K, Yoshino A, Morioka I.	Evaluation of cranial growth in healthy Japanese infants using a three-dimensional scanner: Relationship between growth-related parameters and deformational plagiocephaly.	Neurologia medico-chirurgica (Tokyo)	2022;62(11):521-529.	1.9
24	Aoki M, Urakami T, Nagano N, Aoki R, Morioka I.	Association of plasma cortisol levels with gestational age and anthropometric values at birth in preterm infants.	International Journal of Environmental Research and Public Health	2022;19(18):11448.	Not available
25	Ayusawa M, Namiki H, Abe Y, Ichikawa R, Morioka I.	Sudden death in patients with a history of Kawasaki disease under school supervision.	Children	2022;9(10):1593.	2.4

PUBLICATION LIST 2022
Division of Pediatrics and Child Health

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
26	Yamaguchi H, Nozu K, Hanafusa H, Nanbu Y, Kido T, Kondo A, Tamura A, Awano H, Morioka I, Nagase H, Ishida A.	Impact after the Change from Voluntary to Universal Oral Rotavirus Vaccination on Consecutive Emergency Department Visits for Acute Gastroenteritis among Children in Kobe City, Japan (2016-2022)	Vaccines (Basel)	2022;10(11):1831.	7.8
27	Suzuki-Yamanaka M, Ayusawa M, Hosokawa Y, Hirose N, Kaneoka K.	Epidemiology of sudden cardiac death and sudden cardiac arrest with resultant disability during high school organized sport in Japan.	Journal of Science and Medicine in Sport	2022;25(9):705-709.	4.0
28	Kiyohara K, Kitamura Y, Ayusawa M, Nitta M, Iwami T, Nakata K, Sobue T, Kitamura T.	Dissemination of chest compression-only cardiopulmonary resuscitation by bystanders for out-of-hospital cardiac arrest in students: A nationwide investigation in Japan.	Journal of Clinical Medicine	2022;11(4):928.	3.9
29	Torii Y, Horiba K, Kawada JI, Haruta K, Yamaguchi M, Suzuki T, Uryu H, Kashiwa N, Goishi K, Ogi T, Ito Y.	Detection of antiviral drug resistance in patients with congenital cytomegalovirus infection using long-read sequencing: a retrospective observational study.	BMC Infectious Diseases	2022:22(1):568	3.7
30	Hoque SA, Nishimura K, Thongprachum A, Khamrin P, Pham NTK, Islam MT, Khandoker N, Okitsu S, Shimizu-Onda Y, Dey SK, Maneekarn N, Kobayashi T, Hayakawa S, Ushijima H.	An increasing trend of human sapovirus infection in Japan, 2009 to 2019: An emerging public health concern.	Journal of Infection and Public Health	2022;15(3):315-320.	6.7
31	Atsumi Y, Yamanaka H, Shimozawa K, Yamanaka J, Uryu H, Mizukami A, Shichino H.	Drug-induced crystalluria attributable to tosufloxacin in children.	Pediatrics International	2022;64(1):e15368.	1.4
32	Kudo K, Toki T, Kanezaki R, Tanaka T, Kamio T, Sato T, Sasaki S, Imamura M, Imai C, Ando K, Kakuda H, Doi T, Kawaguchi H, Irie M, Sasahara Y, Tamura A, Hasegawa D, Itakura Y, Watanabe K, Sakamoto K, Shioda Y, Kato M, Kudo K, Fukano R, Sato A, Yagasaki H, Kanegane H, Kato I, Umeda K, Adachi S, Kataoka T, Kurose A, Nakazawa A, Terui K, Ito E.	BRAF V600E-positive cells as molecular markers of bone marrow disease in pediatric Langerhans cell histiocytosis.	Haematologica	2022;107(7):1719-1725.	10.1
33	Shimozawa K, Contreras-Ruiz L, Sousa S, Zhang R, Bhatia U, Crisalli KC, Brennan LL, Turka LA, Markmann JF, Guinan EC.	Ex vivo generation of regulatory T cells from liver transplant recipients using costimulation blockade.	American Journal of Transplantation	2022;22(2):504-518.	8.7
34	Nishimaki H, Nakanishi Y, Yagasaki H, Masuda S.	Multiple immunofluorescence imaging analysis reveals differential expression of disialogangliosides GD3 and GD2 in neuroblastomas.	Pediatric and Developmental Pathology	2022;25(2):141-154.	1.9
35	James S, Maniam J, Cheung P-T, Urakami T, von Oettingen J, Likitmaskul S, Ogle G	Epidemiology and phenotypes of diabetes in children and adolescents in non-European-origin populations in or from Western.	World Journal of Clinical Pediatrics	2022;11(2):173-195.	Not available
36	Iijima K, Sako M, Oba M, Tanaka S, Hamada R, Sakai T, Ohwada Y, Ninchoji T, Yamamura T, Machida H, Shima Y, Tanaka R, Kaito H, Araki Y, Morohashi T, Kumagai N, Gotoh Y, Ikezumi Y, Kubota T, Kamei K, Fujita N, Ohtsuka Y, Okamoto T, Yamada T, Tanaka E, Shimizu M, Horinouchi T, Konishi A, Omori T, Nakanishi K, Ishikura K, Ito S, Nakamura H, Nozu K, Japanese Study Group of Kidney Disease in Children	Mycophenolate mofetil after rituximab for childhood-onset complicated frequently-relapsing or steroid-dependent nephrotic syndrome.	Journal of the American Society of Nephrology	2022;33(2):401-419.	13.6

PUBLICATION LIST 2022
Division of Pediatrics and Child Health

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
37	Moriuchi Y, Fuchigami T, Sugiyama C, Takahashi S, Ohashi Y, Yonezawa R, Mizukoshi W, Morioka I.	Obturator pyomyositis and labium majus cellulitis: a case report and literature review.	SAGE Open Medical Case Reports	2022;10:2050313X211063781.	0.8
38	Aoki M, Uehara S, Nishimaki H, Aoki R, Kayama K, Nagano N, Urakami T, Morioka I.	Adrenal cytomegaly with elevated serum androgen levels in a patient with Beckwith-Wiedemann syndrome.	Endocrine Journal	2022;69(8):919-926.	2.0
39	Maedomari T, Fuwa K, Nagano N, Kaneda H, Koshinaga T, Morioka I.	Early intervention for renal dysfunction due to terminal deletion of chromosome 10q by monitoring cystatin-C.	Journal of Nihon University Medical Association	2022;81(3):151-154.	Not available
40	Yagasaki H, Hirai M, Kanezawa K, Ueno M, Hao H, Masuda S, Sugitani M, Morioka I.	Successful treatment for diffuse large B-cell lymphoma in a Japanese adolescent with PIK3CD germ-line mutation: Stem cell transplantation after reduced-intensity conditioning.	Annals of Hematology	2022;101(7):1617-1619.	3.5
41	Okahashi A, Hijikata M, Kimura Y, Nagano N, Morioka I.	Low-tone hearing impairment in a newborn with congenital cytomegalovirus infection.	Pediatrics International	2022;64 (1):e15218.	1.4
42	Aoki R, Nagano N, Hijikata M, Seimiya A, Morioka I.	Distal femoral epiphyseal ossification center absence in congenital syphilis: a case series.	Pediatrics International	2022;64 (1):e15234.	1.4
43	Moriuchi Y, Fuchigami T, Mizukoshi W, Morioka I.	An infant with congenital tracheal and bronchial stenosis diagnosed by chest three-dimensional computed tomography.	Cureus	2022;14 (5):e24771.	Not available
44	Go H, Nagano N, Sumi K, Nishimaki H, Morioka I.	Intracranial hemorrhage due to vitamin K deficiency in an infant with arteriovenous malformation.	Pediatrics International	2022;64 (1):e15238.	1.4
45	Shimizu S, Morohashi T, Kanezawa K, Yagasaki H, Takahashi S, Morioka I.	Successful treatment with anti-C5 monoclonal antibody in a Japanese adolescent who developed thrombotic microangiopathy after autologous bone marrow transplantation for malignant lymphoma.	Frontiers in Pediatrics	2022;10:908183.	2.6
46	Tanaka Y, Shimizu S, Namiki H, Morohashi T, Morioka I.	A neonate with interstitial pneumonia due to human metapneumovirus infection.	Pediatrics International	2022;64 (1):e15284.	1.4
47	Miyabayashi H, Seto H, Tanabe S, Saito K, Morioka I.	An infant with benign enlargement of the subarachnoid space with subdural hemorrhage.	Pediatrics International	2022;64 (1):e15292.	1.4
48	Nagano N, Kaneko C, Ohashi S, Seya M, Takigawa I, Masunaga K, Morioka I.	Non-obese type 2 diabetes with a history of being an extremely preterm small-for-gestational age infant without early adiposity rebound.	International Journal of Environmental Research and Public Health	2022;19(14):8560.	Not available
49	Terada H, Ishii W, Kawaguchi T, Aoki R, Kasuga Y, Momoki E, Fuchigami T, Morioka I.	Relapsing neuromyelitis optica spectrum disorder due to non compliance to oral corticosteroid therapy:A case report.	Medicine: Case Reports and Study Protocols	2022;3:12:e00264.	1.6

PUBLICATION LIST 2022
Division of Pediatrics and Child Health

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
50	Takahashi S, Fuchigami T, Furuya T, Mizukoshi W, Morioka I.	A pediatric case of autism spectrum disorder with a prostatic abscess.	Cureus	2022;14(7):e26941.	Not available
51	Matsumoto Y, Shimozawa K, Yamanaka J, Atsumi Y, Ota T, Mochizuki S, Shichino H.	Successful treatment with antibiotics alone for infant rib osteomyelitis.	Case Reports in Pediatrics	2022;2022:3093784.	0.9
52	Bont L, Olivier CW, Herting E, Esposito S, Navarro Alonso JA, Lega F, Mader S, Morioka I, Shen K, Syrogiannopoulos GA, Faust SN, Bozzola E.	The assessment of future RSV immunizations: How to protect all infants?	Frontiers in Pediatrics	2022;10:981741.	2.6
53	Kuwabara R, Urakami T.	Significance of simultaneous fasting plasma glucose and glycosylated hemoglobin testing in urinary glucose screening.	Pediatrics International	2022;64 (1):e15107.	1.4
54	Urakami T.	Significance of the CGM metric of time in range in children and adolescents with type 1 diabetes	Endocrine Journal	2022;69(9):1035-1042.	2.0
55	Shah AS, Zeitler PS, Wong J, Pena AS, Wicklow B, Arslanian S, Chang N, Fu J, Dabadghao P, Pinhas-Hamiel O, Urakami T, Craig ME.	ISPAD Clinical Practice Consensus Guidelines 2022: Type 2 diabetes in children and adolescents.	Pediatric Diabetes	2022;23:872-902.	3.4

Division of Cutaneous Science

Chair and Professor, Hideki Fujita, M.D., Ph.D.

Research for the benefit of patients

*Professor Hideki Fujita's Curriculum Vitae

- Education -

2005	Ph.D. University of Tokyo Graduate school of Medicine, Tokyo, Japan
1999	M.D. Faculty of Medicine, University of Tokyo, Tokyo, Japan

Professional Experience -

2023 Jun-present:	Professor and Chair Department of Dermatology, Nihon University School of Medicine Tokyo, Japan
2014 Feb-2023 May:	Associate Professor Department of Dermatology, Nihon University School of Medicine Tokyo, Japan
2011 May-2014 Jan:	Lecturer Department of Dermatology, University of Tokyo Tokyo, Japan
2008 Aug.-2011 Mar.:	Senior Research Associate Laboratory for Investigative Dermatology The Rockefeller University New York, U.S.A.
2007 Apr.-2008Aug.:	Assistant Professor Department of Dermatology, University of Tokyo Hospital Tokyo, Japan
2005 Apr.-2007 Apr.:	Full-time physician National Sagamihara Hospital Department of Dermatology and Clinical Research Center for allergy and Rheumatology Kanagawa, Japan
1999 Dec.-2001 Mar.:	Full-time physician University of Tokyo Branch Hospital Department of Dermatology Tokyo, Japan
1999 May-1999 Nov.:	Resident University of Tokyo Hospital Department of Dermatology Tokyo, Japan

- Professional Society -

Japanese Dermatological Association
A member of delegation
Japanese Society for Dermatological Research
A member of the board trustees

- Major Interests -

Cutaneous inflammation and immunology
Psoriasis
Urticaria
Atopic dermatitis
Palmoplantar pustulosis
Hidradenitis suppurativa

***Research Introduction**

Our interest of research includes psoriasis, chronic urticaria, atopic dermatitis, palmoplantar pustulosis, hidradenitis suppurativa. We are particularly interested in studying the pathophysiology of the diseases and development of novel treatment for them. We are now giving much weight to translational study, and most part of our works are patient-oriented but not dependent on animal model systems. We are conducting not only laboratory research using molecular and cellular biology methods but also clinical investigations using patients' data under the approval of the institutional ethical committee. Our current research projects are described blow.

- Analysis of intestinal flora in patients with psoriasis, atopic dermatitis, and chronic urticaria.
- Analysis of lipoquality in patients with psoriasis, atopic dermatitis, and chronic urticaria.
- Establishment of biomarkers to estimate treatment efficacy in patients with chronic urticaria
- Role of IgE in chronic urticaria.
- Basophil activation in urticaria and immediate-type allergic reaction to various drugs.
- Comparison of basophil activation through IgE-dependent stimulation between chronic urticaria patient and non-atopic control.
- Epidemiological studies of generalized pustular psoriasis.
- Epidemiological studies of hidradenitis suppurativa.
- Analysis of genetic backgrounds in cases of Japanese familial hidradenitis suppurativa focusing on gamma-secretase subunits genes.

PUBLICATION LIST 2022
Division of Cutaneous Science

List No.	Author	Paper	Journal	Publication year ; volume ; page	Impact Factor
1	Nishimori N, Izaki S, Kashimura T, Fujita H.	A case of squamous cell carcinoma arising from plasma cell cheilitis.	International Journal of Dermatology	2022;61(6):e232-e233.	3.6
2	Hayama K, Fujita H, Hashimoto T, Terui T.	Overall Impairment of Quality of Life in Japanese Patients with Hidradenitis Suppurativa: Comparison with National Standard.	Acta Dermato-Venereologia	2022;102:adv00632.	3.6
3	Nishimori N, Niwa Y, Kazama A, Yamamoto M, Fujita H.	Extensive expression of SARS-CoV-2 spike protein from the eccrine secretory gland to acrosyringium in the maculopapular eruption of a COVID-19 patient.	Journal of dermatology	2022;49(1):e11-e12.	3.1
4	Asakura M, Yoshida K, Ishii M, Fujita H.	Case of oral glycogenic acanthosis clinically resembling lichen planus.	Journal of dermatology	2022;49(3):e119-e120.	3.1
5	Hayama H, Fujita H.	Improvement of dupilumab-associated conjunctivitis after switching to upadacitinib in a patient with atopic dermatitis.	Dermatologic Therapy	2022;35(7):e15575.	3.6
6	Hayama K, Izaki S, Hayashi K, Kurosawa Y, Yamada S, Shimizu T, Gon Y, Fujita H.	A case of acute exacerbation of chronic spontaneous urticaria due to COVID-19 immediately after omalizumab administration.	Postepy Dermatologii i Alergologii	2022;39(6):1171-1173.	1.4
7	Hayama K, Fujita H, Terui T.	Current trend in the treatment of generalized pustular psoriasis in Japan: Results from a questionnaire-based epidemiological study.	Journal of Dermatology	2022;49(12):e439-e440.	3.1
8	Hayashi N, Hayama K, Takahashi K, Kurokawa I, Okazaki M, Kashiwagi T, Iwashita E, Terui T.	Real-world safety and effectiveness of adalimumab in patients with hidradenitis suppurativa: 12-week interim analysis of post-marketing surveillance in Japan.	Journal of Dermatology	2022;49(4):411-421.	3.1
9	Maurer M, Berger W, Giménez-Arnau A, Hayama K, Jain V, Reich A, Haemmerle S, Lheritier K, Walsh P, Xia S, Storim J.	Remibrutinib, a novel BTK inhibitor, demonstrates promising efficacy and safety in chronic spontaneous urticaria.	Journal of Allergy and Clinical Immunology.	2022;150(6):1498-1506.	14.2
10	Saeki H, Tsunemi Y, Arai S, Ichiyama S, Katoh N, Kikuchi K, Kubo A, Terui T, Nakahara T, Futamura M, Murota H, Igarashi A.	English version of guidelines for the management of asteatosis 2021 in Japan.	Journal of Dermatology	2022;49(3):e77-e90.	3.1
11	Takahagi S, Kamegashira A, Inomata N, Fukunaga A, Nakahara T, Hayama K, Hide M.	Impact of physicians' clinical experience and workplace on patients' care of urticaria in Japan: A sub-analysis of a nation-wide cross-sectional web questionnaire survey.	Journal of Cutaneous Immunology and Allergy	2022;5(3):106-108.	1.0
12	Griffiths CEM, Gooderham M, Colombel J-F, Terui T, Accioly AP, Gallo G, Zhu D, Blauvelt A.	Safety of Ixekizumab in Adult Patients with Moderate-to-Severe Psoriasis: Data from 17 Clinical Trials with Over 18,000 Patient-Years of Exposure.	Dermatology and Therapy	2022;12(6):1431-1446.	3.4

Division of Digestive Surgery

Chair and Professor, Yukiyasu Okamura, M.D., Ph.D.

To be an academic surgeon

Introduction

We have a lot of experience in treating liver cancer and has achieved good results. However, the introduction of minimum invasive surgery (MIS) was delayed compared to other institutions. Since 2021 when Dr. Yukiyasu Okamura was appointed to the professorship of the Department of Digestive Surgery, we aggressively introduced MIS under the concept "safety and quality for patients". From August 2021, we have introduced laparoscopic surgery for liver tumors, March 2022 for stomach cancer, and May 2022 for pancreatic tumors. We have started introducing robot-assisted surgery for rectum cancer from July 2022, and for liver tumors from June 2023. Currently, we perform MIS for about 90% of colon and rectum cancer surgery and about 80% of liver resection patients. Moreover, we conduct research to solve the clinical questions in cooperation with other departments.

1. Research for Hepatocellular Carcinoma

Our department had the 1st place in the number of hepatectomy in Japan for these 6 years and have a lots of clinical data and samples.

We have published several papers for international peer-review journals (1-5).

2. Research for Pancreatic Cancer

Pancreatic cancer is the poorest prognosis in malignant tumors. The results of a study showing the therapeutic effect of S-1 adjuvant therapy were published (Uesaka K, Okamura Y, et al. Lancet 2016). The study showed more than 40% five-year survival rates, which is dramatic improvement in treatment for pancreatic cancer. Based on the results, we introduced a systemic treatment strategy that included staging laparoscopy, neoadjuvant chemotherapy and adjuvant chemotherapy with the division of Gastroenterology.

3. Molecular Research

Molecular research has been conducted for gastric cancer (Koseki Y, Okamura Y, et al. Gastric Cancer 2023), hepatocellular carcinoma (Imamura T, Okamura Y, et al. BMC Cancer 2022), pancreatic cancer (Imamura T, Okamura Y, et al. Ann Gastroenterol Surg 2022) and vater carcinoma (6).

4. Managements for Laparoscopic Hepatectomy

We reported the novel difficulty scoring system for laparoscopic repeat hepatectomy based on an existing difficulty scoring system (7) and showed the risk factors of intraoperative blood loss in laparoscopic hepatecomy (8). Based on these studies, we safely perform laparoscopic hepatectomy for selected patients.

Perspectives

Bearing in mind the mission of Nihon University School of Medicine, "Educating fine clinical physicians who have passion and a sense of purpose", we aim to bring up global and well-educated surgeons with intellect and virtue. We believe that it is possible to send out our international findings through valuing diversity among the surgeons, raising aspirations toward academic scholarship, and creating evidence for patients' benefit.

PUBLICATION LIST 2022

Division of Digestive Surgery

List No.	Author	Paper	Journal	Publication year ; volume ; page	Impact Factor
1	Yoshida N, Midorikawa Y, Higaki T, Nakayama H, Moriguchi M, Aramaki O, Tsuji S, Okamura Y, Takayama T.	Validity of the Algorithm for Liver Resection of Hepatocellular Carcinoma in the Caudate Lobe	World Journal of Surgery	2022;46(5):1134-1140	2.6
2	Yamagishi S, Aramaki O, Yoshida N, Mitsuka Y, Kawai T, Yamazaki S, Kang W, Nakayama H, Moriguchi M, Higaki T, Kochi M, Okamura Y.	Laparoscopic-assisted modified Kugel herniorrhaphy for obturator hernia: a case report	Journal of Surgical Case Reports	2022;2022(2):rjac035	0.5
3	Hojo A, Nakayama H, Okamura Y, Higaki T, Moriguchi M, Aramaki O, Yamazaki S, Takayama T.	Evaluation of Safety-Related Outcomes of One-Segment and More-Than-One-Segment High-Level Hepatectomy in Hepatocellular Carcinoma Based on the Japanese Board Certification System	World Journal of Surgery	2022;45(5):1141-1150	2.6
4	Imamura T, Okamura Y, Ohshima K, Uesaka K, Sugiura T, Ito T, Yamamoto Y, Ashida R, Ohgi K, Otsuka S, Ohnami S, Nagashima T, Hatakeyama K, Kakuda Y, Sugino T, Urakami K, Akiyama Y, Yamaguchi K.	Hepatocellular carcinoma after a sustained virological response by direct-acting antivirals harbors TP53 inactivation	Cancer Medicine	2022;11(8):1769-1786	4.0
5	Sano S, Okamura Y, Ohgi K, Sugiura T, Ito T, Yamamoto Y, Ashida R, Sasaki K, Uesaka K.	Histological pancreatic findings correlate with computed tomography attenuation and predict postoperative pancreatic fistula following pancreatoduodenectomy	HPB	2022;24(9):1519-1526	2.9
6	Okamura Y	Non-tumor-related risk score: A new tool to improve prognostic prediction following hepatectomy for colorectal liver metastases	Surgery	2022;171(6):1588	3.8
7	Imamura T, Ohgi K, Okamura Y, Sugiura T, Ito T, Yamamoto Y, Ashida R, Otsuka S, Tamura S, Uesaka K.	The clinical benefits of performing staging laparoscopy for pancreatic cancer treatment	Pancreatology	2022;22(5):636-643	3.6
8	Imamura T, Okamura Y.	Genomic alterations in hepatocellular carcinoma and their clinical application to genomic medicine	Hepatobiliary surgery and Nutrition	2022;11(3):449-452	8.0
9	Yoshida N, Yamazaki S, Masamichi M, Okamura Y, Takayama T.	Prospective validation to prevent symptomatic portal vein thrombosis after liver resection	World Journal of Hepatology	2022;14(5):1016-1024	2.4
10	Imamura T, Okamura Y, Ohshima K, Uesaka K, Sugiura T, Ito T, Yamamoto Y, Ashida R, Ohgi K, Otsuka S, Ohnami S, Nagashima T, Hatakeyama K, Sugino T, Urakami K, Akiyama Y, Yamaguchi K.	Overview and clinical significance of multiple mutations in individual genes in hepatocellular carcinoma	BMC Cancer	2022;22(1):1046	3.8
11	Moriyama M, Kanda T, Midorikawa Y, Matsumura H, Masuzaki R, Nakamura H, Ogawa M, Matsuoka S, Shibata T, Yamazaki M, Kuroda K, Nakayama H, Higaki T, Kanemaru K, Miki T, Sugitani M, Takayama T.	The proliferation of atypical hepatocytes and CDT1 expression in noncancerous tissue are associated with the postoperative recurrence of hepatocellular carcinoma.	Scientific Reports	2022;12(1):20508.	4.6
12	Hagiwara K, Yamashita H	Anomalous vascular anatomy of the left gastric artery in oesophagectomy.	ANZ Journal of Surgery	2022;92(5):1213-1214.	1.7

PUBLICATION LIST 2022
Division of Digestive Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
13	Kanai H, Minamoto T, Nukaya A, Kondo M, Aso T, Fujii A, Hagiwara K.	Intraoperative cholangiography and bile duct flushing in 47 dogs receiving laparoscopic cholecystectomy for benign gallbladder disease: A retrospective analysis.	Veterinary Surgery	2022;51:O150-O159.	1.8
14	Sugawara K, Yamashita H, Urabe M, Uemura Y, Okumura Y, Yagi K, Aikou S, Seto Y.	Combining nutritional status with TNM stage: a physiological update on gastric cancer staging for improving prognostic accuracy in elderly patients	International Journal of Clinical Oncology	2022;27:1849-1858.	3.3
15	Sugawara K, Yagi K, Aikou S, Yamashita H, Seto Y.	Impacts of complications after esophageal cancer surgery on health-related quality of life and nutritional status	General Thoracic and Cardiovascular Surgery	2022;70:1048-1057.	1.2
16	Iwata R, Shiomi S, Aikou S, Yagi K, Yamashita H, Seto Y.	Optimal settings of near-infrared fluorescence imaging with indocyanine green for intraoperative detection of lymph node metastasis in esophageal cancer	General Thoracic and Cardiovascular Surgery	2022;70:924-929.	1.2
17	Uranbileg B, Kurano M, Kano K, Sakai E, Arita J, Hasegawa K, Nishikawa T, Ishihara S, Yamashita H, Seto Y, Ikeda H, Aoki J, Yatomi Y.	Sphingosine 1-phosphate lyase facilitates cancer progression through converting sphingolipids to glycerophospholipids	Clinical and Translational Medicine	2022;12:e1056.	10.6
18	Zhang CD, Yamashita H, Okumura Y, Yagi K, Aikou S, Seto Y.	Signature and Prediction of Perigastric Lymph Node Metastasis in Patients with Gastric Cancer and Total Gastrectomy: Is Total Gastrectomy Always Necessary?	Cancers	2022;14:3409.	5.2
19	Toriumi T, Yagi K, Ri M, Yajima S, Okumura Y, Aikou S, Yamashita H, Nomura S, Seto Y.	Lymphatic invasion is a prognostic factor of pathological N0 esophageal squamous cell carcinoma	Diseases of the Esophagus	2022;35(7):doab087.	2.6
20	Fujisaki M, Nomura T, Yamashita H, Uenosono Y, Fukunaga T, Otsuji E, Takahashi M, Matsumoto H, Oshio A, Nakada K.	Impact of Tumor Location on the Quality of Life of Patients Undergoing Total or Proximal Gastrectomy	Journal of Gastric Cancer	2022;22:235-247.	2.5
21	Komura D, Kawabe A, Fukuta K, Sano K, Umezaki T, Koda H, Suzuki R, Tominaga K, Ochi M, Konishi H, Masakado F, Saito N, Sato Y, Onoyama T, Nishida S, Furuya G, Katoh H, Yamashita H, Kakimi K, Seto Y, Ushiku T, Fukayama M, Ishikawa S.	Universal encoding of pan-cancer histology by deep texture representations	Cell Reports	2022;38(9):110424.	8.8
22	Sugawara K, Yagi K, Okumura Y, Aikou S, Yamashita H, Seto Y.	Survival Prediction Capabilities of Preoperative Inflammatory and Nutritional Status in Esophageal Squamous Cell Carcinoma Patients	World Journal of Surgery	2022;46(3):639-647.	2.6
23	Hagiwara K, Ichijima R, Gotoda T, Yamashita H.	Timing of Kocher maneuver in laparoscopic endoscopic cooperative surgery for duodenum tumor: Before or after endoscopic submucosal dissection?	Endoscopy International Open	2022;10(2):E224-225.	2.6
24	Nakagawa K, Sho M, Okada KI, Akahori T, Aoyama T, Eguchi H, Fujii T, Higuchi R, Kanaji S, Kanetaka K, Kuroda S, Nagakawa Y, Nunobe S, Yamada S, Yamashita H, Yamaue H, Kodera Y; Japan Duodenal Cancer Guideline Committee.	Surgical results of non-ampullary duodenal cancer: a nationwide survey in Japan	Journal of Gastroenterology	2022;57(2):70-81.	6.3

PUBLICATION LIST 2022
Division of Digestive Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
25	Tago K, Tsukada J, Sudo N, Shibutani K, Okada M, Abe H, Ibukuro K, Higaki T, Takayama T.	Comparison between CT volumetry and extracellular volume fraction using liver dynamic CT for the predictive ability of liver fibrosis in patients with hepatocellular carcinoma	European Radiology	2022;32(11):7555-7565.	5.9
26	Kanda T, Sasaki-Tanaka R, Ishii T, Abe H, Ogawa M, Enomoto H.	Acute Liver Failure and Acute-on-Chronic Liver Failure in COVID-19 Era	Journal of Clinical Medicine	2022;11(14):4249.	3.9
27	Toyonaka R, Ozeki J, Koyama Y, Takahashi S, Tang X, Kobayashi H, Amano M, Tada K, Miki T, Tani M.	A case of breast squamous cell carcinoma following breast augmentation with liquid silicone injection after 16 years.	Surgical Case Report	2022;8(1):22.	Not available

Division of Cardiovascular Surgery

Chair and Professor, Masashi Tanaka, M.D., Ph.D.

Less invasive cardiovascular surgery with better clinical outcomes

Professor Masashi Tanaka graduated from Nihon University School of Medicine in 1996. After general surgical training at Mitsui Memorial Hospital, he investigated heart transplant immunology and stem cell therapy for end-stage heart failure at Stanford University. Before appointment as chair and chief professor of this department, he performed over 2000 cardiovascular operations at Saitama Medical Center, Jichi Medical University, and Shonan-Kamakura General Hospital. He has long investigated ways to minimize surgical invasion and improve outcomes and quality of life after cardiovascular surgery. He recently started his career at Nihon University and aims to pursue a higher level of clinical and research expertise.

[Preventing postoperative atrial fibrillation (POAF)]
POAF is the most common complication of cardiac surgery and influences the prognosis. We were able to successfully reduce the incidence of POAF by intraoperative infusion of landiolol hydrochloride. We also showed that carperitide prevents POAF in a prospective clinical study.

[Implantable ventricular assist device]
We have used an implantable ventricular assist device (VAD) clinically since 2014. Major complications have been thromboembolism, infection, and bleeding, with drive line infection influencing the prognosis. We reported that the Nihon University crystal violet method is effective for preventing infections.

[Less invasive surgery for thoracic aortic disease]
We have established “less invasive quick replacement” (LIQR) for aortic dissection and “less invasive quick open stenting” (LIQS) for aortic arch aneurysm. We reported the early clinical results and are now accumulating medium- and long-term data.

[Regenerative therapy with implantation of differentiated fat cells (DFAT)]
We are conducting research on the therapeutic potential of implanting DFAT cells to promote angiogenesis in ischemic myocardium and critical limb ischemia.

Our goals include establishing regenerative therapy and mechanical support for end-stage heart failure, and discovering methods to minimize surgical invasion. We are also planning more basic cardiovascular research, including investigation of ischemia-reperfusion injury in a murine heterotopic heart transplantation model.

PUBLICATION LIST 2022

Division of Cardiovascular Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Machii Y, Sezai A, Taoka M, Osaka S, Suzuki K, Onuki Y, Tanaka M.	Coronary Artery Stenosis Caused by Primary Malignant Pericardial Mesothelioma in a 76-Year-Old Man.	Texas Heart Institute Journal	2022;49(6):e207456.	0.9
2	Sezai A, Tanaka A, Imai T, Kida K, Sekino H, Murohara T, Sata M, Suzuki N, Node K, CANDLE Trial Investigators.	Comparing the Effects of Canagliflozin vs. Glimepiride by Body Mass Index in Patients with Type 2 Diabetes and Chronic Heart Failure: A Subanalysis of the CANDLE Trial.	Biomedicines	2022;10(7):1656.	4.7
3	Tanaka A, Imai T, Shimabukuro M, Taguchi I, Sezai A, Toyoda S, Watada H, Ako J, Node K, CANDLE Trial Investigators.	Association between serum insulin levels and heart failure-related parameters in patients with type 2 diabetes and heart failure treated with canagliflozin: a post-hoc analysis of the randomized CANDLE trial.	Cardiovascular Diabetology	2022;21(1):151.	9.3
4	Ohba M, Kitanaka Y, Shimada N, Tanaka M.	Tricuspid Valve Repair for Infective Endocarditis Caused by Atopic Dermatitis.	Cardiovascular Surgery International	2022;3(1):1019.	Not available
5	Fujimori T, Kimura N, Mieno M, Hori D, Kusadokoro S, Tanaka M, Yamaguchi A.	An increased prothrombin time-international normalized ratio in patients with acute type A aortic dissection: contributing factors and their influence on outcomes.	Surgery Today	2022;52(3):431-440.	2.5
6	Kitashima F, Itagaki R, Sezai A, Taoka M, Osaka S, Machii Y, Hanamura T, Tanaka M.	A Case of Thoracic Aortic Endovascular Repair of a Ruptured Mycotic Aortic Aneurysm Due to Pasteurella Multocida.	Heart Surgery Forum	2022;25(5):E680-E682.	0.6
7	Sezai A, Shimokawa T, Kanaoka K, Fukuma N, Sekino H, Shiraishi H, Sumita Y, Nakai M, Iwanaga Y, Furukawa Y, Miura SI, Oya Y, Yasu T, Makita S.	Efficacy of Early Cardiac Rehabilitation After Cardiac Surgery - Verification Using Japanese Diagnosis Procedure Combination Data.	Circulation Reports	2022;4(11):505-516.	Not available

Division of Respiratory Surgery

Chair and Professor, Hiroyuki Sakurai, M.D., Ph.D.

Best efforts for thoracic malignancy cure

Dr. Hiroyuki Sakurai graduated from the Faculty of Medicine, University of Yamanashi, in 1994. He received his medical degree and doctorate from University of Yamanashi. He completed his residency in general surgery and a clinical fellowship in thoracic surgery at the National Cancer Center Hospital, Tokyo (1998-2003), and served as an attending surgeon (thoracic surgery) from 2009 to 2016. Since October 2016, he has served as a professor in the Division of Respiratory Surgery at Nihon University School of Medicine.

The Division of Respiratory Surgery deals with various kinds of neoplasms and associated diseases in the thorax, with the exception of the esophagus. These include both primary and metastatic lung tumors, mediastinal tumors, pleural tumors (mesotheliomas), chest wall tumors, pneumothorax, and inflammatory disease. The main clinical activity of the division, as well as the subject of most of its research activities, has been the surgical management of lung cancer patients. In addition to efforts to further improve procedures, such as the combined resection of neighboring vital structures and minimally invasive techniques (video-assisted thoracic surgery, VATS), it has become increasingly important to define the role of surgery in multimodality treatment for patients with a poor prognosis.

The treatment strategy for patients with lung cancer is based on the tumor histology (non-small cell vs. small cell), the extent of the disease (clinical stage), and the physical status of the patient. In lung cancer patients, surgical resection is usually indicated for clinical stages I, II, and some IIIA with a non-small cell histology and clinical stage I with a small cell histology. However, to improve the poor prognosis of patients with clinically and histologically proven mediastinal lymph node metastasis or with invasion to neighboring vital structures, optimal treatment modalities are sought in a clinical trial setting. In current practice, patients with advanced lung cancer often receive adjuvant chemotherapy, even after complete pulmonary resection.

For metastatic lung tumors, resection has been attempted on the basis of Thomford's criteria: eligible patients are those who are at good risk, with no extrathoracic disease, with the primary site in control, and with completely resectable lung disease. Metastasis from colorectal carcinomas is the most common disease.

For mediastinal tumors, thymic epithelial tumors are most commonly encountered for resection. For patients with thymoma, we have adopted VATS resection of the tumor. Since April 2020, we have also adopted robot-assisted thoracic surgery for mediastinal tumor.

Research activities

Lymph node dissection for lung cancer has been a major issue in lung cancer treatment. We continue to improve the surgical technique of dissection based on oncological and surgical considerations: a more effective and less invasive lymph node dissection, called "selective mediastinal/hilar dissection", according to the lobe-specific location of the primary tumor, has been developed.

Minimally invasive surgery with a thoracoscope for thoracic malignancies is also an important challenge in our division. In particular, the indications and surgical techniques of VATS or robotic surgery for early lung cancer are of special interest because of the increased frequency at which we encounter such minute tumors due to improvements in CT devices and CT screening.

As for postoperative adjuvant therapy, a phase III clinical trial to compare the effectiveness of UFT with that of TS-1 for stage IA of more than 2 cm and IB non-small cell lung cancer (NSCLC) planned by JCOG (JCOG 0707), where Dr. Sakurai was a member of the research office, has been underway since 2008. According to the main results available in 2019, postoperative adjuvant therapy with oral S-1 was not superior to that with UFT in stage I NSCLC. UFT remains the standard in this population.

At present, dynamic chest radiography, that is performed in an additional 15 seconds during chest radiography, is assessed for the preoperative evaluation of pleural adhesion.

PUBLICATION LIST 2022

Division of Respiratory Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Shukuya T, Takamochi K, Sakurai H, Yoh K, Hishida T, Tsuboi M, Goto Y, Kudo Y, Ohde Y, Okumura S, Taguri M, Kunitoh H.	Efficacy of Adjuvant Chemotherapy With Tegafur-Uracil in Patients With Completely Resected, Node-Negative NSCLC-Real-World Data in the Era of Molecularly Targeted Agents and Immunotherapy	Journal of Thoracic Oncology	2022;3(5):100320	20.4
2	Sato D, Hayashi S, Sakata S, Kawachi R, Shimamura M Sakurai 1H.	Intrapericardial Ectopic Goiter: A Very Unusual Presentation	Annals of Thoracic and Cardiovascular Surgery	2022;28(1):72-74	1.4

Division of Pediatric Surgery

Chair and Professor, Shuichiro Uehara, M.D., Ph.D.

The “children first” surgical care for our bright future.

About us

The Division of Pediatric Surgery, Nihon University School of Medicine was established by Professor Osamu Wakabayashi in 1948 when the hospital was damaged during the war. In 1960, Dr. Wakabayashi and Dr. Morita successfully performed the first surgery for congenital esophageal atresia in Japan. The Division of Pediatric Surgery was established in 1970 with the construction of the new Itabashi Hospital. Professor Shuichiro Uehara took over the department in April 2023 with more than 25 years of experience in pediatric surgery and has outstanding skills and experience among pediatric surgeons in Japan.

Our goal is to provide "safe and secure pediatric surgical care that can be performed on one's own child" by staying close to children and their families. We provide not only difficult surgical treatments, but also high quality medical care that prioritizes children's QOL (quality of life) and future.

We have 19 board-certified pediatric surgeons and many trainees in Itabashi Hospital and our allied hospitals around Tokyo. Our staffs are locally and nationally known as for a wide range of expertise including:

- **Neonatal surgery for congenital diseases**
- **Pediatric oncologic surgeries**
- **Pediatric surgical nutrition**
- **Minimally invasive surgery (thoracoscopic and laparoscopic surgeries including single incision endoscopic surgery)**
- **Pediatric trauma care (cooperate with our outstanding ER teams)**

Research

The Division of Pediatric Surgery has a steady history of research with fundamental discoveries in basic, translational and clinical sciences that have shaped the practice of Pediatric Surgery and Medicine both nationally and internationally. Each division is involved in basic science research as well as translational research with novel applications. Our research focuses on genetic and immunological analyses and personalized molecular medicine for pediatric cancer, as well as cell therapy and regenerative medicine using undifferentiated adipocytes and multicenter clinical trials.

PUBLICATION LIST 2022

Division of Pediatric surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Abe Y, Tonouchi R, Hara M, Okada T, Jego EH, Taniguchi T, Koshinaga T, Morioka I	Visceral Fat Area Measured by Abdominal Bioelectrical Impedance Analysis in School-Aged Japanese Children	Journal of Clinical Medicine	2022;11(14):4148.	3.9
2	Adachi K, Ishizawa M, Uno S, Kubota H, Henmi T, Koshinaga T, Makishima M, Sakurai K	Oral benzo[a]pyrene administration attenuates dextran sulfate sodium-induced colitis in mice	Chemico-Biological Interactions	2022;353:109802.	5.1
3	Ando K, Ohira M, Takada I, Cazares-Ordonez V, Suenaga Y, Nagase H, Kobayashi S, Koshinaga T, Kamijo T, Makishima M, Wada S	FGFR2 loss sensitizes MYCN-amplified neuroblastoma CHP134 cells to CHK1 inhibitor-induced apoptosis	Cancer science	2022;113(2):587-596.	5.7
4	Kawano T, Souzaki R, Sumida W, Ishimaru T, Fujishiro J, Hishiki T, Kinoshita Y, Kawashima H, Uchida H, Tajiri T, Yoneda A, Oue T, Kuroda T, Koshinaga T, Hiyama E, Nio M, Inomata Y, Taguchi T, Ieiri S	Laparoscopic approach for abdominal neuroblastoma in Japan: results from nationwide multicenter survey	Surgical endoscopy and other interventional techniques	2022;36(5):3028-3038.	3.1
5	Tomizawa D, Tsujimoto SI, Tanaka S, Matsubayashi J, Aoki T, Iwamoto S, Hasegawa D, Nagai K, Nakashima K, Kawaguchi K, Deguchi T, Kiyokawa N, Ohki K, Hiramatsu H, Shiba N, Terui K, Morita-Saito A, Kato M, Taga T, Koshinaga T, Adachi S	A phase III clinical trial evaluating efficacy and safety of minimal residual disease-based risk stratification for children with acute myeloid leukemia, incorporating a randomized study of gemtuzumab ozogamicin in combination with post-induction chemotherapy for non-low-risk patients (JPLSG-AML-20)	Japanese journal of clinical oncology	2022;52(10):1225-1231.	2.4
6	Aoki M, Uehara S, Nishimaki H, Aoki R, Kayama K, Nagano N, Urakami T, Morioka I	Adrenal cytomegaly with elevated serum androgen levels in a patient with Beckwith-Wiedemann syndrome.	Endocrine journal	2022;69(8):919-926.	2.0
7	Hoshi R, Uehara S, Furuya T, Kaneda H, Koshinaga T	Conservative treatment for duodenal perforation after blunt trauma in a child	Pediatrics international	2022;64(1):e14965.	1.4
8	Hoshi R, Uehara S, Hosokawa T, Kaneda H, Koshinaga T	Gallbladder volvulus in two children: The importance of radiological features	Pediatrics international	2022;64(1):e15260.	1.4
9	Trinh QD, Takada K, Pham NTK, Takano C, Namiki T, Ikuta R, Hayashida S, Okitsu S, Ushijima H, Komine-Aizawa S, Hayakawa S.	Enhancement of Rubella Virus Infection in Immortalized Human First-Trimester Trophoblasts Under Low-Glucose Stress Conditions	Frontiers in Microbiology	2022;13:904189.	5.2

Division of Breast and Endocrine Surgery

Chair and Professor, Keiichiro Tada, M.D., Ph.D.

Best Practices in Breast and Endocrine Surgery

Keiichiro Tada is a breast surgeon who has treated more than 2,500 breast cancer patients, has taught many younger surgical oncologists, and has contributed to numerous impressive research endeavors in the area of breast cancer. He assumed the role of director of this division in December 2019 and has initiated the research projects described below. He and his colleagues are now working diligently to make great advancements in breast cancer research to serve patients as quickly as possible.

Partial mastectomy for patients with ductal carcinoma in situ (DCIS)

Patients with DCIS have a good prognosis—they can expect cure if they undergo total mastectomy. Partial mastectomy has recently been introduced for the treatment for DCIS. Although patients who undergo partial mastectomy are also believed to have good prognosis, approximately 10% experience recurrent disease. Furthermore, half of these patients eventually develop invasive disease. Although several risk factors for local recurrence are proposed, definitive causes remain unclear. We are planning new research efforts to address this problem.

Objective evaluation of aesthetic outcomes in breast cancer patients who undergo partial mastectomy

More than 20 years have passed since breast-conserving surgery was introduced in our clinical practice, and this procedure has been widely used for patients with small, localized breast tumors. However, evaluation of aesthetic outcomes of breast-conserving surgery remains challenging, relying on subjective evaluation by medical observers. Therefore, we are planning to develop new methodologies to evaluate cosmetic outcomes using novel technologies.

Screening for metastatic lesions in postoperative breast cancer patients

The value of screening for metastatic lesions in postoperative breast cancer patients is limited. Most guidelines do not recommend this clinical practice. However, both systemic therapies for metastatic breast cancer and imaging technologies continue to advance. Due to these advances, more than a few Japanese breast cancer oncologists question this dogma. A major Japanese study group is currently conducting a clinical study to reevaluate the role of postoperative screening for distant metastasis. We are also currently analyzing the efficacy of postoperative screening for distant metastasis retrospectively.

Patterns of disease progression and prognosis in patients with metastatic breast cancer who undergo systemic chemotherapy

Many prognostic factors have been reported for patients with metastatic breast cancer. Recently, patterns of disease progression to chemotherapy have been demonstrated to be associated with prognosis. We are currently investigating these patterns in our case series that has undergone eribulin treatment.

Geriatric surgery in breast cancer

Japanese society is rapidly aging; in addition, the incidence of breast cancer is also increasing. Therefore, more and more elderly women are expected to undergo breast cancer treatment in the coming years. However, the balance between risk and benefit in these patients is not fully understood. We are planning to investigate these patients to establish new management strategies.

PUBLICATION LIST 2022

Division of Breast and Endocrine Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Hara Y, Fukumoto S, Mori S, Goto H, Matsumoto K, Enomoto K, Tada K.	Prevention of New Metastatic Lesions by Eribulin Monotherapy Is Associated with Better Prognosis in Patients with Metastatic Breast Cancer.	Journal of Nippon Medical School	2022;89(5):494-499.	1.0
2	Oshiro R, Soejima T, Tada K, Suzuki M, Ohno S, Yubune K, Nakamura S, Fukuchimoto H, Takei J, Yamauchi H, Kamibeppu K.	Anxiety and related factors among parents of patients with breast cancer after surgery in Japan: A multi-informant and multilevel study.	Japan Journal of Nursing Science	2022;19(1):e12452.	1.7
3	Toyonaka R, Ozeki J, Koyama Y, Takahashi S, Tang X, Kobayashi H, Amano M,Tada K, Miki T, Tani M.	A case of breast squamous cell carcinoma following breast augmentation with liquid silicone injection after 16 years.	Surgical Case Reports	2022;8(1):22.	0.8

Division of Plastic and Reconstructive Surgery

Chair and Professor, Kazutaka Soejima, M.D., Ph.D.

The best efforts for scarless wound healing and minimal invasion

In 2001, the Division of Plastic and Reconstructive Surgery was launched as a division of the Department of 2nd Surgery, and the Department of Plastic and Reconstructive Surgery was established in 2004. The current chair, Dr. Kazutaka Soejima is the 3rd professor. He graduated from Tsukuba University School of Medicine in 1988. Subsequently, he entered the Department of Plastic and Reconstructive Surgery, at Tokyo Women's Medical University, where he was engaged in an investigation in the field of regenerative and tissue-engineered skin, especially the treatment of difficult wounds using cultured cells and artificial dermis. From 1998 to 2000, he worked at Shriners Burns Institute of the University of Texas Medical Branch, where he was engaged in research on the pathophysiology of extensive burn and inhalation injury. He joined Nihon University School of Medicine in 2010 as associate professor of the division of Plastic and Reconstructive Surgery and became chair and professor in April 2020

Our research focuses:

1. surgical wound care and scarless wound healing
   Surgical wound care is one of the most important clinical subjects in the field of Plastic Surgery, which involves soft tissue injuries, burns, difficult wounds such as diabetic ulcers, and complicated wounds after surgery. We have been studying surgical wound care to achieve scarless wound healing by employing growth factors, negative pressure wound therapy techniques and regenerative skin reconstruction.
2. regenerative skin reconstruction
   For the development of novel regenerative skin reconstruction, we have been investigating dedifferentiated fat cells (DFAT) collaborating with the Division of Cell Regeneration. We have been engaged in basic research aiming at the clinical application of DFAT including (1) the development of a novel artificial skin combining the artificial dermis and cultured epithelium, (2) promoting surviving area of the local flap and (3) prolonging the duration of rejection of allogenic skin.
3. less invasive surgery in craniofacial surgery and thoracic surgery
   To achieve less invasive surgery in craniofacial surgery and thoracic surgery, we have been employing endoscopy, ultrasound, and absorbable fixation plates. For example, we have established a novel minimally invasive surgical technique for orbital floor fractures by endoscopic trans-maxillary repair.

Our future prospect:

1. robot surgery in the field of microsurgery
   Recently, da Vinci Surgical System, robot-assisted surgery has been widely used in clinical situations to achieve minimally invasive surgery in several fields of surgery. However, in the field of Plastic Surgery, it is behind the mainstream. We believe that robot-assisted surgery will revolutionize the surgical technique in the field of microsurgery, and we are preparing for the future.

PUBLICATION LIST 2022

Division of Plastic and Reconstructive Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
No list					

Division of Neurosurgery

Chair and Professor, Atsuo Yoshino, M.D., Ph.D.

The challenges of evolving society, the unknown and the unexplored

Our division of Neurosurgery, includes many specialists in each field, and is focusing on team work to provide state-of-the-art medical care. We also have accumulated broad experiences of surgery in various fields, such as brain tumor: about 80 cases, head trauma: approximately 80 cases per year, vascular diseases including endovasucular treatment for cerebral aneurysm, arteriovenous malformation, cerebral infarction, etc.: 160 cases, spinal and spine diseases including spondylosis, tumor, etc.: 40 cases, deep brain stimulation therapy: 20 cases, normal pressure hydrocephalus: 20 cases, etc. In all fields, we have achieved excellent results to be proud of. We are also a pioneer in deep brain stimulation treatment for involuntary movement (Parkinson's disease, dystonia, etc.), intractable pain (phantom pain, thalamic pain, etc.), etc. in Japan. In addition, we are one of the 39 members of the Brain Tumor Study Group of Japan Clinical Oncology Group. We are putting the emphasis on clinical, basic and translational research. We have 11 research groups: tumor, trauma, ischemia, function, etc., in our department, and various studies are undergone to elucidate unknown areas supported by Grants-in-Aid for Scientific Research from the Japanese government. They are steadily producing results, and will continue to do so. Finally, we have several overseas collaborators (mentioned below), exchanging valuable knowledge and experience.

Overseas partners (past and current)

- Division of Neurosurgery, UCLA School of Medicine, Los Angeles, USA
- Neuroprotection Research Laboratory, Departments of Radiology, Massachusetts General Hospital, Harvard Medical School, Boston, USA
- Department of Neurosurgery, University of Miami Miller School of Medicine, Miami, USA
- International Agency for Research on Cancer, Lyon, France
- Miami Project, University of Miami School of Medicine, Florida, USA
- Department of Neurosurgery, Center for Movement Disorders and Neurorestoration, McKnight Brain Institute, University of Florida College of Medicine , Florida, USA
- Department of Neurosurgery, Johns Hopkins University, Baltimore, USA
- Division of Neurosurgery, University of Toronto, Toronto, Canada
- Ludwing-Maximilians Universitat, Institute for Stroke and Dementia Research, Munich, German

Key papers published in 2022

- Ischemic Stroke Revascularization.
  Otani N, Yoshino A. Adv Tech Stand Neurosurg. 2022;44:79-96. doi: 10.1007/978-3-030-87649-4_4.
- Anti tumor effects of anti epileptic drugs in malignant glioma cells.
  Yagi C, Tatsuoka J, Sano E, Hanashima Y, Ozawa Y, Yoshimura S, Yamamuro S, Sumi K, Hara H, Katayama Y, Yoshino A. Oncol Rep. 2022 Dec;48(6):216. doi: 10.3892/or.2022.8431. Epub 2022 Oct 25.
- Anti-inflammatory effect of P2Y1 receptor blocker MRS2179 in a rat model of traumatic brain injury.
  Kumagawa T, Moro N, Maeda T, Kobayashi M, Furukawa Y, Shijo K, Yoshino A. Brain Res Bull. 2022 Apr;181:46-54. doi: 10.1016/j.brainresbull.2022.01.008. Epub 2022 Jan 22.
- Anti-tumor effects of perampanel in malignant glioma cells.
  Tatsuoka J, Sano E, Hanashima Y, Yagi C, Yamamuro S, Sumi K, Hara H, Takada K, Kanemaru K, Komine-Aizawa S, Katayama Y, Yoshino A. Oncol Lett. 2022 Oct 7;24(6):421. doi: 10.3892/ol.2022.13541. eCollection 2022 Dec.
- A case of cerebral paragonimiasis misdiagnosed as eosinophilic granulomatosis with polyangiitis.
  Yamamuro S, Ohoni S, Kamiya K, Imamura G, Harano S, Tahara J, Ooshima H, Oinuma T, Haraoka H, Nakamura H, Yoshino A. Neuropathology. 2022 Aug;42(4):323-328. doi: 10.1111/neup.12841. Epub 2022 Jun 20.
- Glibenclamide attenuates brain edema associated with microglia activation after intracerebral hemorrhage.
  Shiokawa R, Otani N, Kajimoto R, Igarashi T, Moro N, Suma T, Oshima H, Yoshino A. Neurochirurgie. 2022 Dec;68(6):589-594. doi: 10.1016/j.neuchi.2022.07.009. Epub 2022 Aug 10.

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Division of Neurosurgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Tatsuoka J, Sano E, Hanashima Y, Yagi C, Yamamuro S, Sumi K, Hara H, Takada K, Kanemaru K, Komine-Aizawa S, Katayama Y, Yoshino A.	Anti-tumor effects of perampanel in malignant glioma cells	Oncology Letters	2022;24(6):421.	2.9
2	Yagi C, Tatsuoka J, Sano E, Hanashima Y, Ozawa Y, Yoshimura S, Yamamuro S, Sumi K, Hara H, Katayama Y, Yoshino A.	Anti-tumor effects of anti-epileptic drugs in malignant glioma cells	Oncology Reports	2022;48(6):216.	4.2
3	Yamamuro S, Ohoni S, Kamiya K, Imamura G, Harano S, Tahara J, Ooshima H, Oinuma T, Haraoka H, Nakamura H, Yoshino A.	A case of cerebral paragonimiasis misdiagnosed as eosinophilic granulomatosis with polyangiitis	Neuropathology	2022;42(4):323-328.	2.3
4	Shiokawa R, Otani N, Kajimoto R, Igarashi T, Moro N, Suma T, Oshima H, Yoshino A.	Glibenclamide attenuates brain edema associated with microglia activation after intracerebral hemorrhage	Neurochirurgie	2022;68(6):589-594.	1.6
5	Kumagawa T, Moro N, Maeda T, Kobayashi M, Furukawa Y, Shijo K, Yoshino A.	Anti-inflammatory effect of P2Y1 receptor blocker MRS2179 in a rat model of traumatic brain injury	Brain Research Bulletin	2022;181:46-54.	3.8

Division of Orthopaedic Surgery

Chair and Professor, Kazuyoshi Nakanishi, M. D., Ph. D

Always Thinking One Step Ahead

A long-standing aim of orthopedic research is to elucidate the many problems of locomotor disease in order to enhance public health. The basic goal of fundamental research is to directly connect the study results with clinical practice. The goal for clinical studies is to improve current therapies. This may involve achieving minimal invasiveness in order for a therapy to be applied more for a better outcome, in addition to improvement of treatments for refractory diseases.

Professor Kazuyoshi Nakanishi has acted as the Chief of the Department of Orthopaedic Surgery at the Nihon University School of Medicine since 2020. His specialty is Spine Surgery.

The Spine and Spinal Cord

For approximately 30 years, we have continued to pursue a prognostic system for metastatic spine tumors. Furthermore, in association with the recently established perscutaneous pedicle screw fixation method and molecular-targeted medicine, a longer life expectancy is possible by increasing the number of patients with surgical indications. Surgical treatments for the ossification of ligaments, degenerative diseases, spinal traumas, and spinal deformities are examined. In terms of fundamental research, we developed a pedicle screw with mobile heads, and reported its safety and maintenance of screw flexibility with metal-on-metal heads in order to decrease issues associated with disorders adjacent to the disc.

Upper extremity

Research being conducted by the hand surgery study group is progressing with the assistance of Assistant Professor Hyunho Lee and Assistant Professor Yoshiaki Tomizuka. This group has been investigating entrapment neuropathy, as well as diagnoses and surgery using ultrasonography, in addition to less invasive surgical procedures for hand fractures.

Lower extremity

Assistant Professor Hyunho Lee is the leader of the lower extremity group. This group has investigated the long-term outcomes of artificial joints and novel developments to obtain long-term joint stability. In terms of fundamental research, this group has been examining the relationship between mast cells and cytokines in the rheumatoid synovium.

Bone/Soft Tissue Tumor

The tumor group is performing important research in association with Assistant Professor Toshio Kojima. They have investigated the outcomes of treatments with elongation-type artificial joints in children as a long-term project. In addition, this group participated in a multicenter trial study on an anticancer agent that was carried out in representative Japanese institutions using funding from the Ministry of Health, Labour and Welfare. Their clinical results have been reported.

In terms of fundamental research, the development of custom-made chemotherapy using a sensitivity test, anticancer agents and corresponding gene expression is currently underway.

Sports Orthopaedics

The sports study group is conducting research mainly on the knee, but also on the shoulder and ankle in association with Assistant Professor Makoto Suruga. Their research includes investigations on the durability of the anterior cruciate ligament (ACL) of the knee joint, which is a long-standing project. This group is now performing anatomical and biomechanical examinations on reconstructed ligaments using cadavers.

PUBLICATION LIST 2022
Division of Orthopaedic Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Oda S, Hisatome T, Cho E, Fujimaki H, Nakanishi K.	MRI Findings of Muscle Damage after Total Hip Arthroplasty Using the Complete Muscle Preserving Anterolateral Supine Approach.	Medicina (Kaunas)	2022;58(6):713.	2.6
2	MatsumotoK, Tokuhashi Y, Sawada H, Saito S, Suzuki S, Ozaki R, Nakanishi K.	Fatigue wear test comparing vitamin-E-blended crosslinked polyethylene and conventional polyethylene in a Posterior Dynamic Stabilization System of the spine in the laboratory.	Journal of Orthopaedic Science	2022;27(3):58-562.	1.7
3	Tanimoto K, Matsumoto T, Nagaoka Y, Kazama T, Yamamoto C, Kano K, Nagaoka M, Shu saito, Tokuhashi Y, Nakanishi K.	Phenotypic and functional properties of dedifferentiated fat cells derived from infrapatellar fat pad.	Regenerative Therapy	2022;19:35-46.	4.3
4	Matsumoto K, Shah A, Kelkar A, Mumtaz M, Kumaran Y, Goel VK.	Sagittal Imbalance May Lead to Higher Risks of Vertebral Compression Fractures and Disc Degeneration-A Finite Element Analysis.	World Neurosurgery	2022;167:e962-e971.	2.0
5	Sato K, Osaka E, Fujiwara K, Fujii R, Takayama T, Tokuhashi Y, Nakanishi K.	miRNA-218 targets multiple oncogenes and is a therapeutic target for osteosarcoma.	Oncology Reports	2022;47(5):92.	4.2
6	Cho E, Hisatome T,Oda S, Fujimaki H, Nakanishi K.	Accuracy of acetabular cup placement during anterolateral supine total hip arthroplasty using intraoperative fluoroscopy: a retrospective study.	Journal of Orthopaedic Surgery and Research	2022;17:523.	2.6
7	Kozu T, Machida M, Taira K, Oikawa N, Nemoto N, Nakanishi K.	Peroneal Nerve Palsy Caused by Proximal Fibular Solitary Osteochondroma: Case Report and Literature Review.	Case Reports in Orthopedics	2022;2022:5865040	Not available
8	Machida M, Rocos B, Taira K, Nemoto N, Oikawa N, Kinoshita T, Kozu T, Nakanishi K.	The Association Between Radiographic and MRI Cervical Spine Parameters in Patients With Down Syndrome	Cureus	2022;14(5):e25046	Not available
9	Inoue G, Miyagi M, Saito W, Shirasawa E, Uchida K, Hosogane N, Watanabe K, Katsumi K, Kaito T, Yamashita T, Fujiwara H, Nagamoto Y, Nojiri K, Suzuki S, Okada E, Ueda S, Hikata T, Shiono Y, Watanabe K, Terai H, Tamai K, Matsuoka Y, Suzuki H, Nishimura H, Tagami A, Yamada S, Adachi S, Ohtori S, Furuya T, Orita S, Inage K, Yoshii T, Ushio S, Funao H, Isogai N, Harimaya K, Okada S, Kawaguchi K, Yokoyama N, Oishi H, Doi T, Kiyasu K, Imagama S, Ando K, Kobayashi K, Sakai D, Tanaka M, Kimura A, Inoue H, Nakano A, Ikegami S, Shimizu M, Futatsugi T, Kakutani K, Yurube T, Nakanishi K, Oshima M, Uei H, Aoki Y, Takahata M, Iwata A, Endo H, Seki S, Murakami H, Kato S, Yoshioka K, Hongo M, Abe T, Tsukanishi T, Takaso M, Ishii K.	Effect of low body mass index on clinical recovery after fusion surgery for osteoporotic vertebral fracture: A retrospective, multicenter study of 237 cases	Medicine (Baltimore)	2022;30:101(52):e32330.	1.6
10	Nakamae T, Kamei N, Tanaka N, Nakanishi K, Tsuchikawa Y, Harada T, Maruyama T, Adachi N.	Primary Spinal Cord Melanoma: A Two-Case Report and Literature Review	Spine Surgery and Related Research	2022;12:6(6):717-720.	1.2

PUBLICATION LIST 2022
Division of Orthopaedic Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
11	Nagai T, Uei H, Nakanishi K.	Relationship Between Start of Feeding and Functional Outcome in Aspiration Pneumonia: A Retrospective Cohort Study	Pulmonary Therapy	2022;8(4):359-368.	3.0
12	Yokogawa N,Kato S, Sasagawa T, Hayashi H, Tsuchiya H, Ando K, Nakashima H, Segi N, Funayama T, Eto F, Yamaji A, Nori S, Yamane J, Furuya T, Yunde A, Nakajima H, Yamada T, Hasegawa T, Terashima Y, Hirota R, Suzuki H, Imajo Y, Ikegami S, Uehara M, Tonomura H, Sakata M, Hashimoto K, Onoda Y, Kawaguchi K, Haruta Y, Suzuki N, Kato K, Uei H, Sawada H, Nakanishi K, Misaki K, Terai H, Tamai K, Shirasawa E, Inoue G, Kakutani K, Kakiuchi Y, Kiyasu K, Tominaga H, Tokumoto H, Iizuka Y, Takasawa E, Akeda K, Takegami N, Funao H, Oshima Y, Kaito T, Sakai D, Yoshii T, Ohba T, Otsuki B, Seki S, Miyazaki M, Ishihara M, Okada S, Imagama S, Watanabe K.	Differences in clinical characteristics of cervical spine injuries in older adults by external causes: a multicenter study of 1512 cases	Scientific Reports	2022;23:12(1):15867.	4.6
13	Kamei N, Nakanishi K, Nakamae T, Tamura T, Tsuchikawa Y, Moisakos T, Harada T, Maruyama T, Adachi N.	Differences between spinal cord injury and cervical compressive myelopathy in intramedullary high-intensity lesions on T2-weighted magnetic resonance imaging: A retrospective study	Medicine (Baltimore)	2022;26:101(34):e29982.	1.6
14	Sasagawa T, Yokogawa N, Hayashi H, Tsuchiya H, Ando K, Nakashima H, Segi N, Watanabe K, Nori S, Takeda K, Furuya T, Yunde A, Ikegami S, Uehara M, Suzuki H, Imajo Y, Funayama T, Eto F, Yamaji A, Hashimoto K, Onoda Y, Kakutani K, Kakiuchi Y, Suzuki N, Kato K, Terashima Y, Hirota R, Yamada T, Hasegawa T, Kawaguchi K, Haruta Y, Seki S, Tonomura H, Sakata M, Uei H, Sawada H, Tominaga H, Tokumoto H, Kaito T, Iizuka Y, Takasawa E, Oshima Y, Terai H, Tamai K, Otsuki B, Miyazaki M, Nakajima H, Nakanishi K, Misaki K, Inoue G, Kiyasu K, Akeda K, Takegami N, Yoshii T, Ishihara M, Okada S, Aoki Y, Harimaya K, Murakami H, Ishii K, Ohtori S, Imagama S, Kato S.	A multicenter study of 1-year mortality and walking capacity after spinal fusion surgery for cervical fracture in elderly patients	BMC Musculoskeletal Disorders	2022;20:23(1):798.	2.3

Division of Rehabilitation Medicine

Chair and Professor, Masachika Niimi, M.D., Ph.D.

Neurorehabilitation, early rehabilitation in ICU, and evaluation and treatment for disorders of consciousness

Professor Masachika Niimi graduated from The Jikei University School of Medicine in 2009. He has investigated the effect of neurorehabilitation in post-stroke patients and early rehabilitation in critically ill patients mainly. He studied the methods to assess conscious state of the patients with disorders of consciousness at Liege University from 2019 to 2021. He is a specialist of Japanese Association of Rehabilitation Medicine and Japan Stroke Society.

Department of Rehabilitation Medicine, Nihon university Schol of Medicine was established in 2021.

Neurorehabilitation.

Noninvasive brain stimulation and botulinum toxin are known to be treatment methods by neurorehabilitation. We have investigated the effect of repetitive transcranial magnetic stimulation (rTMS) for impairment after brain injury. We have demonstrated that rTMS can improve upper hemiparesis, lower hemiparesis, aphasia, dysphagia, and cognitive impairment. In addition, we have shown that rTMS can enhance neuroplasticity by investigating change of serum brain-derived neurotrophic factor (BDNF), serine, glutamate, glutamine, glycine, kynurenine, and tryptophan.

We have investigated the effect of botulinum toxin for spasticity after brain injury. We have reported that ultrasonography is useful for evaluation and prediction of antispastic effect by botulinum toxin. In Nihon University Itabashi Hospital, botulinum toxin is applied early to the patients with spasticity after brain injury. And, we are investigating the effect of early botulinum toxin injection to spasticity after brain injury.

Early rehabilitation in Intensive Care Unit

It has been reported that early mobilization and rehabilitation are effective for improvement of outcome of critically ill patients in intensive care unit (ICU). However, it is unclear how early rehabilitation influences physical function of critically ill patients. We are investigating how early rehabilitation makes an impact on physiological function in critically ill patients. For examples, total Glasgow Coma Scale score is significantly higher for the sitting position than the supine position. The pupillary constriction rate mean is significantly higher for the sitting position than for the supine position in patients.

Evaluation of disorders of consciousness

The critically ill patients with fatal brain injury may show disorders of consciousness. Such conscious states range from coma, to the unresponsive wakefulness syndrome (UWS), and the minimally conscious state (MCS). Furthermore, MCS is categorized into MCS- and MCS+ depending on the presence or absence of object cognition, command following, and intelligible verbalization. The patients emerged from MCS can communicate or use some objects functionally. We categorize the patients with disorders of consciousness into the appropriate conscious state by using standardized neurobehavioral assessment scales. Precise evaluation of disorders of consciousness is important, because some of the patients with disorders of consciousness can recover their consciousness gradually.

PUBLICATION LIST 2022
Division of Rehabilitaion Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Nagai T, Wakabayashi H, Nishioka S, Momosaki R.	Functional prognosis in patients with sarcopenic dysphagia: An observational cohort study from the Japanese sarcopenic dysphagia database.	Geriatrics & Gerontology International	2022;22(10):839-845.	3.3
2	Hasegawa Y, Niimi M, Hara T, Sakurai Y, Soshi S, Udaka J, Abo M.	Shear wave velocity to evaluate the effect of botulinum toxin on post-stroke spasticity of the lower limb.	Toxins	2022;15(1):14.	4.2
3	Nagai T, Uei H, Nakanishi K.	Relatinoship between start of feeding and funcional outcome in aspiration pneumonia: A retrospective cohort study.	Pulmontary Therapy	2022;8(4):359-368.	3.0

Division of Obstetrics and Gynecology

Chair and Professor, Kei Kawana, M.D., Ph.D.

Gynecologic oncology, Maternal-fetal medicine, and Reproductive medicine

Professor and Chairman, Kei Kawana :
Board member of Japan Society of Obstetrics and Gynecology, Japan Society of Gynecologic Oncology, and Japan Society of Clinical Oncology, Japan Society of Sexually Transmitted Infection.

Translational Research for Therapeutics for HPV-associated cancer.

In the field of cancer research, there are two major topics; human papillomavirus (HPV)-associated cancer and cancer stem cell research. I am developing a novel therapeutic immunotherapy targeting HPV molecule for treatment of cervical cancer and its pre-cancer lesions. We finished a Phase I/II clinical trial of Lactobacillus-based HPV E7 molecule-targeting immunotherapy at multi-centers, the first clinical trial in the world. The immunotherapeutic, IGMKK16E7, leverages mucosal immune system and is very attractive and newly strategy. The safety and efficacy of IGMKK16E7 was demonstrated in the randomized clinical trial (RCT). 40% of patients with precancer, CIN2/3, caused by HPV16 had a regression to normal (CR) when administered orally with high-dose IGMKK16E7. The rate difference between placebo and high-dose groups was statistically significant (rate difference 28.5: 95%CI, 4.3-50.0). There was no difference in adverse events occurred in the high-dose and placebo groups (P=0.83). The number of HPV16E7-specific IFN-γ producing cells within peripheral blood increased with level of response (SD, PR, and CR; P=0.004). We now move to Phase III clinical trials with pharmaceutic company.

Study on stemness of cervical adenocarcinoma caused by HPV18

We study on cancer stem cells of cervical cancer using iPS cells. The induced tissue stem cells of the cervical epithelium are derived from iPS cells and HPV16 and 18 oncogenes are transduced into the stem cells to generate cervical cancer stem cells mimicking the carcinogenesis of the cancer. We established an in vivo model for exploring a cancer stem cell-targeting therapy for cervical cancer. The tumors will be analyzed using bioinformatics (microdissetion and singel cell analysis) to find new features of HPV18 carcinogenesis.

Development of a diagnostic model for early-stage ovarian cancer utilizing fatty acid metabolic characteristics of cancer cells.

Ovarian cancer has a poor prognosis and is difficult to detect in early stages. Therefore, developing new diagnostic markers for early-stage ovarian cancer is critical. We attempted to develop a diagnostic marker for early-stage ovarian cancer based on the characteristics of fatty acid metabolism in cancer cells. The expression of various fatty acid metabolizing enzymes was altered in early-stage ovarian cancer tissue compared with that in normal ovarian tissue. Changes in the expression of fatty acid metabolizing enzymes in cancer tissues were found to alter concentrations of multiple free fatty acids (FFAs) in serum. Thus, we demonstrated that fatty acid metabolic properties in tumor tissue are related to serum FFA composition. Subsequently, we identified eight FFAs that could serve as early diagnostic markers in patients with stage I/II ovarian cancer. Finally, using statistical analysis, an optimal early diagnostic model combining oleic and arachidic acid levels was established and confirmed to have high diagnostic power regardless of histological type. Thus, our newly developed diagnostic model using serum FFAs may be a powerful tool for the non-invasive early detection of ovarian cancer.

Evaluation of WEE1 inhibiter in cervical cancer

One of a key event in cervical carcinogenesis is the disruption of p53 tumor suppressor pathway by HPV E6 oncogene. The WEE1 tyrosine kinase regulates G2/M transition and maintains genomic stability, particularly in p53-deficient tumors which require DNA repair after genotoxic therapy. Notably, clinical safety and tolerability of WEE1 inhibitor following to cisplatin and decetaxel treatment in head and neck squamous cell carcinoma (HNSCC) were recently shown in Phase I trial. Since both HNSCC and cervical cancer were HPV associated cancers, we hypothesized effectiveness of WEE1 inhibitor, also in cervical cancer. Our aim is to show the synergistic effect of WEE1 inhibition to the standard cervical cancer therapeutics such as concurrent chemoradiation therapy and chemotherapy. Concretely, we are evaluating expression level of WEE1 using public database. In addition, *in vitro* evaluation of WEE1 inhibitor, AZM1775, to the cervical cancer cell lines is now on going. We expect our study will be the strong evidence to the novel therapeutic strategy against cervical cancer.

PUBLICATION LIST 2022
Division of Obstetrics and Gynecology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Hijikata M, Morioka I, Okahashi A, Nagano N, Kawakami K, Komatsu A, Kawana K, Ohyama S, Fujioka K, Tanimura K, Deguchi M, Sasai M, Yamamoto M, Yamada H	A prospective cohort study of newborns born to mothers with serum Toxoplasma gondii immunoglobulin M positivity during pregnancy	Journal of Infection and Chemotherapy	2022;28(4):486-491.	2.2
2	Takada K, Shimodai-Yamada S, Suzuki M, Trinh QD, Takano C, Kawakami K, Asai-Sato M, Komatsu A, Okahashi A, Nagano N, Misawa T, Yamaguchi K, Suzuki T, Kawana K, Morioka I, Yamada H, Hayakawa S, Hao H, Komine-Aizawa S	Restriction of SARS-CoV-2 replication in the human placenta	Placenta	2022;127:73-76.	3.8
3	Mimura N, Nagamatsu T, Morita K, Taguchi A, Toya T, Kumasawa K, Iriyama T, Kawana K, Inoue N, Fujii T, Osuga Y	Suppression of human trophoblast syncytialization by human cytomegalovirus infection	Placenta	2022;117:200-208.	3.8
4	Nogami Y, Komatsu H, Makabe T, Hasegawa Y, Yokoyama Y, Kawana K, Okamoto A, Mikami M, Katabuchi H, COVID-19 Task Force of the Japan Society of Gynecologic Oncology	Impact of COVID-19 on gynecologic cancer treatment in Japan: a nationwide survey by the Japan Society of Gynecologic Oncology (JSGO)	Journal of Obstetrics and Gynaecology Research	2022;33(1):e8	1.6
5	Maebayashi A, Hayashi N, Kamata S, Sugi T, Nakajima T, Nagaishi M, Kawana K.	Safety and efficacy of microwave endometrial ablation for patients with previous uterine surgery: a pilot study.	Journal of Obstetrics and Gynaecology Research	2022;42(6):2164-2169	1.6
6	Maebayashi A, Kato K, Hayashi N, Nagaishi M, Kawana K.	Importance of abdominal X-ray to confirm the position of levonorgestrel-releasing intrauterine system: A case repor	World Journal of Clinical Cases	2022;10(15):4904-4910	1.1
7	Nogami Y, Makabe T, Komatsu H, Kawana K, Okamoto A, Mikami M, Katabuchi H.COVID-19 Task Force of the Japan Society of Gynecologic Oncology.	Impact of COVID-19 on cervical cancer screening in Japan: A survey of population-based screening in urban Japan by the Japan Society of Gynecologic Oncology	Journal of Obstetrics and Gynaecology Research	2022;48(3):757-765.	1.6
8	Ikesu R, Taguchi A, Hara K, Kawana K, Tsuruga T, Tomio J, Osuga Y.	Prognosis of high-risk human papillomavirus-related cervical lesions: A hidden Markov model analysis of a single-center cohort in Japan.	Cancer Medicine	2022;11(3):664-675.	4.0
9	Komine-Aizawa S, Haruyama Y, Deguchi M, Hayakawa S, Kawana K, Kobashi G, Miyagi E, Yamada H, Sugiyama T	The vaccination status and adverse effects of COVID-19 vaccine among pregnant women in Japan in 2021	Journal of Obstetrics and Gynaecology Research	2022;48(7):1561-1569.	1.6

Division of Urology

Chair and Professor, Satoru Takahashi, M.D., Ph.D.

Geriatric Urology, Oncology, Voiding dysfunction and Urogynecology

Dr. Satoru Takahashi's research areas include geriatric urology, urologic oncology, voiding dysfunction, and urogynecology. Currently, he serves as the president of both the Japanese Society of Geriatric Urology and the Japanese Continence Society, conducting extensive basic and clinical research in the division of urology based on these roles.

Androgen receptors and prostate cancer[1]

The androgen receptor (AR) is crucial for the progression of prostate cancer. In collaboration with overseas research institutions, we investigated the role of the transcription factor OCT1, which cooperates with AR, using cells established from castration-resistant prostate cancer (CRPC) specimens. We found that CTBP2 may play a role in the immune response and tumor progression. As immune checkpoint inhibitors are less effective against prostate cancer, targeting CTBP2 could represent a new strategy for immune therapy in CRPC[1].

Prevalence and Impact of Lower Urinary Tract Symptoms in Japan[2]

As part of a national survey conducted by the Japanese Continence Society, of which Professor Takahashi serves as president, a nationwide survey on lower urinary tract symptoms (LUTS) was conducted in Japan in 2023. A total of 6,210 participants aged 20-99 years were included in the survey, with LUTS prevalence rates of 77.9% among those aged 20 years and older and 82.5% among those aged 40 years and older. The prevalence of LUTS increases with age, negatively affecting daily life, but few individuals seek medical treatment. These results indicate the need for increased medical consultations for LUTS in Japan[2].

Evaluation of the Effectiveness of Minimally Invasive Surgery for High-Risk Cases[3, 4]

Japan has a super-aged society. Many elderly individuals have comorbidities, making standard treatment high-risk. We were the first in the country to introduce two types of minimally invasive surgeries for high-risk cases of benign prostatic hyperplasia (BPH) and report their effectiveness and utility[3, 4].

Developing guidelines for female lower urinary tract symptoms and investigating the effects of drug use[5, 6]

The Japanese Clinical Guidelines for Female LUTS (2nd edition), chaired by Professor Satoru Takahashi, was established in September 2019. This guideline covers female urinary issues beyond incontinence, addressing 26 clinical topics, including symptom definition, epidemiology, pathology, diagnosis, and treatment. We also evaluated the effectiveness of mirabegron 50 mg in women with an overactive bladder. An analysis of two Japanese studies showed that mirabegron 50 mg significantly reduced daily urination frequency, improved other symptoms, and enhanced quality of life, effectively alleviating overactive bladder symptoms.

Future outlook

Japan is rapidly advancing into a super-aged society and facing various challenges. Our goal is not only to research the treatment and management of urologic tumors and voiding dysfunction but also to investigate the causal relationships between frailty and sarcopenia, which are major issues in gerontology, aiming to establish a senior-friendly department.

1. Obinata D, Takayama K, Lawrence MG, et al. Patient-derived castration-resistant prostate cancer model revealed CTBP2 upregulation mediated by OCT1 and androgen receptor. *BMC Cancer* 2024; 24: 554. 20240502. DOI: 10.1186/s12885-024-12298-3.

2. Mitsui T, Sekido N, Masumori N, et al. Prevalence and impact on daily life of lower urinary tract symptoms in Japan: Results of the 2023 Japan Community Health Survey (JaCS 2023). *Int J Urol* 2024 20240321. DOI: 10.1111/iju.15454.

3. Obinata D, Mochida J, Uehara R, et al. Rezum water vapor thermal therapy in patients with benign prostatic hyperplasia: Initial real-world data from Japan. *Medicine (Baltimore)* 2023; 102: e36055. DOI: 10.1097/MD.0000000000036055.

4. Obinata D, Uehara R, Hashimoto S, et al. Initial experience with prostatic urethral lift versus enucleation of the prostate: a retrospective comparative study. *BMC Urol* 2023; 23: 188. 20231118. DOI: 10.1186/s12894-023-01366-8.

5. Takahashi S, Mishima Y, Kuroishi K, et al. Efficacy of mirabegron, a beta(3) -adrenoreceptor agonist, in Japanese women with overactive bladder and either urgency urinary incontinence or mixed urinary incontinence: Post-hoc analysis of pooled data from two randomized, placebo-controlled, double-blind studies. *Int J Urol* 2022; 29: 7-15. 20211004. DOI: 10.1111/iju.14700.

6. Takahashi S, Takei M, Asakura H, et al. Clinical Guidelines for Female Lower Urinary Tract Symptoms (second edition). *Int J Urol* 2021; 28: 474-492. 2021/03/03. DOI: 10.1111/iju.14492.

PUBLICATION LIST 2022
Division of Urology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Obinata D, Nakahara K, Yoshizawa T, Mochida J, Yamaguchi K, Takahashi S.	Characteristics of prostate biopsy in patients under the dutasteride treatment.	Medicine (Baltimore)	2022,4;101(44):e31658.	1.6
2	Koshiro N, Nakajima K, Oyama M, Kaneko G, Takahashi S, Matsuyama H, Shiina H, Ichikawa T, Horikoshi H, Hashine K, Sugiyama Y, Miyao T, Kamiyama M, Harada K, Ito A, Mizokami A, PROSTAT-BSI Investigators.	Predictive factors for the effectiveness of novel androgen receptor axis-targeted agents in patients with metastatic prostate cancer.	International Journal of Urology	2022;29(12):1477-1487	2.6
3	Taguchi S, Kawai T, Nakagawa T, Miyakawa J, Kishitani K, Sugimoto K, Nakamura Y, Kamei J, Obinata D, Yamaguchi K, Kaneko T, Yoshida K, Yamamoto S, Kakutani S, Kanazawa K, Sugihara Y, Tokunaga M, Matsumoto A, Uemura Y, Akiyama Y, Yamada Y, Sato Y, Yamada D, Enomoto Y, Nishimatsu H, Ishikawa A, Tanaka Y, Nagase Y, Fujimura T, Fukuhara H, Takahashi S, Kume H.	Improved survival in real-world patients with advanced urothelial carcinoma: A multicenter propensity score-matched cohort study comparing a period before the introduction of pembrolizumab (2003-2011) and a more recent period (2016-2020).	International Journal of Urology	2022;29(12):1462-1469	2.6
4	Obinata D, Funakoshi D, Sakurai F, Yoshizawa T, Mochida J, Yamaguchi K, Takahashi S.	Real-world efficacy of sequential nivolumab for metastatic renal cancer after first-line molecular targeting therapy.	Medicine (Baltimore)	2022;101(32):e29510	1.6
5	Funakoshi D, Obinata D, Fujiwara K, Yamamoto S, Takayama K, Hara M, Takahashi S, Inoue S.	Antitumor effects of pyrrole-imidazole polyamide modified with alkylating agent on prostate cancer cells.	Biochemical and Biophysical Research Communications	2022;623:9-16	3.1
6	Obinata D, Yamaguchi K, Hashimoto S, Yoshizawa T, Mochida J, Takahashi S.	Tension-free vaginal mesh for patients with pelvic organ prolapse: mid-term functional outcomes.	Journal of International Medical Research	2022;50(6):3000605221106434.	1.6
7	Kamijima T, Yaegashi H, Mizokami A, Nakajima K, Matsuyama H, Ichikawa T, Nishimoto K, Takahashi S, Shiina H, Horikoshi H, Hashine K, Sugiyama Y, Miyao T, Kamiyama M, Harada K, Ito A, Enokida H.	Efficacy of Androgen Receptor-targeted Drugs After Prostate Cancer Recurrence With Bone Metastases: PROSTAT-BSI Sub-analysis.	Anticancer Research	2022;42(6):3099-3108	2.0
8	Obinata D, Funakoshi D, Takayama K, Hara M, Niranjan B, Teng L, Lawrence MG, Taylor RA, Risbridger GP, Suzuki Y, Takahashi S, Inoue S.	OCT1-target neural gene PFN2 promotes tumor growth in androgen receptor-negative prostate cancer.	Scientific Reports	2022;12(1):6094	4.6
9	Mizokami A, Nishimoto K, Matsuyama H, Ichikawa T, Takahashi S, Shiina H, Hashine K, Sugiyama Y, Kamiyama M, Enokida H, Nakajima K.	Efficacy of New Therapies for Relapse After Docetaxel Treatment of Bone Metastatic Castration-resistant Prostate Cancer in Clinical Practice.	Anticancer Research	2022;42(3):1465-1475	2.0
10	Kawai T, Taguchi S, Nakagawa T, Kamei J, Nakamura Y, Obinata D, Yamaguchi K, Kaneko T, Kakutani S, Tokunaga M, Uemura Y, Sato Y, Enomoto Y, Nishimatsu H, Fujimura T, Fukuhara H, Takahashi S, Kume H.	Impact of immune-related adverse events on the therapeutic efficacy of pembrolizumab in urothelial carcinoma: a multicenter retrospective study using time-dependent analysis.	The Journal for ImmunoTherapy of Cancer	2022;10(2):e003965	10.9
11	Murata Y, Obinata D, Matsumoto T, Ikado Y, Kano K, Fukuda N, Yamaguchi K, Takahashi S.	Urethral injection of dedifferentiated fat cells ameliorates sphincter damage and voiding dysfunction in a rat model of persistence stress urinary incontinence.	International Urology and Nephrology	2022;54(4):789-797.	2.0

PUBLICATION LIST 2022
Division of Urology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
12	Sato H, Sato K, Mochida J, Takahashi S, Tsukada S.	Postoperative indications for further surgery following post-transvaginal ProliftTM mesh repair after a two-year follow-up period: a single-centre study.	Journal of Obstetrics and Gynaecology Research	2022;42(6):2115-2120	1.3
13	Takahashi S, Mishima Y, Kuroishi K, Ukai M.	Efficacy of mirabegron, a β3 -adrenoreceptor agonist, in Japanese women with overactive bladder and either urgency urinary incontinence or mixed urinary incontinence: Post-hoc analysis of pooled data from two randomized, placebo-controlled, double-blind studies.	International Journal of Urology	2022;29(1):7-15	2.6

Division of Ophthalmology

Chair and Professor, Satoru Yamagami,M.D.,Ph.D.

Corneal and retinal diseases

Nihon University School of Medicine has two hospitals, the ophthalmic departments of which specialize in different fields.

Itabashi Hospital

The Department of Ophthalmology is organized into six laboratory groups: Corneal Transplantation, Retinal & Vitreous Surgery, Infectious & Immunological Kerato-conjunctival Disorders, Neuro-ophthalmology, Lacrimal Drainage and Glaucoma. In clinical studies, we have statistically analyzed treatment results for retinal detachment, diabetic retinopathy, glaucoma and nasolacrimal duct obstruction to improve visual outcomes, as well as pioneering new therapeutic approaches for each disease. The Glaucoma group has also investigated the relationship between the efficacy of surgical treatment and quality of life. The Corneal Transplantation, and Infectious & Immunological Kerato-conjunctival Disorders research groups have conducted pathophysiological studies to elucidate the immunological and defense mechanisms of ocular surface diseases. We have focused on the investigation of the pathophysiology of corneal transplantation, retinal vascular circulation, matrix metalloproteinase, chemokine and cytokine. Retinal & Vitreous Surgery group is conducting basic research on pathophysiology and development of novel treatment in diabetic retinopathy.

Nihon University Hospital

In Nihon University Hospital Eye Center, we specialize in the diagnosis and treatment of retinal and vitreous diseases. Recently anti-VEGF therapy has become the first choice for age-related macular degeneration, myopic choroidal neovascularization and cystoid macular edema, followed by diabetic retinopathy and retinal vein occlusion. The number of intravitreal anti-VEGF Ab treatments is the highest of any hospital in Japan. In addition to cataract, we conducted more than 800 cases of retinal/vitreous surgery, one of the highest in Japan. Our vitreous surgery encompasses operations on macular holes, epiretinal membranes, proliferative diabetic retinopathies, and so on. The pathogenesis of many macular diseases and the efficacy of treatment regimens are investigated using the most advanced imaging technologies including swept-source OCT, OCT angiography and fundus autofluorescence.

- Igarashi A, Yokogawa H, Shimizu T, Kobayashi A, Yamagami S, Hayashi T. Double-Bubble Technique Assisted by Holding Forceps: A Modified Technique in Descemet Membrane Endothelial Keratoplasty for Vitrectomized Eyes With Scleral Fixated Intraocular Lens. Cornea. 2024;43:799-803.
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- Watanabe M, Miyata Y, Ohno A, Yokota H, Takase K, Hanaguri J, Kushiyama A, Yamagami S, Harino S, Nagaoka T. Dilation of porcine retinal arterioles to nobiletin, a polymethoxyflavonoid: Roles of nitric oxide and voltage-dependent potassium channel. Exp Eye Res. 2023;233:109548.
- Sunouchi C, Hayashi T, Shimizu T, Hara Y, Kurita J, Kobashigawa H, Oyakawa I, Ida Y, Kobayashi A, Shoji J, Yamagami S. A Comparison of the Corneal Thickness Following Descemet's Stripping Automated Endothelial Keratoplasty and Descemet's Membrane Endothelial Keratoplasty. Curr Eye Res. 2023;48:712-718.
- Onoe H, Tanaka K, Tsuchiya N, Miyata K, Kitaoka M, Nakayama M, Mori R, Nakashizuka H. Maximum carotid intima-media thickness and NT-pro BNP in association with retinal vein occlusion. PLoS One. 2023;18:e0291456.
- Hirota A, Shoji J, Inada N, Adachi R, Tonozuka Y, Yamagami S. Rapid detection and diagnosis of herpetic keratitis using quantitative microfluidic polymerase chain reaction system for herpes simplex and varicella-zoster virus DNA: a case series. BMC Ophthalmol. 2023;23:177.
- Shimizu T, Hayashi T, Ishida A, Kobayashi A, Yamaguchi T, Mizuki N, Yuda K, Yamagami S. Evaluation of corneal nerves and dendritic cells by in vivo confocal microscopy after Descemet's membrane keratoplasty for bullous keratopathy. Sci Rep. 2022;12:6936.

PUBLICATION LIST 2022
Division of Ophthalmology

List No.	Author	Paper	Journal	Publication year ; volume ; page	Impact Factor
1	Adachi R, Shoji J, Hirota A, Tomioka A, Tonozuka Y, Inada N, Yamagami S.	Two cases of dupilumab-associated conjunctivitis with high expression of IL-8 mRNA on the ocular surface: a case report	Allergy Asthma and Clinical Immunology	2022;18(1):89.	2.7
2	Ishii H, Yoshida J, Toyono T, Yamagami S, Usui T, Miyai T.	Three-year results of accelerated transepithelial cross-linking (30 mW/cm2 × 3 min) for keratoconus: a prospective study.	BMJ open ophthalmology	2022;7(1):e000827.	2.4
3	Inada N, Shoji J, Harata G, Miyazawa K, He F, Tomioka A, Hirota A, Tonozuka Y, Yamagami S.	Dysbiosis of Ocular Surface Microbiota in Patients With Refractive Allergic Conjunctival Diseases	Cornea	2022;41(10):1232-1241.	2.8
4	Hirota A, Shoji J, Inada N, Shiraki Y, Yamagami S.	Evaluation of Clinical Efficacy and Safety of Prolonged Treatment of Vernal and Atopic Keratoconjunctivitis Using Topical Tacrolimus	Cornea	2022;41(1):23-30.	2.8
5	Hanaguri J, Yokota H, Kushiyama A, Kushiyama S, Watanabe M, Yamagami S, Nagaoka T.	Beneficial Effect of Long-Term Administration of Supplement With Trapa Bispinosa Roxb. and Lutein on Retinal Neurovascular Coupling in Type 2 Diabetic Mice	Frontiers in physiology	2022;13:788034.	4.0
6	Hanaguri J, Yokota H, Kushiyama A, Kushiyama S, Watanabe M, Yamagami S, Nagaoka T.	The Effect of Sodium-Dependent Glucose Cotransporter 2 Inhibitor Tofogliflozin on Neurovascular Coupling in the Retina in Type 2 Diabetic Mice	International Journal of Molecular Sciences	2022;23(3):1362.	5.6
7	Akiyama A, Yokota H, Aso H, Hanazaki H, Iwasaki M, Yamagami S, Nagaoka T.	Comparison of Postoperative Stability of Intraocular Lenses after Phacovitrectomy for Rhegmatogenous Retinal Detachment	Journal of clinical medicine	2022;11(12):3438.	3.9
8	Hanaguri J, Nagai N, Yokota H, Kushiyama A, Watanabe M, Yamagami S, Nagaoka T.	Fenofibrate Nano-Eyedrops Ameliorate Retinal Blood Flow Dysregulation and Neurovascular Coupling in Type 2 Diabetic Mice	Pharmaceutics	2022;14(2):384.	5.4
9	Yokota H, Hayashi H, Hanaguri J, Yamagami S, Kushiyama A, Nakagami H, Nagaoka T.	Effect of prorenin peptide vaccine on the early phase of diabetic retinopathy in a murine model of type 2 diabetes	PloS one	2022;17(1):e0262568.	3.7
10	Abe Y, Omoto T, Kitamoto K, Toyono T, Yoshida J, Asaoka R, Yamagami S, Miyai T, Usui T.	Corneal irregularity and visual function using anterior segment optical coherence tomography in TGFBI corneal dystrophy	Scientific reports	2022;12(1):13759.	4.6
11	Shimizu T, Hayashi T, Ishida A, Kobayashi A, Yamaguchi T, Mizuki N, Yuda K, Yamagami S.	Evaluation of corneal nerves and dendritic cells by in vivo confocal microscopy after Descemet's membrane keratoplasty for bullous keratopathy	Scientific reports	2022;12(1):6936.	4.6
12	Ebuchi Y, Nagaoka T, Fukamachi D, Kojima K, Akutsu N, Murata N, Saito Y, Kitano D, Yokota H, Yamagami S, Okumura Y.	Comprehensive assessment of systemic arteriosclerosis in relation to the ocular resistive index in acute coronary syndrome patients	Scientific reports	2022;12(1):2321.	4.6
13	Yamagami S, Yokoo S.	Role of Monocytes/Macrophages in the Etiology of Bullous Keratopathy After Argon Laser Iridotomy	Translational vision science & technology	2022;11(9):33	3.0

PUBLICATION LIST 2022
Division of Ophthalmology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
14	Onoe H, Shimada H, Kawamura A, Hirosawa H,Tanaka K, Mori R, Nakashizuka H.	Bilateral Pachychoroid disease with type 3 Uveal effusion syndrome in one eye and central serous Chorioretinopathy in contralateral eye: a case report	BMC Ophthalmology	2022;22(1):91	2.0
15	Grzybowski A, Shimada H, Nakashizuka H, Koerner J.	Low-concentration povidone-iodine for the prevention of intraocular infections in ophthalmic surgery	Current opinion in ophthalmology	2022;33(1):28-34	3.7
16	Enomoto N, Hayashi T, Matsuura T, Tanaka K, Takeuchi R, Tomita G, Mori R.	The second Japanese family with Malattia Leventinese/Doyne honeycomb retinal dystrophy	Documenta ophthalmologica	2022;144(1):67-75	1.4
17	Tamashiro T, Tanaka K, Itagaki K, Nakayama M, Maruko I, Wakugawa S, Terao N, Onoe H, Wakatsuki Y, Ogasawara M, Sugano Y, Yamamoto A, Kataoka K, Izumi T, Kawai M, Mori R, Sekiryu T, Okada AA, Iida T, Koizumi H, Japan AMD Research Consortium(JARC).	Subfoveal choroidal thickness after brolucizumab therapy for neovascular age-related macular degeneration: a short-term multicenter study	Graefes archive for clinical and experimental ophthalmology	2022;260(6):1857-1865	2.7
18	Suga A, Yoshitake K, Minematsu N, Tsunoda K, Fujinami K, Miyake Y, Kuniyoshi K, Hayashi T, Mizobuchi K, Ueno S, Terasaki H, Kominami T, Nao-I N, Mawatari G, Mizota A, Shinoda K, Kondo M, Kato K, Sekiryu T, Nakamura M, Kusuhara S, Yamamoto H, Yamamoto S, Mochizuki K, Kondo H, Matsushita I, Kameya S, Fukuchi T, Hatase T, Horiguchi M, Shimada Y, Tanikawa A, Yamamoto S, Miura G, Ito N, Murakami A, Fujimaki T, Hotta Y, Tanaka K, Iwata T.	Genetic characterization of 1210 Japanese pedigrees with inherited retinal diseases by whole-exome sequencing	Human mutation	2022;43(12):2251-2264	3.9
19	Kitagawa Y, Shimada,H, Kawamura A, Kaneko H, Tanaka K,Nakashizuka,H.	Differentiation of premacular hemorrhages with niveau formation	International Journal of Ophthalmology	2022;15(12):2037-2040	1.4
20	Tanaka K, Koizumi H, Tamashiro T, Itagaki K, Nakayama M, Maruko I, Wakugawa S, Terao N, Onoe H, Wakatsuki Y, Kasai A, Ogasawara M, Shintake H, Sugano Y, Yamamoto A, Kataoka K, Hasagawa T, Izumi T, Kawai M, Maruko R, Sekiryu T, Okada AA, Iida T, Mori R.	Short-term results for brolucizumab in treatment-naïve neovascular age-related macular degeneration: a Japanese multicenter study	Japanese journal of ophthalmology	2022;66(4):379-385	2.4
21	Tanaka K, Shimada H, Mori R, Kitagawa Y, Onoe H, Tamura K, Nakashizuka H.	Safety Measures for Maintaining Low Endophthalmitis Rate after Intravitreal Anti-Vascular Endothelial Growth Factor Injection before and during the COVID-19 Pandemic	Journal of clinical medicine	2022;11(3):876	3.9
22	Wakatsuki Y, Nakashizuka H, Tanaka K, Mori R, Shimada H.	Outcomes of Vitrectomy with Fovea-Sparing and Inverted ILM Flap Technique for Myopic Foveoschisis	Journal of clinical medicine	2022;11(5):1274	3.9
23	Kitagawa Y, Shimada H, Mori R, Tanaka K, Wakatsuki Y, Onoe H, Kaneko H, Machida Y, Nakashizuka H.	One-Year Outcome of Intravitreal Tissue Plasminogen Activator, Ranibizumab, and Gas Injections for Submacular Hemorrhage in Polypoidal Choroidal Vasculopathy	Journal of clinical medicine	2022;11(8):2175	3.9
24	Oshima Y, Shinojima A, Sawa M, Mori R, Sekiryu T, Kato A, Hara C, Saito M, Sugano Y, Hirano Y, Asato H, Nakamura M, Kimura E, Yuzawa M, Ishibashi T, Ogura Y, Iida T, Gomi F, Yasukawa T.	Progression of age-related macular degeneration in eyes with abnormal fundus autofluorescence in a Japanese population: JFAM study report 3	PloS one	2022;17(2)e0264703	3.7

PUBLICATION LIST 2022
Division of Ophthalmology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
25	Zhang Y, Jeong H, Mori K, Ikeda S, Shoda C, Miwa Y, Nakai A, Chen J, Ma Z, Jiang X, Torii H, Kubota Y , Negishi K, Kurihara T, Tsubota K.	Vascular endothelial growth factor from retinal pigment epithelium is essential in choriocapillaris and axial length maintenance	PNAS nexus	2022;1(4):pgac166	Not available
26	Shijo T, Sakurada Y, Tanaka K, Miki A, Sugiyama A, Onoe H, Chubachi A, Kikushima W, Wakatsuki Y, Yoneyama S, Mori R, Kashiwagi K.	Incidence and risk of advanced age-related macular degeneration in eyes with drusenoid pigment epithelial detachment	Scientific reports	2022;12(1)4715	4.6
27	Lee D, Miwa Y, Kunimi H, Ibuki M, Shoda C, Nakai A, Kurihara T.	HIF Inhibition Therapy in Ocular Diseases	The Keio journal of Medicine	2022;71(1):1-12	Not available

Division of Otolaryngology-Head and Neck Surgery

Chair and Professor, Takeshi Oshima, M.D., Ph.D.

Sensory organs and related diseases

Diagnosis and Treatment for Patulous Eustachian Tube

Patients in patulous eustachian tube complain of various discomforts, such as aural fullness, autophony and hearing their own breathing sound. These symptoms are caused by persistent opening of the normally closed eustachian tube. The most annoying symptom is autophony. Actually, patients with patulous eustachiann tube often complain that external sounds cannot be clearly heard during vocalization. The severity of the symptoms ranges from asymptomatic to severe disturbance in quality of life and suicidal tendencies.

We have tried a variety of treatments for patulous eustachian tube, including conservative therapy and surgical procedures. Most patients can be controlled by nasal instillation of physiological saline, so this therapy is first-line for patulous eustachian tube. Although symptoms usually respond to such conservative treatment or even subside spontaneously, there are some chronic cases that are resistant to all conservative treatments. Surgical interventions are necessary for refractory cases. We have introduced a unique surgery, in which a silicon plug is inserted into the eustachian tube trans-tympanically. The plugging is very effective and less-invasive. Moreover, habitual sniffing is known to be associated with the patulous eustachian tube and play a key role in forming cholesteatoma and tympanic membrane retraction. We can manage this dangerous sniffing with the plugging surgery.

Hearing and Vestibular Disorders

A large number of the patients with hearing and/or equilibrium disorders also visit our department constantly. Severe cases of sudden sensorineural hearing loss have been successfully treated using thrombolytic agents in addition to corticosteroids. We have performed many tympanoplasties with good results for hearing loss due to otitis media and cholesteatoma. We also perform cochlear implant surgery for cases of severe heating loss. We also follow up on cases referred for newborn hearing screening. Pathophysiology of balance disorder and disequilibrium is highly complicated, so their diagnosis and treatment are performed through a variety of balance tests and electrophysiological examinations. We provide appropriate exercise therapy for benign paroxysmal positional vertigo and age-related balance disorders. We also provide middle ear compression therapy for intractable Meniere's disease and surgical treatment for vertigo due to superior semicircular canals. As part of basic research, we are also conducting research on apoptosis and exosome using cultured cells from the inner ear.

Allergy

Allergic rhinitis has been managed by medical and/or surgical treatments. We have started another treatment, sublingual immunotherapy for Japanese cedar pollinosis.

Taste Disorder

In 1976, we have started the first clinic service specialized in taste disorders in Japan and have treated thousands of patients by administration of zinc. Our foci have widely ranged from many clinical issues to basic researches for taste receptor genes.

Voice

In 2018, we have started laryngeal framework surgery to treat a variety of voice disorders, in addition to laryngeal microsurgery. The first visit patients come to us about 150 cases each year, about 100 cases are selected to treat by phono-surgery. The commons are vocal fold polyp, vocal fold paralysis, and the other. The specials are spasmodic disorder, gender incongruence, vocal pitch disorder, and more. The patient come to us to treat phono-surgery from all over the Japan.

Olfactory Disorder

Olfactory disorders are common and their impairment results in a reduced quality of life. The main causes of olfactory disorders are nasal/sinus disease, post viral infection, and head trauma and are therefore very frequent among patients in ear, nose, and throat clinics. The treatment depends on the etiology, which must be determined by a combination of appropriate tests.

Olfactory disorders associated with chronic sinusitis, appropriate surgical techniques are selected according to the pathophysiology, and our hospital has achieved good surgical results. In addition, we are actively engaged in basic research on the regeneration mechanisms of the olfactory epithelium and analysis of clinical data for clinical application.

Other Research Foci

Sinonasal diseases

Head and Neck Neoplasms

PUBLICATION LIST 2022

Division of Otolaryngology-Head and Neck Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Koike N, Hasegawa H, Matsuzaki H, Oshima T	Posterior Cervical Intramuscular Schwannoma Within the Trapezius Muscle: A Case Report	Turkish Archives of Otorhinolaryngology	2022;60(2):105-108	0.6
2	Matsuzaki H, Asai R, Makiyama K.	The predominant site of pharyngeal lesions in patients with recurrent respiratory papillomatosis	European Archives of Oto-Rhino-Laryngology	2022;279(9):4461-4464	2.6
3	Kimura Y, Kaga K.	Comparison of vestibular ocular reflex and gross motor development in children with semicircular canal aplasia and hypoplasia	International Journal of Pediatric Otorhinolaryngology	2022;162:111303	1.5
4	Nin T, Tanaka M, Nishida K, Yamamoto J, Miwa T.	A clinical survey on patients with taste disorders in Japan: A comparative study	Auris Nasus Larynx	2022;49(5):797-804	1.7

Division of Oral Surgery

Chair and Professor, Hisataka Kitano, D.D.S., Ph.D.

The molecular biology, approaching both the basic and clinical research

We perform treatment and clinical examination for a various oral disease. Additionally, the fundamental researches of the gene therapy for the malignant tumor induces oral squamous cell carcinoma are deveroped.

Clinical statistics of oral tumor
Clinical statistics of oral inflammation
Clinical research of temporomandibular disorder
Clinical research of odontectomy
Clinical statistics of oral cacogenesis
Basic research of oral malignant tumor
Molecular biological research of Del1

One of Our research was based on the Developmental endothelial of locus 1 (Del1). Del1 is an extracellular matrix protein (ECM) secreted by embryonic endothelial cells and hypertrophic chondrocytes. Del1 consists of five domains: three epidermal growth factor (EGF) repeat domains (E1, E2, E3) and two Discoidin domains (C1, C2). We reported that Del1 protein increases the efficiency of gene transfer with a non-viral vector, and gene therapy with Del1 fragment using nonviral vectors in mice, the explanted human oral squamous cell carcinoma was reduced their size.

As a related study, researching activation peptide of coagulation factor IX. Blood coagulation factor IX is cleaved by factor XIa during coagulation into activated factor IX and activation peptide (F9-AP). The action of the cleaved peptide is mostly unknown. But, we reported F9-AP enhances cell matrix and intercellular adhesion. *In vivo* study, treatment with activation peptide, the sepsis model mice significantly suppressed the increase in lung weight.

And also, we studies periodontitis and pregnancy concurrent disease. Porphyromonas gingivalis (Pg) inhibits of trophoblast invasion and affects of trophoblast morphology without direct cytotoxicity. It is indicated that Pg produces to soluble factors which is suppress trophoblast invasion and subsequent vascular remodeling. Therefore, Pg affects placental growth and development of fetus.

We'd like to advance a study from various districts and contribute to oral health.

PUBLICATION LIST 2022
Division of Oral Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Abe S, Kobayashi T, Yokomizo N, Hyodo K, Kitano H, Kobayashi Y.	Evaluation and prediction of healing morphology after closed reduction for unilateral mandibular condyle fractures.	Journal of Craniofacial Surgery	2022;34(3):865-869.	0.9
2	Abe S, Kaida A, Knemaru K, Nakazato K, Yokomizo N, Kobayashi Y, Miura M, Miki T, Hidai C, Kitano H, Yoda T.	Differences in the stemness characteristics and molecular markers of distinct human oral tissue neural crest-derived multilineage cells.	Cell Proliferation	2022;55(10):e13286.	8.5

Division of Radiology

Chair and Professor, Masahiro Okada M.D.

Radiological Research Combining Science and Clinical Activities

I am proud of the collective accomplishments in research, patient care, and education that our department has made over the past decades, in close dialogue with other departments in our hospital.
Our department consists of 2 divisions, Diagnostic Radiology and Radiation Oncology. The 2 divisions have common knowledge about radiation, radiation biology, computed tomography (CT)-based anatomy, and tumor staging. Our faculties are engaged in 3 important roles as the M.D. working in the university: research, education, and clinical activities. Both divisions are attempting radiological research combining scientific view and clinical experience.
We are committed to providing high quality services to patients. Using state of the art equipment, we offer the full spectrum of clinical applications and techniques in the areas of Diagnostic Radiology, Interventional Radiology (IVR) and Radiation Oncology.
In the age of digitalization, the importance of keeping abreast of technological advances while providing integrated services cannot be over-emphasized. In this regard, I am especially proud of the faculty as well as our trainees, technologists, and staff members. Everyone who works here is committed to achieving distinction in delivering personalized care with professionalism.

The Division of Diagnostic Radiology has 2 research topics and one possibly new trend. One of our most important research topics is liver imaging with magnetic resonance imaging (MRI) and CT. The research is regarding liver MRI using hepatocyte-specific contrast agents and dual energy CT (DECT). Analysis of liver resection cases demonstrates the imaging advantages of liver fibrosis. In the research of Diagnostic Radiology, overall, it is important to combine scientific methods with clinical experience. Gd-EOB-DTPA contrast agent, which was launched in Japan 16 years ago, is an MR contrast agent that reveals the function of hepatocytes, and we are investigating the possibility of using MRI to evaluate liver function and help diagnose cirrhosis and chronic liver disease. We are also studying pulmonary embolism using DECT, which allows for pulmonary perfusion evaluation and is excellent for evaluating blood flow. We believe that the technology to quantify this is useful in determining the effectiveness of treatment for patients, and we are conducting research on this topic. And, we study orthopedic-related dynamic imaging. Using a technique that makes it possible to understand the conditions through motion by creating moving images (Cine images) from simple radiographs, it is possible to study bones.

The Division of Radiation Oncology is tackling basic and clinical researches. The aim of basic research is to determine the effectiveness of PI-polyamide for increasing the sensitivity of malignant tumors to irradiation. An in vitro study using cancer cells, polyamides, radiation, and DNA analysis is providing new insight on the radiation oncology and therapy. In addition, the mice, in which the human cancer is implanted, are examined with the polyamides and radiation. Our Radiation Oncology team has a strong tie with other departments at Nihon University as well as with the Division of Radiation Oncology at other institutions. So, the radiation effect on both typical and extra-lymphatic malignant lymphoma is evaluated intensely not only in our university hospital but also in multi-center studies. Compromised patients with cancers, such as those with both prostate cancer and coagulopathy, are another target for clinical practice and research. Also in the Division of Radiation Oncology, the radiological research combining basic science and clinical activities is recognized.

Our research activities and educational and clinical programs are open to the web site as follows:

http://www.med.nihon-u.ac.jp/department/radiology/research.html

Please visit our home page or Department directly, and appreciate our radiological research combining science and clinical activities!

PUBLICATION LIST 2022
Division of Radiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Okada M, Numata K, Nihonmatsu H, Tomiya K, Takeda A, Tago K, Hyodo T, Eriguchi T, Nakano M.	Pathological Appearance of Focal Liver Reactions after Radiotherapy for Hepatocellular Carcinoma	Diagnostics	2022;12(5):1072.	3.6
2	Tago K, Tsukada J, Sudo N, Shibutani K, Okada M, Abe H, Ibukuro K, Higaki T, Takayama T.	Comparison between CT volumetry and extracellular volume fraction using liver dynamic CT for the predictive ability of liver fibrosis in patients with hepatocellular carcinoma	European Radiology	2022;32(11) :7555-7565.	5.9
3	Ishibashi N, Maebayashi T, Hata M, Aizawa T, Sakaguchi M, Okada M.	Radiation therapy for pelvic recurrent colorectal or gynecological cancer: is whole pelvic irradiation necessary?	Annals of Palliative Medicine	2022;11(6):1855-1864.	Not available
4	Ishibashi N, Maebayashi T, Kimura Y, Okada M.	Bone scan index on bone scintigraphy and radiation therapy for bone metastases from cancers other than prostate and breast cancers: A retrospective observational study.	Journal of Cancer Research and Therapeutics	2022;18(6):1716-1721.	1.3
5	Ishibashi N, Maebayashi T, Aizawa T, Sakaguchi M, Okada M.	Coronavirus disease 2019 (COVID-19) in patients before, during, or after lung irradiation, and serum SP-A and SP-D levels.	Thoracic Cancer	2022;13(22):3200-3207.	2.9
6	Amano M, Fujita S, Takei N, Sano K, Wada A, Sato K, Kikuta J, Kuwatsuru Y, Tachibana R, Sekine T, Horimoto Y, Aoki S.	Feasibility of Quantitative MRI Using 3D-QALAS for Discriminating Immunohistochemical Status in Invasive Ductal Carcinoma of the Breast.	Journal of Magnetic Resonance Imaging	2022;58(6):1752-1759.	4.4
7	Hirata K, Aoki R, Nagano N, Kato R, Aoki M, Miyazaki A, Morioka I	Successful helmet therapy in an infant with positional brachycephaly associated with perinatal severe osteogenesis imperfecta	Pediatrics International.	2022;65(1):e15512.	1.4

Division of Anesthesiology

Chair and Professor, Takahiro Suzuki, M.D., Ph.D.

The We have dedicated efforts to provide useful information and contribute perioperative patient's safety through efficacious clinical and basic research.

We anesthesiologists have very little doubt that anesthetic management of patient during surgery is sure to impact on patient prognosis, and therefore have to be particularly sensitive to get valuable information. Our main research theme includes neuromuscular blocking and reversal agents, neuromuscular monitoring, cerebral circulation and oxygenation, ultrasound-guided neural blockade, autonomic nervous activity, and intractable pain management.

Muscle relaxants group has engaged to study 1) pharmacodynamics of neuromuscular blocking agents and the reversal drugs, 2) influencing factors on neuromuscular transmission, such as anesthetics, anesthesia-related drugs and patient's conditions, 3) differences in process of neuromuscular block and recovery from neuromuscular block among various muscles, such as the adductor pollicis, corrugator supercilii, masseter, abductor halluces, etc., 4) development of effective neuromuscular monitoring unit in clinical anesthesia.

The team of cerebral circulation has been investigating change in maternal cerebral blood volume and oxygenation during spinal anesthesia for cesarean section using near-infrared spectroscopy to identify a relationship between change in hemodynamic and cerebral circulation. A significant decrease in maternal cerebral blood volume and oxygenation associated with the severity of hypotension during spinal anesthesia and the prophylactic effect of vasopressors and oxygen supplementation have been demonstrated.

Autonomic nervous group has measured change in autonomic activities using heart rate variability in anesthetized patients and chronic pain patients. The team elucidated changes in autonomic nervous activity and mechanisms induced by various anesthetics and sedative drugs.

Nihon University Itabashi Hospital has a multidisciplinary pain center that can manage and treat various pain including acute pain, intractable chronic pain, cancer pain and psychogenic pain in a comprehensive manner. Anesthesiologists mainly manage the center as pain clinicians. As a result of systematic data gathering for many years, pain team could clarify incidence and prognosis of persistent pain induced by venipuncture for blood sampling. The team ongoingly submits informative case reports.

As basic research, we have been investigating the anti-cancer effects of multimodal analgesics in a mouse pancreatic cancer model

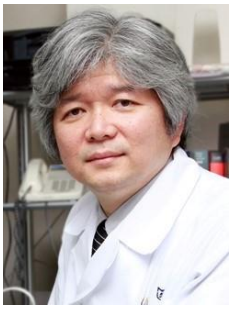
PUBLICATION LIST 2022
Division of Anesthesiology

List No.	Author	Paper	Journal	Publication year ; volume ; page	Impact Factor
1	Takagi S, Kojima M, Iwasaki H, Doshu-Kajiura A, Kitajima O, Suzuki T.	Extravascular leakage of induction doses of rocuronium: four cases in which both depth of neuromuscular block and plasma concentration of rocuronium were assessed	Journal of Clinical Monitoring and Computing	2022;36(2):587-592.	2.2
2	Iwasaki H, Takagi S, Kitajima O, Oshima Y, Kyuragi-Luthe S, Suzuki T.	Plasma rocuronium concentration in cell salvage blood following cardiac surgery: a case series	Journal of Clinical Monitoring and Computing	2022;36(4):1213-1217.	2.2
3	Takagi S, Suzuki T, Nakatsuka H, Sasakawa T, Iwasaki H, Kotake Y, Nagata E, Kanmura Y.	Comparison of a new EMG module, AF-201P, with acceleromyography using the post-tetanic counts during rocuronium-induced deep neuromuscular block: a prospective, multicenter study	Journal of Clinical Monitoring and Computing	2022;36(5):1347-1353.	2.2
4	Iwasaki H, Yamamoto M, Sato H, Doshu-Kajiura A, Kitajima O, Takagi S, Kyuragi -Luthe S, Suzuki T.	A Comparison Between the Adductor Pollicis Muscle Using TOF-Watch SX and the Abductor Digiti Minimi Muscle Using TetraGraph in Rocuronium-Induced Neuromuscular Block: A Prospective Observational Study	Anesthesia & Analgesia	2022;135(2):370-375.	5.9
5	Oshima Y, Sano M,Kajiwara I, Ichimaru Y, Itaya T, Kuramochi T, Hayashi E, Kim J, Kitajima O, Masugi Y, Masamune A, Ijichi H, Ishii Y, Suzuki T.	Midazolam exhibits antitumour and anti-inflammatory effects in a mouse model of pancreatic ductal adenocarcinoma	British Journal of Anaesthesia	2022;128(4):679-690.	9.8
6	Iwasaki H, Sato H, Takagi S, Kitajima O, Kyuragi-Luthe S, Suzuki T.	A comparison between the adductor pollicis muscle and the abductor digiti minimi muscle using electromyography AF-201P in rocuronium-induced neuromuscular block: a prospective comparative study	BMC Anesthesiology	2022;22(1):117.	2.2
7	Sato H, Iwasaki H, Doshu-Kajiura A, Katagiri S, Takagi S, Kyuragi-Luthe S, Suzuki T.	Comparison of two electromyography-based neuromuscular monitors, AF-201P and TetraGraph, in rocuronium-induced neuromuscular block: A prospective comparative study	Anaesthesia Critical Care & Pain Medicine	2022;41(6):101145.	5.5

Division of Emergency and Critical Care Medicine

Chair and Professor, Kosaku Kinoshita, M.D., PhD.

Inspire with happiness, create a dynamic team for all emergency patients



Distinct characteristics of our program and critical care unit

As our national population ages, we are seeing a yearly increase in the number of people requiring emergency medical care. Conversely, the number of child deaths due to accidents in Japan is high even among advanced nations, exposing the urgent need to build regional wide-area emergency care systems. Nihon University Itabashi Hospital serves as a Base Hospital for Disasters, a Pediatric Emergency and Critical Care Center, a Maternal Emergency and Critical Care and General Perinatal Emergency Medical Care Center, a Priority Hospital for Emergency Aortic Disease, and is a participating facility in the CCU Network and the Tokyo Burn Unit Association. Annually, over 2,200 seriously and critically sick and wounded patients are transported to our Critical Care Unit who require a wide variety of treatment including surgery for, among other symptoms, external injuries, burns, acute abdomen, acute coronary syndrome, poisoning, cardiopulmonary arrest, and other internal medical diseases.

Research and clinical practice

We conduct research on emergency and critical care for pre-hospital and initial therapy and in the field of intensive care medicine. For the latter field, our research even covers: pathophysiological analysis and control of severe stress that occurs in severely traumatized or septic patients; comprehensive search for biomarkers associated with clinical outcomes of sepsis, cerebral infarction, and post cardiac arrest syndrome; establishing a nutrition therapy for critically ill patients; early brain function assessment method for post cardiac arrest syndrome patients; development of non-invasive cerebral protection devices (pulmonary cooling devices); and neurological intensive care and neurological monitoring.

Chair and Professor

Kosaku Kinoshita, M.D., PhD.
Professor, Division of Emergency and Critical Care Medicine, Department of Acute Medicine, Nihon University School of Medicine

- Appointed November 1, 2016
- Received both undergraduate (1987) and graduate (1991) degrees from the Nihon University School of Medicine
- Joined the acute medicine program in 1996 to serve as a clinician, teacher and researcher on emergency medicine.
- Currently focused on research, clinical practice, teaching, and training less experienced medical practitioners in general acute and intensive care medicine, covering a broad array of disciplines including pre-hospital emergency care and emergency care systems, disaster medicine, traumatology, sepsis, and toxicology.

PUBLICATION LIST 2022

Division of Emergency and Critical Care Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kuwana T, Kinoshita K, Ihara S, Sawada N, Hosokawa T, Mutoh T, Umefumi Iguchi U, Nakagawa K, Yamaguchi J.	The Characteristics of Patients with Severe COVID-19 Pneumonia Treated with Direct Hemoperfusion Using Polymyxin B-Immobilized Fiber Column (PMX-DHP).	Infection and Drug Resistance.	2022;15:4819–4828.	3.9
2	Sakurai A, Ohta S, Oda J, Muguruma T, Abe T, Morimura N.	ABCD approach at the #7119 center, telephone triage system in Tokyo, Japan; a retrospective cohort study.	BMC Emergency Medicine	2022;22(1):66	2.5

Division of Anatomical Science

Chair and Professor, Shuichi Hirai, M.D., Ph.D.

Enjoying the challenge of tackling unknown

Our laboratory aims to contribute to medicine by clarifying the "unknown". The ultimate goal is to contribute to society by clinically applying the knowledge that has been clarified through basic research.

RESEARCH ACTIVITIES

Organ preservation for the transplantation

We focus on the development of organ preservation methods for transplanted organs using carbon monoxide, one of the medical gases.

➢ Metabolic analysis during storage of excised organs

➢ Search for markers that indicate the state of excised organs

Structure, Function and Neurobiology of the Central Nervous System

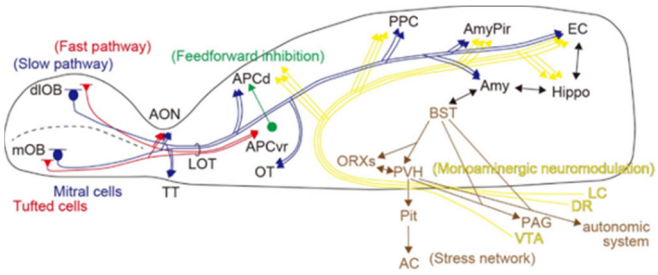
We are studying the mechanisms behind the functional basis of the limbic system mediating neuronal and behavioral responses.

We are also interested in understanding the cellular and molecular mechanisms regulating neural networks and in pathological conditions such as neurodegenerative disorders.

➢ Functional anatomy of the limbic system, including the hippocampus, amygdala, and extended amygdala

➢ Interaction between the olfactory and limbic systems

➢ To alleviate stress responses, including several psychiatric diseases



➢Microstructural analysis using 3D mapping method

Development of Immunotherapy Combination Strategies in Cancer

Stearoyl-CoA desaturase 1 (SCD1) was found to be one of the immune resistant mechanisms causing non-T cell-inflamed conditions in mouse and human cancers. SCD1 inhibition in cancer cells or CD8+ T cells via inhibition of β-catenin signaling or ER stress, enhanced tumor accumulation of dendritic cells via increased CCL4 and subsequent induction and tumor accumulation of CD8+ T cells and synergized with anti-PD-1 antibody for anti-tumor effects. SCD1 expression was observed in one of the non-T cell-inflamed subtypes in human colon cancer, and the SCD1 related fatty acid ratio were correlated with prognosis of patient with non-small lung cancer following anti-PD-1 antibody therapy, indicating that SCD1 and related fatty acids are attractive biomarkers and therapeutic targets for combination immunotherapy.

Development of a high-accuracy early cancer diagnosis system utilizing fatty acid metabolic abnormalities in the tumor microenvironment.

Ovarian cancer has a poor prognosis and is difficult to detect in early stages. Therefore, developing new diagnostic markers for early-stage ovarian cancer is critical. We developed a diagnostic marker for early-stage ovarian cancer on the basis of fatty acid metabolism characteristics of cancer cells. The expression of various fatty acid metabolizing enzymes such as stearoyl-CoA desaturase 1 (SCD1) was altered in early-stage ovarian cancer tissue compared with that in normal ovarian tissue. Changes in the expression of fatty acid metabolizing enzymes, particularly SCD1, in cancer tissues were found to alter concentrations of multiple free fatty acids (FFAs) in serum. Surprisingly, stage I/II ovarian cancer patients also showed significant changes in serum levels of eight FFAs, which can be early diagnostic markers. Finally, using statistical analysis, an optimal early diagnostic model combining oleic and arachidic acid levels, fatty acids associated with SCD1, was established and confirmed to have higher diagnostic power than CA125, regardless of histology. Thus, our newly developed diagnostic model using serum FFAs may be a powerful tool for the non-invasive early detection of ovarian cancer. We are currently conducting studies to evaluate the potential of the developed diagnostic model for a wide range of cancer types.

Clinicl Anatomy

Anatomical studies of the knee joint, especially the anterior cruciate ligament (ACL), knee osteoarthritis morphology, and morphological variations of the meniscus. Knees are analyzed using radiography, 3D-CT, Image software, and pathological examination.

PUBLICATION LIST 2022
Division of Anatomical Science

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Otsuka S, Kawata S, Nanizawa E, Hatayama N, Hayashi S, Itoh M, Hirai S, Naito M.	Efficacy of urea solution reperfusion to a formalin-embalmed cadaver for surgical skills training	Anatomical Science International	2022;97(3):264-272.	1.2
2	Nagahori K, Kuramasu M, Kawata S, Yakura T, Li Z, Hirai S, Qu N, Itoh M.	GIT1 is an untolerized autoantigen involved in immunologic disturbance of spermatogenesis	Histochemistry and Cell Biology	2022;157(3):309-319.	2.3
3	Nanizawa E, Otsuka S, Hatayama N, Tamaki Y, Hayashi Y, Ishikawa T, Hirai S, Naito M, Hirai S.	Short-term high-fat and high-carbohydrate diets increase susceptibility to liver injury by inducing hepatic procoagulant and proinflammatory conditions with different balances	Nutrition	2022;101:111710.	4.4
4	Sato T, Matsukawa M, Iijima T, Mizutani Y.	Hierarchical Elemental Odor Coding for Fine Discrimination Between Enantiomer Odors or Cancer-Characteristic Odors	Frontiers in Behavioral Neuroscience	2022;16:849864.	3.0
5	Matsukawa M, Yoshikawa M, Katsuyama N, Aizawa S, Sato T.	The Anterior Piriform Cortex and Predator Odor Responses: Modulation by Inhibitory Circuits	Frontiers in Behavioral Neuroscience	2022;16:896525.	3.0
6	Katoh Y, Yaguchi T, Kubo A, Iwata T, Morii K, Kato D, Ohta S, Satomi R, Yamamoto Y, Oyamada Y, Ouchi K, Takahashi S, Ishioka C, Matoba R, Suematsu M, Kawakami Y.	Inhibition of stearoyl-CoA desaturase 1 (SCD1) enhances the anti-tumor T cell response through regulating β-catenin signaling in cancer cells and ER stress in T cells and synergizes with anti-PD-1 antibody	Journal for ImmunoTherapy of Cancer	2022;10(7):e004616.	10.9
7	Umemoto K, Hayashi T, Fukushige K, Hirai S, Terayama H, Sakabe K, Naito M.	Specific acupuncture stimulation of Shenshu (BL23) affects sympathetic nervous activity-associated plasma renin concentration changes	Journal of Traditional Chinese Medicine	2022;42(2):250-255.	2.6
8	Katoh Y, Hara H, Harada T, Hirai S.	Combination of serum 5-S-cysteinyldopa, melanoma inhibitory activity and IL-8 improves the diagnostic accuracy of malignant melanoma compared with individual markers	Medicine	2022;101(35):e30471.	1.6
9	Tatsuoka J, Sano E, Hanashima Y, Yagi C, Yamamuro S, Sumi K, Hara H, Takada K, Kanemura K, Komine-Aizawa S, Katayama Y, Yoshino A.	Anti-tumor effects of perampanel in malignant glioma cells	Oncology Letters	2022;24(6):421.	2.9
10	Yuda M, Aizawa S, Tsuboi I, Hirabayashi Y, Harada T, Hino H, Hirai S.	Imbalanced M1 and M2 macrophage polarization in bone marrow provokes impairment of the hematopoietic microenvironment in a mouse model of hemophagocytic lymphohistiocytosis	Biological and Pharmaceutical Bulletin	2022;45(11):1602-1608.	2.0
11	Yagi C, Tatsuoka J, Sano E, Hanashima Y, Ozawa Y, Yoshimura S, Yamamuro S, Sumi K, Hara H, Katayama Y, Yoshino A.	Anti-tumor effects of anti-epileptic drugs in malignant glioma cells	Oncology Reports	2022;48(6):216.	4.2
12	Tanaka Y, Hino H, Takeya K, Eto M.	Abemaciclib and Vacuolin-1 induce vacuole-like autolysosome formation - A new tool to study autophagosome-lysosome fusion	Biochemical and Biophysical Research Communications	2022;614:191-197.	3.1

Division of Cell Regeneration and Transplantation

Chair and Professor, Taro Matsumoto, M.D., Ph.D.

Translational research of novel stem cell-based therapy

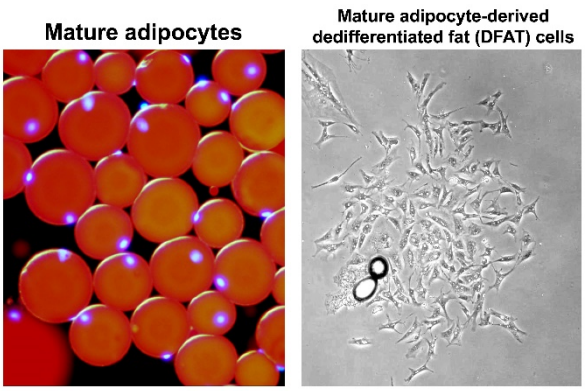
Stem cell-based therapies, which aim to repair and replace lost or damaged tissues, offer a promising therapeutic approach for many intractable diseases and serious injuries. For stem cell-based therapy to become a widely used treatment, it is necessary to find sources of stem cells that can be safety harvested using minimally invasive procedures and easily expanded on a large scale are required for stem cell-based therapy to become a widely used treatment. Our research group focuses on specific types of induced stem cells, such as mature adipocyte-derived dedifferentiated fat (DFAT) cells and fetal tissue-derived stem cells, such as Wharton's jelly mesenchymal stem cells (MSCs), as cell sources for cell-based therapy and tissue engineering. Our research goal is to establish a practicable cell-based therapy that is readily available to any patient, regardless of age or underlying disease.

DFAT cells as a new cell source for stem cell-based therapy

Adipose tissue is the most abundant tissue in the body, and mature adipocytes constitute the majority of cells in the adipose tissue. When mature adipocytes are subjected to an in vitro dedifferentiation strategy known as ceiling culture, these cells can revert to a more primitive phenotype and gain proliferative capacity. We have reported that these cells, which are referred to as DFAT cells, exhibit a very similar phenotype to that of MSCs with multilineage differentiation potential. DFAT cells can be easily isolated from a very small amount (approximately 1 g) of subcutaneous adipose tissue and are readily expanded with high purity, regardless of the donor age and underlying disease. These properties suggest that DFAT cell-based therapies may be applicable to many disorders, including ischemic diseases, osteochondral diseases, and intractable skin injuries. Our recent studies demonstrate that DFAT cells also have therapeutic potential for facial nerve defects and spinal cord injury. We are currently conducting a first-in-man clinical trial of autologous DFAT cell transplantation in patients with severe peripheral artery disease.

Research into fetal tissue-derived stem cells

Recent studies have provided convincing evidence that the fetal life-support system, including the placenta, umbilical cord, and umbilical cord blood, contains several types of stem and progenitor cells. These tissues are useful for clinical applications because they can be collected in a non-invasive procedure and are usually discarded as biological waste after birth. We found that the p75NTR^{+} cell fraction in umbilical cord blood efficiently forms neurospheres and differentiates into neural cells and glial cells, suggesting that this cell fraction may be a potential cell source for the treatment of neural disorders. We also investigated the biological properties of three different types of MSCs derived from umbilical cord and amniotic membrane and found that these cells have varying degrees of immunomodulatory and hematopoietic supporting activity. We expect that these cells will be applicable in cell therapy to prevent graft failure and graft-versus-host disease after hematopoietic stem cell transplantation.



Major papers:

1. Matsumoto T, Kano K, Mugishima H, et al. Mature adipocyte-derived dedifferentiated fat cells exhibit multilineage potential. **Journal of Cellular Physiology** 2008; 215(1):210-222.
2. Sakuma T, Matsumoto T, Takahashi S, et al. Mature adipocyte derived dedifferentiated fat cells can differentiate into smooth muscle-like cells and contribute to bladder tissue regeneration. **The Journal of Urology** 2009; 182 (1):355-365.
3. Watanabe H, Goto S, Matsumoto T, et al. The neovascularization effect of dedifferentiated fat cells. **Scientific Reports** 2020; 10(1):688-696.
4. Fujii-Tezuka R, Ishige-Wada M, Matsumoto T, et al. Umbilical artery tissue contains p75 neurotrophin receptor-positive pericyte-like cells that possess neurosphere formation capacity and neurogenic differentiation potential. **Regenerative Therapy** 2020; 16:1-11.

PUBLICATION LIST 2022

Division of Cell Regeneration and Transplantation

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kitano D, Migita S, Li Y, Takahashi R, Taniguchi Y, Kurosawa T, Sudo M, Haruta H, Hiro T, Takayama T, Mitsumata M, Matsumoto T, Okumura Y, Hirayama A.	Effect of rivaroxaban and clopidogrel combination therapy on in-stent responses after everolimus-eluting stent implantation in a porcine coronary model.	Journal of Atherosclerosis and Thrombosis	2022;29(1):69-81	4.4
2	Tanimoto K, Matsumoto T, Nagaoka Y, Kazama T, Yamamoto C, Kano K, Nagaoka M, Saito S, Tokuhashi Y, Nakanishi K.	Phenotypic and functional properties of dedifferentiated fat cells derived from infrapatellar fat pad.	Regenerative Therapy	2022;19:35-46	4.3
3	Akita D, Kazama T, Tsukimura N, Taniguchi Y, Takahashi R, Arai Y, Tsurumachi-Iwasaki N, Yasuda H, Okubo T, Kano K, Matsumoto T, Honda M.	Transplantation of mature adipocyte-derived dedifferentiated fat cells facilitates periodontal tissue regeneration of class II furcation defects in miniature pigs.	Materials	2022;15(4):1311	3.4
4	Murata Y, Obinata D, Matsumoto T, Ikado Y, Kano K, Fukuda N, Yamaguchi K, Takahashi S.	Urethral injection of dedifferentiated fat cells ameliorates sphincter damage and voiding dysfunction in a rat model of persistence stress urinary incontinence.	International Urology and Nephrology	2022;54(4):789-797	2.0
5	Utsunomiya K, Maruyama T, Shimizu S, Matsumoto T, Endo M, Kobayashi H, Kano K, Abe M, Fukuda N.	Implantation of dedifferentiated fat cells ameliorated antineutrophil cytoplasmic antibody glomerulonephritis by immunosuppression and increases in tumor necrosis factor-stimulated gene-6.	Stem Cell Research & Therapy	2022;13(1):319	7.5
6	Hidaka A, Uekusa S, Hosokawa T, Kaneda H, Kazama T, Hagikura K, Uehara S, Koshinaga T, Matsumoto T.	Effects of dedifferentiated fat cells on neurogenic differentiation and cell proliferation in neuroblastoma cells.	Pediatric Surgery International	2022;39(1):58	1.8

Division of Physiology

Chair and Professor, Toshio Miki, M.D., Ph.D.

Open up new vistas in medical physiology

The Department of Physiology was renewed in April 2019 with the appointment of Prof. Toshio Miki. We are here to reboot the Nihon University School of Medicine with a focus on developing novel medical therapies and elucidating cellular physiological functions.

Professor Miki had worked abroad for over 20 years studying liver transplantation, xenotransplantation, hepatocyte transplantation, extracorporeal liver support systems (artificial liver), and amniotic epithelial stem cells. His most recognized achievement has been the discovery of human amniotic epithelial cells (hAEC), a type of placental stem cell. This unique stem cell is neither an embryonic stem cell (ESC) nor a mesenchymal stem cell (MSC). Instead, hAEC is a neonatal stem cell type that possesses ESC-like pluripotency and MSC-like immunomodulatory functions. hAEC can be isolated from delivered term placentae, and thus are available in abundance via non-invasive means and do not carry the same ethical concerns as embryonic and fetal derived stem cells. As they are derived from the epiblast layer, they can differentiate to cells of all three germ layers (endoderm, mesoderm, ectoderm), and are not highly immunogenic or tumorigenic. Importantly, they can differentiate into hepatocyte-like cells expressing multiple metabolic enzymes. These advantageous properties have made hAEC an attractive cell source for potential use as cell therapy for the treatment of congenital metabolic disorders. Prof. Miki has conducted multiple pre-clinical studies using different model animals of congenital metabolic disorders, including Maple syrup urine disease, Hurler disease (mucopolysaccharide type I), and ornithine transcarbamylase deficiency. Although each disease mechanism is different, hAEC transplantation improved disease phenotypes in all of these models.

Nihon University School of Medicine is one of the specialized institutes for the treatment of congenital metabolic disorder patients in Japan and is where Prof. Miki received his medical training. He has now returned to his alma mater and envisions the clinical translation of hAEC transplantation through collaborations with colleagues at Nihon University.

In addition to the above translational research, we are making efforts on exploring the cutting edge of basic science. Recent advances in regenerative medicine and tissue engineering have brought a clearer concept how newly transplanted cells behave in vivo. The cells must integrate into human organs and establish appropriate life-sustaining physiological conditions. By focusing on cell-cell communication, such as an intracellular transfer of mitochondria via tunneling nanotubes and exosomes, we will accumulate new knowledge for the development of future therapies.

In April 2021, Dr. Kazunori Kanemaru, an expert in intracellular calcium imaging analysis for elucidating live cell physiological/pathophysiological function, joined us as an Associate Professor. Dr. Kanemaru has developed a family of GFP-based intraorganellar calcium sensors, CEPIA, which enables to monitor Ca^{2+} dynamics in the endoplasmic reticulum and mitochondria with high spatiotemporal resolution. Dr. Kanemaru also established a method to image astrocytic Ca^{2+} signals in intact mouse neocortex using a combined application of transgenic mouse strategy and a 2-photon microscope technique. Using these methods, we are currently researching glial cell function, neurodegenerative diseases, intraorganellar calcium dynamics, and calcium activity of pancreatic β cells/taste cells in tastebuds/liver hepatocytes in living mice.

Furthermore, Dr. Masamitsu Iino joined us as a senior researcher (equivalent to a research professor) in April 2021. Dr. Iino is an emeritus professor at The University of Tokyo and is widely known for his discovery of a mechanism for self-regenerative calcium release from the endoplasmic reticulum which is a common process forming intracellular calcium waves/oscillations to trigger versatile cellular function. Currently, our research group including Dr. Iino is conducting research to unveil underlying mechanisms for intravital insulin dynamics and its physiological function.

PUBLICATION LIST 2022
Division of Physiolosy

List No.	Author	Paper	Journal	Publication year ; volume ; page	Impact Factor
1	Moriyama M, Kanda T, Midorikawa Y, Matsumura H, Masuzaki R, Nakamura H, Ogawa M, Matsuoka S, Shibata T, Yamazaki M, Kuroda K, Nakayama H, Higaki T, Kanemaru K, Miki T, Sugitani M, Takayama T.	The proliferation of atypical hepatocytes and CDT1 expression in noncancerous tissue are associated with the postoperative recurrence of hepatocellular carcinoma	Scientific Reports	2022;12(1):20508.	4.6
2	Taiko T, Takano C, Nomoto M, Hayashida S, Kanemaru K, Miki T.	Selection of red fluorescent protein for genetic labeling of mitochondria and intercellular transfer of viable mitochondria	Scientifc Reports	2022;2(1):19841.	4.6
3	Takano C, Horie M, Taiko I, Trinh QD, Kanemaru K, Komine-Aizawa S, Hayakawa S, Miki T.	Inhibition of Epithelial-Mesenchymal Transition Maintains Stemness in Human Amniotic Epithelial Cells	Stem Cell Reviews and Reports	2022;18(8):3083-3091.	4.8
4	Abe S, Kaida A, Kanemaru K, Nakazato K, Yokomizo N, Kobayashi Y, Miura M, Miki T, Hidai C, Kitano H, Yoda T.	Differences in the stemness characteristics and molecular markers of distinct human oral tissue neural crest-derived multilineage cells	Cell Proliferation	2022;55(10):e13286.	8.5
5	Toyonaka R, Ozeki J, Koyama Y, Takahashi S, Tang X, Kobayashi H, Amano M, Tada K, Miki T, Tani M.	A case of breast squamous cell carcinoma following breast augmentation with liquid silicone injection after 16 years	Surgical Case Reports	2022;8(1):22.	0.8
6	Fathi I, Miki T.	Human Amniotic Epithelial Cells Secretome: Components, Bioactivity, and Challenges	Frontiers in Medicine	2022;8:763141.	3.9
7	Tanaka M, Tokodai K, Sato M, Yamada S, Okita H, Ito T, Saito M, Hoshiai T, Miyagi S, Miki T, Unno M, Kamei T, Goto M.	Distribution of Amniotic Epithelial Cells After Intraportal Infusion in a Rat Model	Transplantation Proceedings	2022;54(2):513-515.	0.9
8	Kitano H, Kanemaru K, Miki T, Hidai C.	EGF domain peptide of Developmentally regulated endothelial locus1 facilitates gene expression of extracellularly applied plasmid DNA	Biologicals	2022;75:12-15.	1.7
9	Kurebayashi N, Murayama T, Ota R, Suzuki J, Kanemaru K, Kobayashi T, Ohno S, Horie M, Iino M, Yamashita F, Sakurai T.	Cytosolic Ca2+-dependent Ca2+ release activity primarily determines the ER Ca2+ level in cells expressing the CPVT-linked mutant RYR2	Journal of General Physiology	2022;154(9):e202112869.	3.8
10	Tatsuoka J, Sano E, Hanashima Y, Yagi C, Yamamuro S, Sumi K, Hara H, Takada K, Kanemaru K, Komine-Aizawa S, Katayama Y, Yoshino A.	Anti-tumor effects of perampanel in malignant glioma cells	Oncology Letters	2022;24(6):421.	2.9
11	Takai C, Iwata N, Kanemaru K, Tanaka KF, Yu Y, Iino S, Nakayama S.	Ratio-metric measurement of intracellular calcium in visceral muscles via selective expression of a yellow cameleon calcium sensor	Sensors and Actuators B-Chemical	2022;364:131756.	8.4
12	Zampese E, Wokosin DL, Gonzalez-Rodriguez P, Guzman JN, Tkatch T, Kondapalli J, Surmeier WC, D'Alessandro KB, De Stefani D, Rizzuto R, Iino M, Molkentin JD, Chandel NC, Schumacker PT, Surmeier DJ.	Ca2+ channels couple spiking to mitochondrial metabolism in substantia nigra dopaminergic neurons	Science Advances	2022;8(39):eabp8701.	13.6

Division of Biochemistry

Chair and Professor, Makoto Makishima, M.D., Ph.D.

Regulation of metabolism and immunity of nuclear receptors and molecular pathogenesis of cancer and leukemia

Principal Investigator

Dr. Makishima has sought to investigate how nuclear receptors play their roles particularly in lipid metabolism and immunity of our body. His early work identified that farnesoid X receptor (FXR) and vitamin D receptor (VDR) are receptors/sensors for bile acids (Makishima et al. Science 1999 and 2000). He and his colleagues currently study biochemical and molecular biological functions of nuclear receptors by analyzing their gene-deficient mice, and also develop new technologies for future diagnosis and therapy.

1. Nuclear receptors

Nuclear receptors are transcription factors that are activated by lipophilic ligands. They play critical roles not only in maintaining homeostasis, but also in alleviating or occasionally deteriorating disorders such as metabolic syndrome, inflammation and cancer. Among 48 nuclear receptors in human, we mainly study VDR, liver X receptor (LXR) and FXR.

1-1. VDR

We explore unknown functions of hepatic VDR and report that VDR deficiency attenuates concanavalin-A-induced hepatitis in mice (Umeda et al. J Leukoc Biol 2019). We also investigate the role of VDR in bile acid metabolism and report that fecal bile acid excretion is decreased in VDR knockout mice (Nishida et al., J Nutr Sci Vitaminol 2020).

1-2. LXR

LXRalpha and LXRbeta are potential therapeutic targets for multiple disorders with abnormal cholesterol levels. LXRs are expressed in hepatic nonparenchymal cells, such as Kupffer cells/macrophages. We investigate the role of LXRs in hepatic immunity and report that (1) LXRs regulate bone marrow-derived macrophage population and inflammation in the liver (Endo-Umeda et al., Sci Rep 2018), (2) LXRalpha deficiency promotes the progression of non-alcoholic steatohepatitis in mice (Endo-Umwda et al., Endocinology 2018), and (3) hepatic natural killer T cells and hepatic antitumor activity are diminished in LXR-deficient mice (Endo-Umeda et al., Sci Rep 2021).

1-3. FXR

Ileal FXR increases fibroblast growth factor 15/19 (FGF15/19) expression upon stimulation with bile acids. FGF15/19 then suppresses the bile acid production in the liver as a negative feedback regulator. We investigate the mechanism how FXR regulates of *Fgf15* expression under various physiological conditions.

2. Aryl hydrocarbon receptor (AHR)

AHR is structurally distinct form nuclear receptors and considered as a sensor for xenobiotic chemicals such as dioxin. We report that an environmental pollutant, benzo[*a*]pyrene, further increases *CYP1A1* and *CYP1B1* mRNA levels in HepG2 hepatocytes through AHR in combination with diallyl trisulfide, a garlic-derived organosulfer compound (Uno et al. Anticancer Res 2019).

3. Cancer research

We investigate the pathogenesis of malignancies, such as hepatocellular carcinoma, breast cancer, and leukemia. We clarified cancer origin and evolution through somatic mutation profiles of multiple cancer and precancerous lesions in breast cancer (Kobayashi et al. Mol Med Rep 2021).

4. Dedifferentiated fat (DFAT) cells

DFAT cells are dedifferentiated from fat cells with mesenchymal stem cell-like pluripotency and are expected to be a useful cell source for the regenerative medicine. We investigate whether any nuclear receptors are involved in the dedifferentiation and re-acquisition of the pluripotency.

PUBLICATION LIST 2022
Division of Biochemistry

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Ohni S, Yamaguchi H, Hirotani Y, Nakanishi Y, Midorikawa Y, Sugitani M, Naruse H, Nakayama T, Makishima M, Esumi M.	Direct molecular evidence for both multicentric and monoclonal carcinogenesis followed by transdifferentiation from hepatocellular carcinoma to cholangiocarcinoma in a case of metachronous liver cancer.	Oncology Letters	2022;23(1):22.	2.9
2	Ando K, Ohira M, Takada I, Cázares-Ordoñez V, Suenaga Y, Nagase H, Kobayashi S, Koshinaga T, Kamijo T, Makishima M, Wada S.	FGFR2 loss sensitizes MYCN-amplified neuroblastoma CHP134 cells to CHK1 inhibitor-induced apoptosis.	Cancer Science	2022;113(2):587-596.	5.7
3	Adachi K, Ishizawa M, Uno S, Kubota H, Henmi T, Koshinaga T, Makishima M, Sakurai K.	Oral benzo[a]pyrene administration attenuates dextran sulfate sodium-induced colitis in mice.	Chemico-Biological Interactions	2022;353:109802.	5.1
4	Yoshihara A, Kawasaki H, Masuno H, Takada K, Numoto N, Ito N, Hirata N, Kanda Y, Ishizawa M, Makishima M, Kagechika H, Tanatani A.	Lithocholic Acid Amides as Potent Vitamin D Receptor Agonists.	Biomolecules	2022;12(1):130.	5.5
5	Wang X, Tewari N, Sato F, Tanimoto K, Thangavelu L, Makishima M, Bhawal UK.	Biphasic functions of sodium fluoride (NaF) in soft and in hard periodontal tissues.	International Journal of Molecular Sciences	2022;23(2):962.	5.6
6	Endo-Umeda K, Kim E, Thomas DG, Liu W, Dou H, Yalcinkaya M, Abramowicz S, Xiao T, Antonson P, Gustafsson JÅ, Makishima M, Reilly MP, Wang N, Tall AR.	Myeloid LXR (Liver X Receptor) Deficiency Induces Inflammatory Gene Expression in Foamy Macrophages and Accelerates Atherosclerosis.	Arteriosclerosis, Thrombosis, and Vascular Biology	2022;42(6):719-731.	8.7
7	Katafuchi T, Makishima M.	Molecular Basis of Bile Acid-FXR-FGF15/19 Signaling Axis.	International Journal of Molecular Sciences	2022;23(11):6046.	5.6
8	Liu W, Östberg NK, Yalcinkaya M, Dou H, Endo-Umeda K, Tang Y, Hou X, Xiao T, Filder TP, Abramowicz S, Yang YG, Soehnlein O, Tall AR, Wang N.	Erythroid lineage Jak2V617F expression promotes atherosclerosis through erythrophagocytosis and macrophage ferroptosis.	The Journal of Clinical Investigation	2022;132(13):e155724.	15.9
9	Sasaki Y, Abe T, Kawamura N, Keitoku T, Shibata I, Ohno S, Ono K, Makishima M.	Prediction of the need for emergency endoscopic treatment for upper gastrointestinal bleeding and new score model: a retrospective study.	BMC Gastroenterology	2022;22(1):337.	2.4
10	Takada I, Hidano S, Takahashi S, Yanaka K, Ogawa H, Tsuchiya M, Yokoyama A, Sato S, Ochi H, Nakagawa T, Kobayashi T, Nakagawa S, Makishima M.	Transcriptional coregulator Ess2 controls survival of post-thymic CD4+ T cells through the Myc and IL-7 signaling pathways.	Journal of Biological Chemistry	2022;298(9):102342.	4.8
11	Li X, Guo L, Sato F, Kitayama T, Tewari N, Makishima M, Hamada N, Liu Y, Bhawal UK.	Dec2 negatively regulates bone resorption in periodontitis.	Journal of Periodontal Research	2022;57(5):1056-1069.	3.5

Division of Pharmacology

Chair and Professor, Satoshi Asai, M.D., Ph.D.

Clinical Trials Research Center

Clinical Pharmacology:

Pharmacoepidemiology is the study of the utilization and effect of drugs in clinical and population settings, and the outcomes of drug therapy. The growing trend of recording computerized data that will increasingly be automated into healthcare delivery is making the use of large datasets more and more common in pharmacoepidemiologic research. Most retrospective database offer large populations and longer observation periods with real-world practice and can answer a variety of research questions quickly and osteffectively. We obtained the study data from electronic medical records stored in Nihon University School of Medicine (NUSM) Clinical Data Warehouse (CDW), which is a centralized data. Repository that integrates separate data bases, from the hospital information systems at three hospitals affiliated NUSM. The prescription database in CDW contains information from approximately 0.7 million patients, and prescribing data, which have been collected continuously since September 2004, are linked longitudinally to detailed clinical information such as patient demographics, diagnosis, and laboratory data. These projects have been studied under the supervision of Yasuo Takahashi, M.D., Ph.D., Associate Professor, at Clinical Trials Research Center.

Basic Pharmacology:

It has been established that extracellular glutamate plays an important role on the development of brain ischemic cell damage. We have reported that mild to moderate difference in intra-ischemic brain temperature affect the extracellular concentration of glutamate. The impact of brain temperature on ischemic disorders has been mainly evaluated through pathological analysis. Using a high-density oligonucleotide microarray(GeneChip, Affimetrix), we screened mRNA expression of 24,000 genes in the hippocampus under hypothermic (32℃), normothermic (37 ℃), and hypothermic (39 ℃) conditions in a rat global ischemia-reperfusion model. The combination of temperature changes and ischemia results in a marked influence on outcome of ischemic damage. The finding that intra-ischemic brain temperature affects the expression level of many genes related to neuroprotection or neurotoxicity coincides with the different pathological outcomes at different brain temperature, demonstrating the utility of the genetic approach.

PUBLICATION LIST 2022
Division of Pharmacology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Akimoto H, Nagashima T, Minagawa K, Hayakawa T, Takahashi Y, Asai S.	Detection of Synergistic Interaction on an Additive Scale Between Two Drugs on Abnormal Elevation of Serum Alanine Aminotransferase Using Machine-Learning Algorithms.	Frontiers in Pharmacology	2022;13:910205.	5.6
2	Nagashima T, Hayakawa T, Akimoto H, Minagawa K, Takahashi Y, Asai S.	Identifying Antidepressants Less Likely to Cause Hyponatremia: Triangulation of Retrospective Cohort, Disproportionality, and Pharmacodynamic Studies.	Clinical Pharmacology & Therapeutics	2022;111(6):1258-1267.	6.7

Division of Human Pathology

Chair and Professor, Hiroyuki Hao, M.D., Ph.D

Cardiovascular and Neurological Pathology, From Bench to Patients

Chairperson's experience and activities:

Dr. Hiroyuki Hao graduated Nihon University School of Medicine in 1990. After 2 years clinical training in Surugadai Nihon University Hospital, he studied cardiovascular pathology at National Cerebral and Cardiovascular Center in Osaka from 1992 to 1995. To clarify the cellular and molecular mechanism of atherosclerosis and restenosis after coronary intervention, he continued the research at the department of pathology, Centre Medical University (CMU), University of Geneva, in Switzerland under the direction of Professor Giulio Gabbiani for 5 years. Returning Japan, he obtained PhD from Nihon University and had been studied at the department of pathology, National Cerebral and Cardiovascular Center. From 2005, he continued his research activity at Hyogo College of Medicine in Nishinomiya, Hyogo and instructed the PhD thesis for graduate students as associate professor. From 2016, he is a chair and professor of Human Pathology in Nihon University.

Our research focus:

Our research interest is focus on the pathogenesis of 1) cardiovascular diseases, 2) neurological diseases and 3) pathogenesis of pancreas cancer.

Cardiovascular diseases, to be overcome by humankind

As well as cancer, cardiovascular diseases, such as coronary artery disease, great artery disorder, peripheral artery disease and heard diseases, are one of the important cause of death in modern times. However, the majority of pathologists are interested in the field of cancer research and a few of them are focus on cardiovascular pathology. Dr. Hao has studied the pathogenesis of atherosclerosis, particularly focusing on the modulation of vascular smooth muscle cells phenotype in the vessel wall. He discovered several key factors, which control the smooth muscle cells biology. These factors might be one of the targets for the treatment of atherosclerosis, the root cause of cerebral and cardiovascular diseases, namely coronary artery disease and stroke.

Investigation of vascular calcification

Shared mechanism between vascular calcification and bone metabolism is also investigated in our research. We reported that vascular calcification is improved by eicosapentaenoic acid (EPA) administration, and also described that beta-aminopropionitrile monofumarate (BAPN) inhibited vascular calcification.

Analysis of radiologic-pathologic correlation in patients with cardiomyopathy

To evaluate a tissue characterization of cardiomyopathies such as arrhythmogenic cardiomyopathy (ACM), dilated cardiomyopathy (DCM), hypertrophic cardiomyopathy (HCM), and restrictive cardiomyopathy (RCM), we are comparing between clinical images such as magnetic resonance imaging (MRI), computed tomography (CT), and nuclear medicine and pathological samples obtained by endomyocardial biopsy and autopsy.

PUBLICATION LIST 2022
Division of Human Pathology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Imanaka T, Fujii K, Tanaka T, Yanaka K, Kimura T, Yoshihara N, Miki K, Kawai K, Akahori H, Kawakami R, Hao H, Hirota S, Ishihara M.	Potential of optical frequency domain imaging for differentiation between early and advanced coronary atherosclerosis.	International Journal of Cardiovascular Imaging	2022;38(12):2791-2799	2.1
2	Takada K, Shimodai-Yamada S, Suzuki M, Trinh QD, Takano C, Kawakami K, Asai-Sato M, Komatsu A, Okahashi A, Nagano N, Misawa T, Yamaguchi K, Suzuki T, Kawana K, Morioka I, Yamada H, Hayakawa S, Hao H, Komine-Aizawa S.	Restriction of SARS-CoV-2 replication in the human placenta.	Placenta	2022;127:73-76	3.8
3	Hashimoto N, Kitano D, Tamaki T, Koyama Y, Yamada A, Hatakeyama K, Hao H, Okumura Y.	Autopsy and Cardiac Magnetic Resonance Image Case of Bevacizumab-Related Cardiomyopathy.	Journal of Cardiovascular Development and Disease	2022;9(7):208	2.4
4	Yagasaki H, Hirai M, Kanezawa K, Ueno M, Hao H, Masuda S, Sugitani M, Morioka I.	Successful treatment for diffuse large B-cell lymphoma in a Japanese adolescent with PIK3CD germ-line mutation: stem cell transplantation after reduced-intensity conditioning.	Annals of Hematology	2022;101(7):1617-1619	3.5
5	Otsuka N, Okumura Y, Kuorkawa S, Nagashima K, Wakamatsu Y, Hayashida S, Ohkubo K, Nakai T, Hao H, Takahashi R, Taniguchi Y.	Actual tissue temperature during ablation index-guided high-power short-duration ablation versus standard ablation: Implications in terms of the efficacy and safety of atrial fibrillation ablation	Journal of Cardiovascular Electrophysioogyl	2022;33(1):55-63	2.7

Division of Oncologic Pathology

Chair and Professor, Shinobu Masuda, M.D., Ph.D.

Pathological Diagnosis for Treatment of Cancer

THE DEPARTMENT

Masuda S, M.D., Ph.D., graduated from Hirosaki University School of Medicine in 1985. Following initial clinical and general pathological training, she built her clinical, academic, and educational career at the Tokai University School of Medicine from 1992 to 2010, where she specialized in breast cancer. Her doctoral thesis was "Cell renewal and functional morphology of human lactating breast" (Pathol Int. 1996; 46: 105-21). Since she was appointed the Chair and Professor of the Department of Pathology and Oncology in 2011, our department has focused on the pathological diagnosis of cancer.

RESEARCH INTERESTS

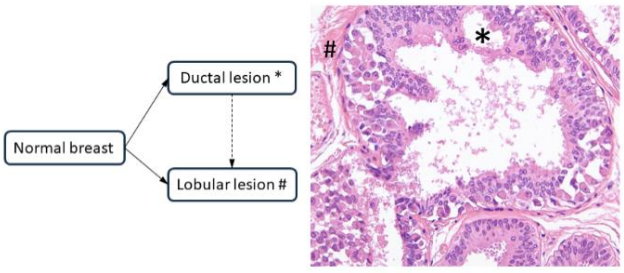
The final goal of our research is to elucidate the process of carcinogenesis and identify molecules that inhibit the proliferation of cancer cells. The structural morphology of cancer cells changes during carcinogenesis. Pathological examination reveals morphological changes in tumors. We can understand the genetic alterations that occur during carcinogenesis by analyzing how they relate to morphological characteristics. To this end, we have developed techniques to integrate molecular and morphological information.

Visualization of molecular events in cancer cells

Formalin-fixed paraffin-embedded (FFPE) sections contain abundant information on the genes and proteins in cancer cells. We can obtain molecular information from immunohistochemistry (for proteins), *in situ* hybridization (ISH) (for genes), and molecular examination of samples obtained from microdissection. One limitation of this approach is that the probes required for ISH are not always commercially available. To overcome this constraint, we plan to establish protocols to make probes suitable for specific needs.

Determination of cell lineage in solid tumors

Determining the lineage of cancer cells in solid tumors is more challenging than in hematopoietic neoplasia. We demonstrated that analyzing somatic mutations in the D-loop of mitochondrial DNA is better than the conventional method of analyzing polymorphisms in the X chromosome-linked human androgen receptor. Further technological development enables us to analyze the lineages of cancer cells and understand the biology of cancer more precisely by applying comprehensive cancer panels using FFPE. In our research and that of other groups, a lineage from ductal to lobular lesions has been identified.

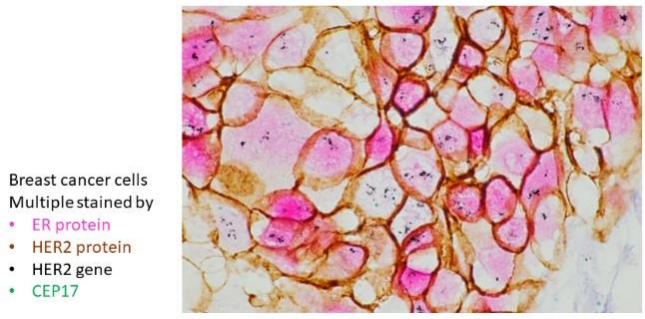


Establishment and standardization of biomarkers

We can determine the most appropriate treatment method for individual patients by examining biomarkers. Additionally, it is crucial to maintain the accuracy and reproducibility of biomarker-based analyses. Clinical studies have been performed to standardize biomarkers.

FUTURE DIRECTIONS

We have been discovered that tumor mass comprised heterogeneous cancer cells, which varied in their genetic and phenotypic features. We foresee a strategic change in cancer treatment, from statically combining simple treatments targeted at each molecule to dynamically treating the tumor mass as consisting of heterogeneous cancer cells. We have to consider resistant, residual, and recurrent cancer cells, as well as cancer cells consisting of the major component of the tumor mass. Accordingly, appropriate diagnostic methods would be developed in the future. It is important to remember that the biology, diagnosis, and treatment of cancer are interrelated.



PUBLICATION LIST 2022
Division of Oncologic Pathology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Nishimaki H, Nakanishi Y, Yagasaki H, Masuda S.	Multiple Immunofluorescence Imaging Analysis Reveals Differential Expression of Disialogangliosides GD3 and GD2 in Neuroblastomas	Pediatric and Developmental Pathology	2022;25(2):141-154.	1.9
2	Ohni S, Yamaguchi H, Hirotani Y, Nakanishi Y, Midorikawa Y, Sugitani M, Naruse H, Nakayama T, Makishima M, Esumi M.	Direct molecular evidence for both multicentric and monoclonal carcinogenesis followed by transdifferentiation from hepatocellular carcinoma to cholangiocarcinoma in a case of metachronous liver cancer	Oncology Letters	2022;23(1):22.	2.9
3	Takahashi H, Nishimaki H, Nakanishi Y, Hamada T, Nakagawa M, Iizauka K, Uchino Y, Iriyama N, Miura K, Nakayama T, Masuda S, Hatta Y, Nakamura H.	Clinical impact of central nervous system-directed therapies on intravascular large B-cell lymphoma: A single institution's experience	European Journal of Haematology	2022;3:467-470.	3.1
4	Iwamoto M, Kato K, Kusumi Y, Masuda S, Nakayama T, Moriyama M.	Celiac Disease Diagnosed after Gastrectomy for Gastric Cancer	Internal Medicine	2022;61:323-328.	1.2
5	Iida Y, Nakanishi Y, Shimizu T, Nomoto M, Nakagawa Y, Ito R, Takahashi N, Masuda S, Gon Y.	Comprehensive genetic analysis of histological components ofcombined small cell carcinoma	Thoracic Cancer	2022;13:2362-2370.	2.9
6	Yagasaki H, Hirai M, Kanezawa K, Ueno M, Hao H, Masuda S, Sugitani M, Morioka I.	Successful treatment for diffuse large B-cell lymphoma in a Japanese adolescent with PIK3CD germ-line mutation: stem cell transplantation after reduced-intensity conditioning	Annals of Hematology	2022;101:1617-1619.	3.5

Division of Laboratory Medicine

Chair and Professor, Tomohiro Nakayama, M.D., Ph.D.

The aim is to invent new technologies in laboratory medicine for our university

Tomohiro Nakayama is a medical doctor trained in internal medicine, specializing in endocrinology and hypertension as well as a molecular biologist, laboratory medicine. He graduated in 1988 from the Nihon University School of Medicine. He acquired his license to practice medicine in 1988. After a 2-year residency, he entered a postgraduate program in which he studied physiology and molecular biology, being awarded his Ph.D. in 1994. He was transferred to the Advanced Medical Research Center in the University 2001. He served as a professor of the Division of Laboratory Medicine from 2008.

His most outstanding work is in the field of clinical genetics. The organization of the human prostacyclin synthase gene and a new microsatellite marker in this gene were isolated. He discovered a nonsense mutation of the human prostacyclin synthase gene in a family with a history of cerebral infarction and essential hypertension (Lancet 1997). He and collaborators discovered a functional deletion mutation of the 5'-flanking region of the type A human natriuretic peptide receptor gene (Circ Res 2000 , 2004). He also reported novel mutations of many monogenic diseases. He can accept the blood or DNA samples from suspected Gitelman syndrome or other genetic disease for genetic diagnosis (nakayama.tomohiro@nihon-u.ac.jp).

An associate professor Elisa Shikata serves as a manager of department of laboratory medicine in Nihon University Hospital. Her current interest is clinical neurophysiology and blood transfusion. This aim is to organize a system for providing safe and efficient laboratory examination and transfusion for patient.

The research theme of Dr. Hiroshi Umemura is the development of biomarkers for cancers. He especially has interest on the serum levels of melanin metabolites which have been revealed to be biomarkers for malignant melanoma. He is now trying to establish the novel measurement method of these markers using mass spectrometry.

Dr. Kazuhide Iizuka researched emergence and development of hematopoietic stem cell. He used whole-mount immunostaining and 3D confocal reconstruction techniques, and reported about the possibility of HSC being produced from head endothelium. He is now investigating myeloproliferative neoplasms (MPNs) and Acute myeloid luekemia (AML).

Dr. Masahiro Yoshikawa is currently interested in clinical biostatistics. He has worked on conducting meta-analysis of clinical RCTs or SNP-disease associations by use of publicly available data.

Dr. Sachio Tsuchida is developing a method for the identification of bacteria using mass spectrometry techniques.

Dr. Isamu Shimazaki is conducting studies using genetic analyses with next-generation sequencers.

Dr. Masaki Nakajima is investigating rapid pathogen identification from urine samples using matrix-assisted laser desorption ionization-time of flight mass spectrometry.

The Endowed Chair was established on June 1, 2020 with support from JEOL Ltd., which supports the proteomic efforts to elucidate the pathology of various diseases through mass spectrometry and quantification of trace substances, such as hormones, vitamins, metabolites, and tumor markers present in serum, plasma, and urine of patients. This work aims to establish an antibody-based technology that outperforms current clinical tests with respect to quantification, reproducibility, and cost.

In our aim to identify susceptibility genes in multifactorial inherited diseases, such as essential hypertension, we have made great strides in the discovery of various susceptibility genes, such as prostacyclin synthase and natriuretic peptide receptor type A, as well as in the determination of gene structures and novel variants of these genes. Some of the department members who are experts in hematology, infectious diseases, immunoelectrophoresis, and other fields, have been working to elucidate the pathogenesis and causes of diseases by incorporating molecular biological and protein analysis methods, gene-related tests, and proteomics using mass spectrometry, as well as developing new technologies. We are also working toward the development of new technologies for clinical implementation in laboratory diagnostics.

PUBLICATION LIST 2022
Division of Laboratory Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Nakayama T, Masui T.	Precision management of gene-based tests not covered by the National Health Insurance system in Japan: a questionnaire-based study	Journal of Human Genetics	2022;67(6):311-321.	3.5
2	Tsuchida S, Nakayama T.	MALDI-Based Mass Spectrometry in Clinical Testing: Focus on Bacterial Identification	Applied Sciences	2022;12:2814.	2.7
3	Tsuchida S, Nakayama T.	Metabolomics Research in Periodontal Disease by Mass Spectrometry	Molecules	2022;27(9):2864.	4.6
4	Shimada N, Nakayama T, Umemura H, Kawana K, Yamamoto T, Uchigasaki S.	A Case-Control Study of the APELA Gene and Hypertensive Disorders of Pregnancy	Medicina	2022;58(5):591.	2.6
5	Umemura H, Fukuda Y, Miyashita T, Nakayama T.	Elucidation of the Mechanism and Significance of the Erythrocyte Sedimentation Rate from Clinical Laboratory Data	ACTA MEDICA OKAYAMA	2022;76(4):447-455.	0.5
6	Iizuka K, Morishita S, Nishizaki Y, Iizuka Y, Iriyama N, Ochiai T, Yanagisawa N, Yasuda H, Ando J, Gotoh A, Takei M, Hatta Y, Nakamura H, Nakayama T, Komatsu N.	von Willebrand factor activity levels are influenced by driver mutation status in polycythemia vera and essential thrombocythemia patients with well-controlled platelet counts	European Journal of Haematology	2022;109(6):779-786.	3.1
7	Yoshikawa M, Asaba K, Nakayama T.	Estimating causal effects of genetically predicted type 2 diabetes on COVID-19 in the East Asian population	Frontiers in Endocrinology	2022:13:1014882.	5.2
8	Iwamoto M, Kato K, Kusumi Y, Masuda S, Nakayama T, Moriyama M.	Celiac Disease Diagnosed after Gastrectomy for Gastric Cancer	Internal medicine	2022;61(3):323-328.	1.2

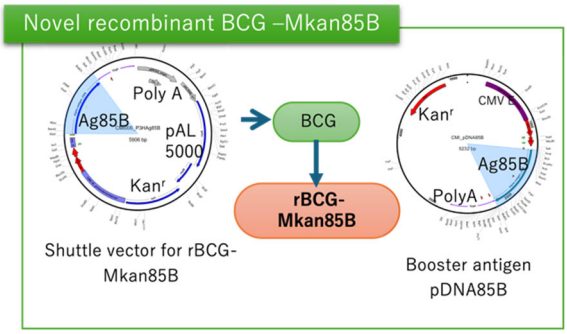
Division of Microbiology

Chair and Professor, Shihoko Aizawa, M.D., Ph.D.

"The study on infectious diseases save the world."

Chair person's professional experience and activities:

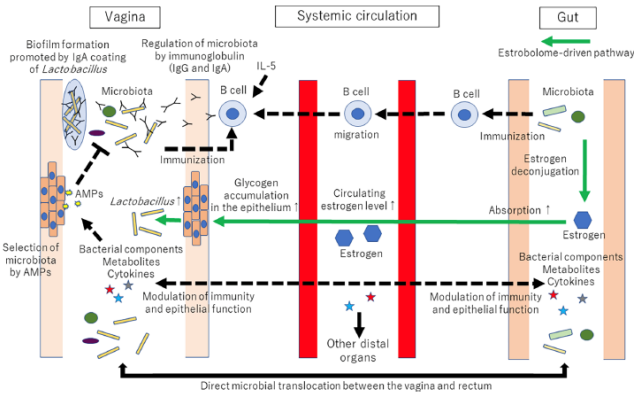
Dr. Shihoko Aizawa graduated from Nihon University School of Medicine and obtained an M.D. in 2002. After two years of clinical training at Nihon University Itabashi Hospital, she entered Nihon University Graduate School of Medicine. She studied reproductive immunology with Dr. Satoshi Hayakawa and infection immunity against Mycobacterium with Dr. Mitsuo Honda at the National Institute of Infectious Diseases. She obtained a Ph.D. from Nihon University in 2008. She became a research assistant in the Department of Microbiology in 2008 and has since held the positions of assistant professor and associate professor before being appointed professor in April 2024. Her research interests include antimicrobial immunity and reproductive immunology, particularly mother-to-child transmission. She is working on the development of new vaccines using recombinant BCG (rBCG) and DNA vaccine prime/boost strategies and reported that rBCG expressing the Ag85B antigen of *M. kansasii* could induce more potent antigen-specific immunity and protection against Mycobacterium. She also studies the effects of maternal infections, such as periodontal disease, rubella, and COVID-19, on the fetus and placenta. In addition, she conducts sociological research on vaccination during pregnancy.

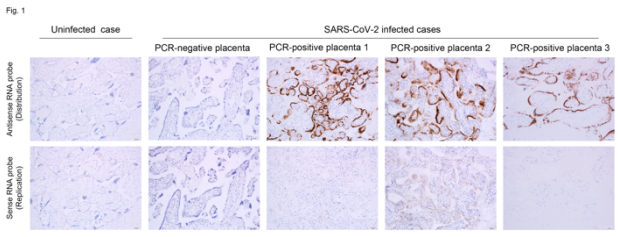


Our mission

The mission of our division is to provide comprehensive scientific instruction in medical microbiology, clinical immunology and infectious disease control to undergraduate and postgraduate medical students through rigorous coursework and advanced research opportunities. We provide an exceptional research environment, including biosafety level 3 rooms and training courses for postgraduate students wanting PhD degrees. The research consists of international backgrounds underway in our department involving the maternal-fetal relationships and vertical infection control, such as HIV, influenza, rubella and other viral diseases including COVID-19, molecular epidemiology of pediatric viral infections including rotavirus, norovirus RS virus, etc, in Asian countries.

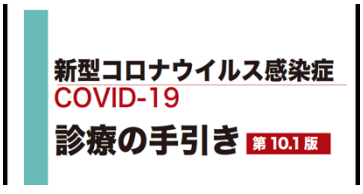
We also investigate diverse immunological topics such as the molecular design of novel anti-tuberculosis vaccines which evoke a more robust cellular immune response, analysis of the microbiome and local immune responses in reproductive organs and the digestive tract from the oral cavity to the rectum to analyze their roles in the pathophysiology of the intractable disorders.





The struggle against COVID-19

For the past three years, we have studied COVID-19, its transmission to pregnant women, and the mechanism of the placental barrier in our experience in clinical immunology and infectious diseases control. The findings have been published in over ten original articles in English. We also participated in developing our country's sole official clinical practice guidelines 「Sinryo no Tebiki」 and served as a member of the government committee.



PUBLICATION LIST 2022
Division of Microbiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Araki Y, Miura Y, Fujiwara H.	Exploration of novel biomarkers for hypertensive disorders of pregnancy by comprehensive analysis of peptide fragments in blood: their potential and echnologies supporting quantification.	Clinical Chemistry and Laboratory Medicine (CCLM)	2022;60(1):44-51.	6.8
2	Araki Y.	Embryos, cancers, and parasites: potential applications to the study of reproductive biology in view of their similarity as biological phenomena.	Reproductive Medicine and Biology	2022;21(1):e12447.	3.4
3	Sendo F, Yoshitake H, Araki Y.	Targeting of neutrophil activation in the early phase of the disease for prevention of Coronavirus disease-19 severity	Microbiology and Immunology	2022;66(6):264-276.	2.6
4	Hoque SA, Wakana A, Shimizu H, Takanashi S, Okitsu S, Anwar KS, Hayakawa S, Maneekarn N. Okabe N, Ushijima H.	Detection of rotavirus strains in freshwater clams in Japan.	Food and Environmental Virology	2022;14(1):94-100.	3.4
5	Hoque SA, Nishimura K, Thongprachum A, Khamrin P, Pham NTK, Islam MT, Khandoker N, Okitsu S, Onda-Shimizu Y, Dey SK, Maneekarn N, Kobayashi T, Hayakawa S, Ushijima H.	An increasing trend of human sapovirus infection in Japan, 2009 to 2019: An emerging public health concern.	Journal of Infection and Public Health	2022;15(3)315-320.	6.7
6	Khamrin P, Kumthip K, Yodmeeklin A, Jampanil N, Phengma P, Yamsakul P, Okitsu S, Kobayashi T, Ushijima H, Maneekarn N.	Changing predominance of norovirus recombinant strains GII.2[P16] to GII.4[P16] and GII.4[P31] in Thailand, 2017-2018.	Microbiology Spectrum	2022;10(3):e0044822.	3.7
7	Pham NTK, Nishimura S, Shimizu-Onda Y, Trinh DQ, Komine-Aizawa S, Khamrin P, Okitsu S, Sato S, Kobayashi T, Maneekarn N, Hayakawa S, Ushijima H.	Emerging Norovirus GII.4 Sydney[P31] causing acute gastroenteritis outbreak in children in Japan, during COVID-19, 2021.	Journal of Infection and Chemotherapy	2022;28(9):1347-1351.	2.2
8	Phan T, Kobayashi M, Nagasawa K, Hatazawa R, Pham TKN, Miyashita H, Komoto S, Tajima T, Baba T, Okitsu S, Khamrin P, Maneekarn N, Kimura K, Kobayashi T, Hayakawa S, Ushijima H.	Whole genome sequencing and evolutionalry analysis of G8P[8] rotaviruses emereing in Japan.	Virus disease	2022;33(2):215-218.	Not available
9	Phan T, Hatazawa R, Komoto S, Nishimura S, Khamrin P, Pham NTK. Okitsu S, Kobayashi T, Maneekarn N, Hayakawa S, Ushijima H.	Whole genome sequence of uncommon G9P[4] rotavirus A containing DS-1-like (genotype 2) genes in Japan.	Archives of Virology	2022;167(7):1603-1606.	2.7
10	Kimura M, Sekiguchi K, Okitsu S, Ushijima H, Tani H.	A highly quantitative detection system for cell entry of human norovirus-like particles based on the complementation of NanoLuc luciferase.	Virology	2022;573:23-28.	3.7
11	Okitsu S, Khamrin P, Hikita T, Thongprachum A, Pham NTK, Hoque SA, Hayakawa S, Maneekarn N, Ushijima H.	Changing distribution of rotavirus A genotypes circulating in Japanese children with acute gastroenteritis in outpatient clinic, 2014-2020.	Journal of Infection and Public Health	2022;15(7):816-825.	6.7
12	Müller WEG, Neufurth M, Ushijima H, Muñoz-Espí R, Müller LK, Wang S, Schröder HC, Wang X.	Molecular and biochemical approach for understanding the transition of amorphous to crystalline calcium phosphate deposits in human teeth.	Dental Materials	2022;38(12):2014-2029.	5.0

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
13	Hayashida S, Takada K, Melnikov VG, Komine-Aizawa S, Tsuji NM, Hayakawa S.	How were Lactobacillus species selected as single dominant species in the human vaginal microbiota? Coevolution of humans and Lactobacillus.	Medical Hypotheses	2022;163:110858.	4.7
14	Takada K, Shimodai-Yamada S, Suzuki M, Trinh QD, Takano C, Kawakami K, Asai-Sato M, Komatsu A, Okahashi A, Nagano N, Misawa T, Yamaguchi K, Suzuki T, Kawana K, Morioka I, Yamada H, Hayakawa S, Hao H, Komine-Aizawa S.	Restriction of SARS-CoV-2 replication in the human placenta.	Placenta	2022;127:73-76.	3.8
15	Fujimoto D, Fukuya M, Terao S, Irei I, Akiyama T, Watanabe A, Yasuda Y, Yoshioka D, Takada K, Hayakawa S, Moriya T.	Sputum characteristics of patients with severe COVID-19: report of two cases with immunocytochemical detection of SARS-CoV-2 spike protein.	Medical Molecular Morphology	2022;55(4):316-322.	1.8
16	Tatsuoka J, Sano E, Hanashima Y, Yagi C, Yamamuro S, Sumi K, Hara H, Takada K, Kanemaru K, Komine-Aizawa S, Katayama Y, Yoshino A.	Anti-tumor effects of perampanel in malignant glioma cells.	Oncology Letters	2022;24(6):421.	2.9
17	Namiki T, Takano C, Aoki R, Trinh QD, Morioka I, Hayakawa S.	Parenchymal calcification is associated with the neurological prognosis in patients with congenital rubella syndrome.	Congenital Anomalies	2022;62(1):38-41.	1.3
18	Taiko I, Takano C, Nomoto M, Hayashida S, Kanemaru K, Miki T.	Selection of red fluorescent protein for genetic labeling of mitochondria and intercellular transfer of viable mitochondria.	Scientific Reports	2022;12(1):19841.	4.6
19	Namiki T, Komine-Aizawa S, Takada K, Takano C, Trinh QD, Hayakawa S.	The association of three doses of the BNT162b2 mRNA vaccine with abnormal bleeding and an irregular menstrual cycle among premenopausal females: A single institute observation study.	Journal of Obstetrics and Gynaecology Research	2022;48(11):2903-2910.	1.6
20	Takano C, Horie M, Taiko I, Trinh QD, Kanemaru K, Komine-Aizawa S, Hayakawa S, Miki T.	Inhibition of Epithelial-Mesenchymal Transition Maintains Stemness in Human Amniotic Epithelial Cells.	Stem Cell Reviews and Reports	2022;18(8):3083-3091.	4.8
21	Pham NTK, Trinh QD, Takada K, Komine-Aizawa S, Hayakawa S.	Low Susceptibility of Rubella Virus in First-Trimester Trophoblast Cell Lines.	Viruses	2022;14(6):1169.	4.7
22	Trinh QD, Takada K, Pham NTK, Takano C, Namiki T, Ikuta R, Hayashida S, Okitsu S, Ushijima H, Komine-Aizawa S, Hayakawa S.	Enhancement of Rubella Virus Infection in Immortalized Human First-Trimester Trophoblasts Under Low-Glucose Stress Conditions.	Frontiers in Microbiology	2022;13:904189.	5.2
23	Namiki T, Komine-Aizawa S, Takada K, Takano C, Trinh DQ, Hayakawa S.	Adverse events after BNT162b2 mRNA COVID-19 vaccination in health care workers and medical students in Japan.	Journal of Infection and Chemotherapy	2022;28(8):1220-1224.	2.2
24	Trinh QD.	Recent Research in Cell Stress and Microbial Infection.	Microorganisms	2022;10(3):622.	4.5
25	Iijima T, Ando S, Kanamori D, Kuroda K, Nomura T, Tisi L, Kilgore PE, Percy N, Kohase H, Hayakawa S, Seki M, Hoshino T.	Detection of SARS-CoV-2 and the L452R spike mutation using reverse transcription loop-mediated isothermal amplification plus bioluminescent assay in real-time (RT-LAMP-BART).	PLoS One	2022;17(3):e0265748.	3.7

PUBLICATION LIST 2022
Division of Microbiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
26	Komine-Aizawa S, Haruyama Y, Deguchi M, Hayakawa S, Kawana K, Kobashi G, Miyagi E, Yamada H, Sugiyama T	The vaccination status and adverse effects of COVID-19 vaccine among pregnant women in Japan in 2021.	Journal of Obstetrics and Gynaecology Research	2022;48(7):1561-1569.	1.6
27	Suzaki A, Komine-Aizawa S, Nishiyama H, Hayakawa S.	Massive intravascular hemolysis is an important factor in Clostridium perfringens-induced bacteremia.	Internal and Emergency Medicine	2022;17(7):1959-1967.	4.6
28	Trinh QD, Pham NTK, Takada K, Takano C, Komine-Aizawa S, Hayakawa S.	TGF-β1 Promotes Zika Virus Infection in Immortalized Human First-Trimester Trophoblasts via the Smad Pathway.	Cells	2022;11(19):3026.	6.0
29	Hayakawa S, Kaguyama A.	Evolution of male-to-female oral sex as a detection tool of bacterial vaginosis and subsequent infertility.	Medical Hypotheses	2022;169:110985.	4.7
30	Saito S, Okuno A, Kakizaki N, Maekawa T, Tsuji NM.	Lactococcus lactis subsp. cremoris C60 induces macrophages activation that enhances CD4+ T cell-based adaptive immunity.	Bioscience of Microbiota Food and Health	2022;41(3):130-136.	3.1
31	Saito S, Cao DY, Okuno A, Li X, Peng Z, Kelel M, Tsuji NM.	Creatine supplementation enhances immunological function of neutrophils by increasing cellular adenosine triphosphate.	Bioscience of Microbiota Food and Health	2022;41(4):185-194.	3.1
32	Saito S, Okuno A, Maekawa T, Kobayashi R, Yamashita O, Tsujimura N, Inaba M, Kageyama Y, Tsuji NM.	Lymphocyte antigen 6 complex locus G6D downregulation is a novel parameter for functional impairment of neutrophils in aged mice.	Frontiers in Immunology	2022;13:1001179.	7.3

Division of Hygiene

Chair and Professor, Kenichi Iwasaki, M.D., Ph.D.

The eternal optimism and willpower

My research interests include space medicine and environmental medicine (aviation medicine, and sports medicine). My laboratory fuses basic science and clinical medicine in a program designed specifically to study human physiology.

<Space medicine>

A major focus in my laboratory is on the alterations of the circulatory system to regulate brain blood flow, arterial blood pressure, and intracranial pressure, by spaceflight associated factors. Exposure to microgravity during spaceflight induces headward fluid shift that may alter the circulatory system, especially regulation of brain blood flow and/or intracranial pressure. Also, elevated carbon dioxide levels in the International Space Station may alter circulatory system. Furthermore, exposure to hypergravity during rocket launch and returning to Earth would affect the circulatory system.

<Actual spaceflight studies>

Actual spaceflight studies have been conducted on astronauts who have stayed on the International Space Station for several months. We have finished one of the spaceflight studies entitled "Non-invasive assessment of intracranial pressure for space flight and related visual impairment (IPVI)". In this project, we have revealed decreases in intracranial pressure and increases in brain blood flow after long-duration spaceflight (Iwasaki KI, et al. Long-duration spaceflight alters estimated intracranial pressure and cerebral blood velocity. J Physiol. 599:1067-1081, 2021). In our current spaceflight study, we have been investigating changes in regulation of brain blood flow (cerebral autoregulation) during long-duration spaceflight (Human cerebral autoregulation during long-duration space flight).

<Ground-based space medicine studies>

In addition to spaceflight studies, we have been conducting ground-based space medicine studies, such as a study on hypergravity using a human centrifuge (Fig. 1) and a study on headward fluid shift using head-down tilt with hypercapnia (Fig. 2). A previous human centrifuge study has revealed that brain tissue oxygenation and brain blood flow changed differently during +1,5-Gz hypergravity (Konishi T, et al. Changes in cerebral oxygen saturation and cerebral blood flow velocity under mild +Gz hypergravity. J Appl Physiol 127:190-197, 2019). Furthermore, a previous head-down tilt study has revealed that brain blood flow and cerebral autoregulation are preserved despite increased intracranial pressure during acute headward fluid shift (Kato T, et al. Effects of -10° and -30° head-down tilt on cerebral blood velocity, dynamic cerebral autoregulation, and noninvasively estimated intracranial pressure. J Appl Physiol. 132:938-946, 2022). For these studies, we have been using measurements of brain blood flow in the middle cerebral artery based on transcranial Doppler ultrasonography and arterial blood pressure to estimate cerebral autoregulation, intracranial pressure, and baroreflex function.

These studies are expected to provide insights into the possible mechanisms behind the increased risk of fainting among astronauts returning to Earth and the risk of "intracranial hypertension and/or vision alterations" after long-duration space flights.

<Future research>

We plan to conduct studies to reveal sex differences in effects of long-duration spaceflight and spaceflight associated factors on the circulatory system, for the next step of international space exploration for humans (e.g., the Moon or Mars).

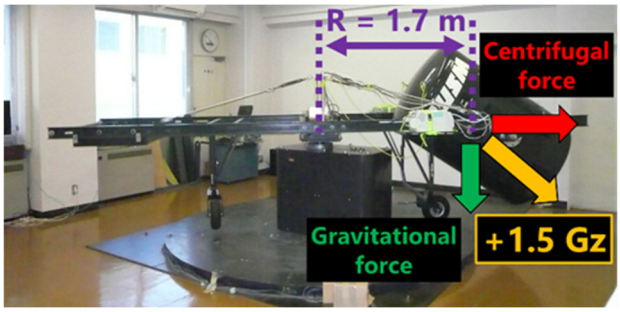


Fig. 1 human centrifuge in Nihon University

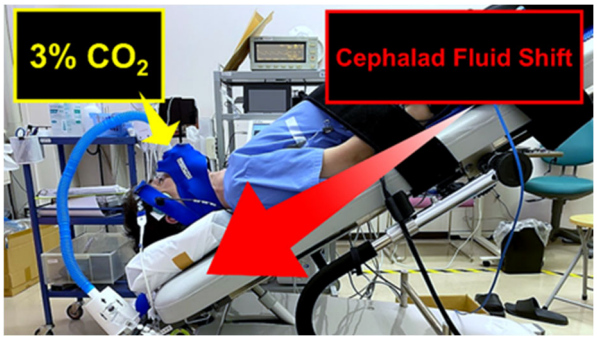


Fig. 2 Head-down tilt and 3% carbon dioxide

PUBLICATION LIST 2022

Division of Hygiene

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kurazumi T, Ogawa Y, Takko C, Kato T, Konishi T, Iwasaki KI.	Short-Term Volume Loading Effects on Estimated Intracranial Pressure in Human Volunteers	Aerospace Medical Human Performance	2022;93(4):347-353.	0.9
2	Kato T, Kurazumi T, Konishi T, Takko C, Ogawa Y, Iwasaki KI.	Effects of -10° and -30° head-down tilt on cerebral blood velocity, dynamic cerebral autoregulation, and noninvasively estimated intracranial pressure	Journal of Applied Physiology	2022;132(4):938-946.	3.3
3	Kurazumi T, Kato T, Konishi T, Ogawa Y, Iwasaki KI.	Alteration in facial skin blood flow during acute exposure to -10 and -30° head-down tilt in young human volunteers	Experimental Physiology	2022;107(12):1432-1439.	2.7

Division of Public Health

Chair and Professor, Yoshitaka Kaneita, M.D., Ph.D.

The development of sleep epidemiology

The Division of Public Health, Department of Social Medicine, Nihon University School of Medicine is one of the first five research laboratories established under the guidance of GHQ in Japan in 1948. It was the first laboratory at a private university to carry out epidemiological research on tuberculosis, the leading cause of death at that time. Our laboratory provided results as basic data for tuberculosis prevention measures for the Japanese government.

Professor Yoshitaka Kaneita is a professor in the Division of Public Health, Department of Social Medicine, Nihon University School of Medicine. After graduating from the Nihon University School of Medicine in 1992, he worked at a number of hospitals as an internal medicine doctor specializing in hematology. Subsequently, he joined the Division of Public Health at our university in 2003 to contribute to the development of preventive medicine. His research focuses on sleep epidemiology and research articles published by him on insomnia, depression, and sleep apnea syndrome. He was also involved in the preparation of the Sleep Guidelines for Health Promotion 2014 by the Ministry of Health, Labour and Welfare. He became a professor of the Department of Epidemiology and Public Health, Faculty of Medicine, Oita University in 2012, and he has held his current position since May 2017. With regard to academic activities, he is a councilor of the Japanese Society of Public Health and the Japanese Society of Sleep Research, and an associate editor for the journal of the Japanese Society of Sleep Research, Sleep and Biological Rhythms. With regard to educational activities, he gives lectures to fourth- and sixth-year medical students, and is known for giving succinct explanation about important topics. Furthermore, he has written textbooks in the area of public health and is also actively involved in preparing medical students for the national examination for medical practitioners.

Currently, we are providing basic data on health problems in Japanese minors in order to establish the "Health Japan 21" by the Ministry of Health, Labour and Welfare. The following are the main areas of study.

1. Carry out an epidemiology survey on health problems in adolescents throughout Japan, and reflect the results in the government health policy.
2. Survey smoking related issues among physicians in Japan, and aim to reduce the prevalence of smoking.
3. Survey sleep related factors among workers, and plan health countermeasures.

Future prospects

It has been found that sleep disorders cause reduced productivity including absence, arriving late, leaving early, decreased work efficiency, and in some cases, traffic accidents. Sleep problems of some sort affect 30 to 45 per cent of Japanese workers and the economic loss due to sleep deprivation amounts to 138 billion dollars (approximately 15 trillion yen), accounting for 2.9 per cent of the GDP, which is the highest among developed countries. Therefore, we plan to conduct epidemiological research in the industrial health field using non-drug therapies such as sleep hygiene education in the future.

PUBLICATION LIST 2022
Division of Public Health

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Matsumoto Y, Kaneita Y, Itani O, Otsuka Y, Kinoshita Y.	Longitudinal epidemiological study of subjective sleep quality in Japanese adolescents to investigate predictors of poor sleep quality	Sleep and Biological Rhythms	2022;20;87–96.	1.1
2	Matsushima E, Otsuka Y, Itani O, Matsumoto Y, Kaneita Y.	Association between nighttime urinary frequency and sleep problems among Japanese adolescents.	International Journal of Urology	2022;29:152-157.	2.6
3	Otsuka Y, Itani O, Matsumoto Y, Kaneita Y	Associations between coping strategies and insomnia: a longitudinal study of Japanese workers.	Sleep	2022;14;45(2):zsab244.	5.6
4	Otsuka Y, Itani O, Matsumoto Y, Kaneita Y	Associations between Coping Profile and Work Performance in a Cohort of Japanese Employees	International Journal of Environmental Research and Public Health	2022;19(8):4806.	Not available
5	Matsumoto Y, Uchimura N, Ishitake T, Itani O, Otsuka Y	Verification of sleep scales as predictors of suicidal ideation in Japanese dayworkers: a longitudinal study	Sleep and Biological Rhythms	2022;20:577–583.	1.1
6	Kuwabara Y, Kinjo A, Fujii M, Minobe R, Maesato H, Higuchi S, Yoshimoto H, Jike M, Otsuka Y, Itani O, Kaneita Y, Kanda H, Kasuga H, Ito T, Osaki Y.	Effectiveness of nurse - delivered screening and brief alcohol intervention in the workplace: A randomized controlled trial at five Japan - based companies.	Alcoholism Clinical and Experimental Research	2022;46(9):1720-1731.	3.2
7	Otsuka Y, Nakagami T	Poor Eating Behaviors Related to the Progression of Prediabetes in a Japanese Population: An Open Cohort Study	International Journal of Environmental Research and Public Health	2022;19(19):11864.	Not available
8	Otsuka Y, Takeshima O, Itani O, Matsumoto Y, Kaneita Y	Associations among Alcohol Drinking, Smoking, and Nonrestorative Sleep: A Population-Based Study in Japan	Clocks & Sleep	2022;4(4):595-606.	3.1

Division of Legal Medicine

Chair and Professor, Takahisa Okuda, M.D., Ph.D.

medico-legal investigation of death

The department of Legal Medicine in NUSM was founded in 1951. Since then, we have carried out social mission and responsibility, applying the principles and knowledge of medical science in the field of law. The medico-legal investigation of death is the top priority in our specialty. Forensic autopsy is the main duty and involves the collection of evidence from the deceased to determine the cause and manner of death. The researches in our department are strongly associated with forensics. The followings are some of the research topics currently under investigation.

1. Alcohol dehydrogenase

Impact of alcohol consumption induces global healthcare problem, accounting for 3.3 million deaths. Ethanol is detected in blood or urine in approximately 30-40% of sudden unexpected deaths. During alcohol metabolism, alcohol dehydrogenase (ADH) oxidizes ethanol to acetaldehyde. ADH has several isozymes, among which Class III alcohol dehydrogenase (*Adh5*) has the highest Km of ethanol among all ADH isozymes[1]. In addition, *Adh5* distributed in almost all mammal tissues and involved in S-nitrosoglutathione (GSNO) reducing activity. However, the effectiveness of GSNO reducing activity during chronic alcohol consumption still needs elucidation.

We hypothesize that alcohol-related organ disorder might be due to *Adh5* participation in the local metabolism of ethanol. This study was supported by the Japan Society for the Promotion of Science (JSPS) KAKENHI Grant (#16K09223, #19H04038 and #20K09512). We will proceed with the elucidation of the pathophysiology of alcoholic liver disease, alcoholic osteoporosis, and sudden death related to alcohol withdrawal in mice from multiple perspectives.

2. Biomechanical analysis of fatal injury

Previously, we reported a case in which chest compression was applied under acute cardiac tamponade that ruptured the cardiac sac, resulting in massive hemothorax[2]. We are now analyzing the mechanism by the finite element analysis method using computer simulation. This study was supported by the JSPS KAKENHI Grant (#16K09222). The method used in this study is expected to elucidate the mechanism of cervical spinal cord injury due to cervical hyperextension or cardiac rupture due to blunt trauma.

3. Comparison between postmortem CT and autopsy findings

Over the past several decades, postmortem CT is increasingly performed to obtain supplementary or complementary information for autopsy. In Japan, along with the increasing social demands for investigating the cause of death, the forensic practitioners, medical practitioners, police, and legal professionals are widely using postmortem images. We have previously reported several significant articles comparing between postmortem CT and autopsy findings that have contributed to the development of early stages of forensic imaging[3]. We are now collaborating with Tsukuba Medical Examiner's office to do research for postmortem imaging. In the near future, we would like to consider installing postmortem multi-detector CT in NUSM.

4. Personal identification and paternity testing using new DNA analysis technology.

Personal identification or paternity testing is significant if the deceased is unknown in the forensics. DNA polymorphism technology, especially the emergence of STR, SNA and DIP inspection methods, has made great progress in recent years. We will focus on the development of brand-new applications that can be analyzed under severe conditions such as degradation of DNA. In addition, we have used micro RNA to analyze the cause of death from cardiovascular diseases, alcoholic liver disease, etc. These studies might contribute more to society in death investigations, criminal investigations, airplane accidents, and massive disasters.

PUBLICATION LIST 2022
Division of Legal Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Tie J, Uchigasaki S, Isobe E,Iwakami E, Okuda T.	Detection of deletion/insertion polymorphism profiles from single human hair shafts	Molecular Biology Reports	2022;49(2):1017-25.	2.8
2	Kobayashi T, Shiotani S, Tashiro K, Someya S, Yoshida M, Numano T, Hayakawa H, Okuda T.	Roles of radiological technologists at Tsukuba Medical Examiner's Office equipped with a computed tomography system dedicated for the examination of corpses	Forensic Imaging	2022;30:200508.	1.1

Division of Health Care Service Management

Chair and Professor, Tomoyuki Takura, Ph.D., M.S.

The Exploration of Socio-medical Design

1. Basic concept

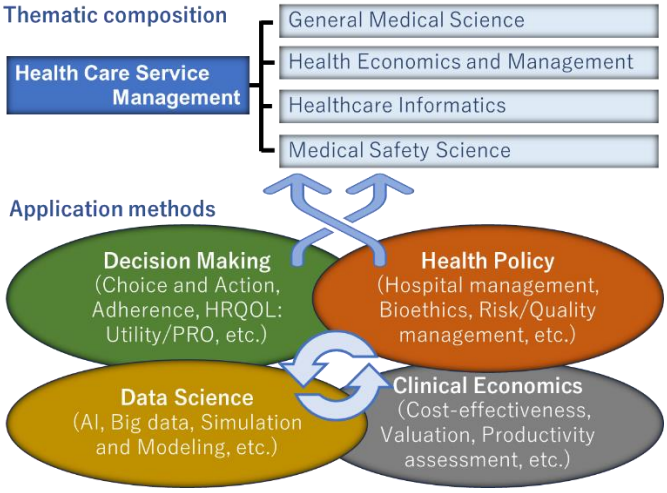
The field of Health Care Service Management is characterized by a wide range of themes and by many points of contact with not only the clinical field but also administrative activities and social trends. The significance of this discipline is growing in light of recent developments in the healthcare environment, as attention is directed toward the development of the medical system and the improvement of management.

Therefore, we believe that the field of Health Care Service Management needs to take a step forward with an eye toward the next generation. Specifically, research related to "Socio-medical Design" that considers the allocation of medical resources and the evaluation of medical value is acknowledged to be the interdisciplinary role of this management in the future.

2. Main challenges

In this field, we conduct theoretical, empirical, and discovery research on various issues surrounding ethics, social systems, social environments, and health and welfare. Furthermore, we provide opportunities for physicians and other medical professionals to acquire essential knowledge and perspectives on the social security system, health/insurance/pharmaceutical affairs measures, and medical management.

This science consists of four major areas. The first is "General Medical Science," which includes medical ethics. The second is "Health Economics and Management," which includes cost-effectiveness evaluation. The third is "Healthcare Informatics," which applies data science. The fourth is "Medical Safety Science," which includes risk assessment.



3. Introduction to Research

We are actively pursuing the following research:

1) Clinical economic research: Cost-effectiveness analysis of medical drugs, medical devices, disease prevention, medical systems, etc.

- Clinical and Economic Evaluation of Impella Treatment for Fulminant Myocarditis: A Preliminary Retrospective Cohort Study in Japan.
- Cost-effectiveness analysis of infliximab for treating Kawasaki disease refractory to the initial treatment: A retrospective cohort study.

2) Medical information research: Development of clinical prognosis prediction models applying medical big data and artificial intelligence

- Development of a predictive model for integrated medical and long-term care resource consumption based on health behavior: Application of healthcare big data of patients with circulatory diseases.
- Health economics-based verification of functional myocardial ischemia evaluation of stable coronary artery disease in Japan: A long-term study using longitudinal propensity score matching.

3) Health policy research: Evaluation research on universal health coverage and medical innovation

- Socioeconomic Determinants of Universal Health Coverage in the Asian Region.
- Preliminary Examination of an Appropriate Price Calculation Method and Medical Treatment Costs for Foreign Visitors in Japan.

4) Social medical research: Subjective/emotional methodology, research on informed consent, and medical safety

- Proxy Responses Regarding Quality of Life of Terminal Lung Cancer Patients: Preliminary Results from a Prospective Observational Study.
- Long-term Effects of Contrast Media Exposure on Renal Failure Progression: A Retrospective Cohort Study.

[*HRQOL: Health-Related Quality of Life; PRO: Patient-Reported Outcome; AI: Artificial Intelligence*]

PUBLICATION LIST 2022

Division of Health Care Service Management

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Ayusawa M, Namiki H, Abe Y, Ichikawa R, Morioka I.	Sudden Death in Patients with a History of Kawasaki Disease under School Supervision	Children (Basel)	2022;9(10):1593.	2.4

Division of Medical Education /Medical Education Center

Chair and Professor, Chiaki Hidai, M.D., Ph.D.

Empowerment Through Education

WHO WE ARE AND WHAT WE DO

The members of the Medical Education Center (MEC) at Nihon University School of Medicine are faculty members with diverse educational backgrounds and extensive educational training and expertise. Members of the Division of Medical Education are primarily involved in the activities of MEC. MEC contributes to many aspects of education all across the curriculum including IPE (Inter-professional Education), PBL (Problem-Based Learning) core time implementation, and integration with English courses at both the undergraduate level as well as at the graduate level.

Other essential responsibilities of MEC include those associated with operating and maintaining the Skills Laboratory and contributing vital resources to various educational ICT (Information Communication Technologies) initiatives at the university as well as making critical contributions to Faculty Development and course/curriculum monitoring, evaluation and improvement.

About us

Chiaki Hidai, MD, PhD

Dr Hidai received a PhD degree in Cardiology at Tokyo Women's Medical University. He then studied vascular endothelial cells and coagulation factors at the Division of Physiology at Nihon University. He has been the Director of the Medical Education Center since 2019. His most important goal is to foster student autonomy in the university where psychological safety is guaranteed. (YA)

E. H. Jego, PhD

Dr Jego obtained his first two degrees in Science and Education at Canadian universities. After that, he went on to pursue a master's degree and a PhD at the University of Birmingham (UK) doing research related to medical education. His research interests include measuring oral communication skills for history taking as well as on ICT use in medical education. His research objectives revolve around one question: What can be done to improve education?

Yoshimichi Okayama, MD, PhD

Dr Okayama engage some medical studies. Mast cells (MCs) are key regulators of IgE-mediated allergic inflammation. Cell-derived extracellular vesicles (EVs) contain bioactive compounds such as microRNAs. EVs can transfer signals to recipient cells, thus using a novel mechanism of cell-to-cell communication. However, whether MC-derived EVs are involved in FcεRI-mediated allergic inflammation is unclear. He found that eosinophilic allergic inflammation may be exacerbated owing to human group 2 innate lymphoid cells activation by MC-derived miR103a-3p.

Saki Suzuki, MD, PhD

It is said that student participation in course evaluations contributes to the improvement of the quality of education. In order to enhance the participation rate in course evaluations, she verified the perceptions of students regarding course evaluations and their influence on participation behavior from a cultural perspective. The research findings were presented as a master's thesis in the Master's Program in Medical Health Profession Education at Gifu University Graduate School.

PUBLICATION LIST 2022
Division of Medical Education

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Abe Y, Tonouchi R, Hara M, Okada T, Jego EH, Taniguchi T, Koshinaga T, Morioka I.	Visceral Fat Area Measured by Abdominal Bioelectrical Impedance Analysis in School-Aged Japanese Children	Journal of Clinical Medicine	2022;11(14):4148.	3.9
2	Ayusawa M, Namiki H, Abe Y, Ichikawa R, Morioka I	Sudden Death in Patients with a History of Kawasaki Disease under School Supervision	Children (Basel)	2022;9(10):1593	2.4
3	Kitano H, Kanemaru K, Miki T, Hidai C.	EGF domain peptide of Developmentally regulated endothelial locus1 facilitates gene expression of extracellularly applied plasmid DNA	Biologicals	2022:75:12-15	1.7

Division of Natural Sciences (Mathematics Section)

Chair and Professor, Seiichi Udagawa, Sc.D

Differential Geometry, Global Analysis, Integrable Systems

Curriculum Vitae

After graduating from Waseda University, 31 March 1983, he received the degree of Doctor of Science on June 16, 1988 from Tokyo Metropolitan University. He became a faculty member of Nihon University, School of Medicine on April 1, 1987, where he is currently employed. He served as a researcher at the Max-Planck-Institute fur Mathematika from April 1, 1990 to March 31, 1991.

Division of Mathematics

Division of Mathematics has one full-time faculty member, Seiichi Udagawa. He mainly studies mathematics in the area of differential geometry. He also study medical biostatistics and applications in clinical statistics. He is often required to provide timely assistance to physicians with clinical statistics. The Division of Mathematics is also responsible for the biostatistics curriculum for medical undergraduate and graduate students.

Research

Our research objectives include solving partial differential equations rooted in differential geometry associated with curves, surfaces and higher dimensional manifolds. Their causes partial differential equations of integrability, that is, the integrability condition is given by partial differential equations. It is by solving partial differential equations, that the curves, surfaces and higher dimensional manifolds are manifested in our world.

Our Recent Research Developments

Our present interest is in the sine-Gordon equation $\partial_x\partial_t\theta = \sin\theta$, where $\theta = \theta(x,t)$ is an unknown function. This is a partial differential equation and can be solved in terms of elliptic functions. For example, a rigorous solution is given by $\theta = 2\arcsin(k\mathrm{sn}(x-t))$, where k is the modulus of the Jacobi elliptic function. We are also interested in the semi-discrete sine-Gordon equation and the discrete sine-Gordon equation. The semi-discrete sine-Gordon equation may be given by $\dot{\theta}_{j+1} - \dot{\theta}_j = \tilde{\alpha}\sin\left(\frac{\theta_{j+1}+\theta_j}{2}\right)$, where θ_j is a function of the deformation parameter t. This equation describes the deformation of cyclic discrete motion. The typical example of those motions is the motion of Kaleidocycles.

However, the explicit mathematical solution describing the motion of Kaleidocycles is currently unknown. Recently, we provided an explicit solution of the semi-discrete sine-Gordon equation, which is given by $\theta_j = 2\arcsin(k\mathrm{sn}(4K\xi_j))$, where $\xi_j = j\Omega + \xi_0 + \alpha t$ and K is the complete elliptic integral of the 1st kind. In this case, $\tilde{\alpha}$ is given explicitly in terms of Ω. Finally, we reported in the discrete sine-Gordon equation. The discrete sine-Gordon equation is given by

$$\sin\left(\frac{1}{4}(\theta_{m+1,n+1}+\theta_{m,n}) - \frac{1}{4}(\theta_{m+1,n}+\theta_{m,n+1})\right)$$
$$= \tilde{\gamma}\sin\left(\frac{1}{4}(\theta_{m+1,n+1}+\theta_{m,n}) + \frac{1}{4}(\theta_{m+1,n}+\theta_{m,n+1})\right).$$

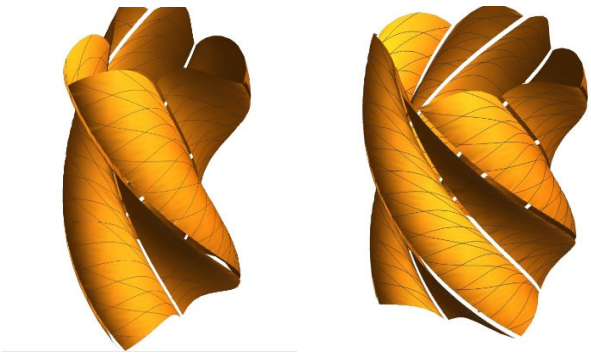
Recently, we provided an explicit solution of the discrete sine-Gordon equation, which is given by

$$\theta_{m,n} = 2\arcsin\left(k\mathrm{sn}\left(4K\xi_{m,n}\right)\right),$$

where $\xi_{m,n} = m\Omega + n\mathrm{P} + \xi_0$ and $\tilde{\gamma}$ may be described in terms of Ω and P.

Now, we are working to solve the expression of the solutions above in terms of Riemann theta function following the work of Bobenko and Pinkall. Moreover, we want to explicitly describe the motion of Kaleidocycles in terms of Jacobi elliptic functions. The solution stated above is the integrability condition of such a motion.

Very recently, I, together with K. Kajiwara(Kyushu University) and S. Shigetomi(Kyushu University), succeeded in constructing the semi-discrete surfaces and discrete surfaces, which of the integrability condition is given by semi-discrete sine-Gordon equation or sine-Gordon equation, respectively. In particular, K-surfaces defined by Bobenko and Pinkall are constructed in a simple way. The following figures are examples of semi-discrete surfaces drawn using Mathematica version 12.



Division of Natural Sciences (Biology Section)

Chair and Professor, Dr. Akiko Yamashita

The basic biology on various animals, including human.

Members:

Associate Professor: Akiko Yamashita, Ph.D.
1991: Ph.D. from Kyoto University
1991-1992: Primate Research Institute, Kyoto University
1992-1999: Department of Anatomy
(1997-1999: Department of Neuroanatomy, Washington University School of Medicine)
1999-2013: Division of Applied System Neuroscience
2013-present: Division of Biology, Department of Liberal Education
Assistant Professor: Takeyuki Abe
Assistant Professor: Naoki Noda, Ph.D.
Visiting Professor: Ken-Ichi Tajika, D.Sci.
Visiting Instructor: Shin-Ichi Ohtake, Ph.D.

Our Research Fields:

Neuroscience; Development and degeneration of the nervous system. Anatomy and physiology of excitatory neurons and inhibitory GABA neurons in the cerebral cortex and cerebellum of humans, chimpanzees, monkeys, rodents, and tree shrews. The mechanism to detect 3D vision in the intraparietal cortex. The amyloid accumulations and the degeneration of somatostatin neurons in the normal aged brains of the primates. Basic mechanism and neurosurgerical treatment of Parkinson's disease. The cell degeneration and neural protection mechanism in the brain of ischemia and contusion. (Akiko Yamashita)

Comparative immunology; Ascidiacea (sea squirt), Protease inhibitor, Phenol oxidase inhibition, Protective response, Mycosporin-like amino acids. (Takeyuki Abe)

Cell biology and biophysics: Dr. Noda is interested in mechanisms of cell motility, especially cell division, cytokinesis and cell migration of animal cell, which are powered by dynamics of actin cytoskeleton. Now, Dr. Noda is studying dynamics of cytoskeleton in oocyte cytoplasm encapsulated in phospholipid vesicles to understand mechanisms of various cell motilities unifiedly. Also, Dr. Noda discovered the cell transport on cilia during gravity sensing organ formation of ctenophore, comb jelly and has started studying lithocyte-cilia interaction and biomineralization during the gravity sensing organ formation. (Naoki Noda)

Animal systematics; Turbellaria (planaria, flat worm) (Ken-Ichi Tajika)

Comparative immunology, Ascidiacea (sea squirt) (Shin-Ichi Ohtake)

Division of Natural Sciences (Chemistry Section)

Chair and Professor, Tokutaro Komatsu, Ph. D.

Material Designers

Associate Professor Tokutaro Komatsu works on design of metallic organic materials and metal-organic frameworks (MOF), both of which have attracted much attention as next-generation functional materials. Molecular-orbital calculations are being used to clarify the origin of the functionalities (Kawaguchi G, Maesato M, Komatsu T, et al., **Angewandte Chemie International Edition**. 2015; 54: 10169-72). Some organic materials show superconductivity (SC), where electric current flows without energy loss. He holds the record for the highest transition temperature (T_c) ever achieved on an ambient-pressure organic SC (T. Komatsu et al., **Solid State Communications** 1991; 80; 143-7).

Assistant Professor Kohsuke Aikawa works on creation of novel bioactive substances using various organic reactions developed by him. Living bodies cannot discriminate between hydrogen and fluorine atoms due to their similar sizes (The mimic effect). Moreover, fluorinated structures exhibit unique properties, such as hydrophobicity, lipophilicity, and metabolic stability. Taking advantage of these characteristic properties of fluorine-containing structures, he aims to find out new active ingredients of medicine.

1. Design of Novel Superconductors

A cutting-edge topic in material science is SC of LaH_{10} at -20°C reported in 2019. Although the SC requires very high pressure, *i.e.*, 1.5 million bar, the T_c was high enough to be used in everyday life. Inspired by hydrogen-coupled SC, we are designing ambient-pressure organic-superconductors with comparable T_c .

2. Design of Metal-Organic Framework

MOFs are porous materials with highly controllable size, shape, hydrophobicity of the nanospace. Proton and electron conductivities are among the key functionalities of MOFs. We have proposed design principles to realize high conductivities in MOFs. (Komatsu T, et al. **Inorganic Chemistry**, 2016; 55: 546-8, Taylor J M, Komatsu T, et al., The Role of a Three Dimensionally Ordered Defect Sublattice on the Acidity of a Sulfonated Metal-Organic Framework. Taylor J M, Komatsu T, et al., **Journal of the American Chemical Society** 2015; 137: 11498-506, Otake K, et al. Confined water-mediated high proton conduction in hydrophobic channel of a synthetic nanotube, **Nature Commun-ications** 2020; 11: 843).

3. Design of Novel Organic Reactions and Reagents

Organofluorine compounds are widely used in the production of pharmaceuticals and agrochemicals, as the introduction of fluorine atoms can increase biological activity and enhance physicochemical properties. Consequently, drug discovery research has recently focused on the establishment of efficient routes to fluorinated compounds. We are finding out novel fluorinated bioactive substances through the development of practical fluorination reactions and reagents to contribute medicinal chemistry.

4. Design of Novel Drug Delivery System Carriers

The current paradigm in pharmaceutical thought is leaning increasingly in a macromolecular and biotherapeutic direction; peptides, proteins, and nucleic acids are ever more prevalent in the market, with the total sales revenue for the biologics market increasing by 58% between 2014 and 2021. However, unlike small-molecule therapeutics, these biologics often exhibit poor cell membrane permeation. Therefore, various drug delivery systems (DDS) have been developed to address these issues. Under this background, we focused on perfluoroalkyl (R_F) groups that are known to possess high hydrophobicity than their hydrocarbon counterparts, and developed novel DDS carriers (substances) bearing R_F groups.

SELECTED PUBLICATIONS

1. Komatsu T, *et al.* First-Principles Calculation, Synthesis and Catalytic Properties of Rh–Cu Alloy Nanoparticles. **Chemistry - a European Journal.** 2017;23:57-60.
2. Miyamoto Y, *et al.* Molecular-scale modeling of light emission by combustion: An ab initio study, **Scientific Reports.** 2019;9:12707
3. Jing Y., *et al.* A Significant Two-Dimensional Structural Transformation in a Coordination Polymer that Changes Its Electronic and Protonic Behavior, **Angewandte Chemie International Edition. 2023;** 62:e202303778
4. Aikawa K, Hashimoto T, *et al.* An N-Fluorinated Imide for Practical Catalytic Imidations, **Journal of the American Chemical Society.** 2022;144:2107
5. Aikawa K, *et al. N*-Fluorobenzenesulfonimide (NFSI) analogs with deprotectable substituents: synthesis of α-fluoroamines via catalytic aminofluorination of styrenes, **Chemical Communications** 2023;59:9195
6. Aikawa K, *et al.* Short cell-penetrating peptides with perfluoroalkyl group: Formation of nanoparticle-enhanced cell-membrane permeability, **ChemBioChem** 2023;e202300374

Division of Natural Sciences (Physics Section)

Chair and Professor, Ryotaro Inoue, Ph. D.

Cogito ergo sum.

Physics section consists of two faculty members, Ryotaro Inoue (PhD, Associate Professor) and Marika Yokota (PhD, Assistant Professor), and three part-time lecturers. We have a wide variety of research interests including, *solid state physics*, *soft matter physics* and *biophysics*.

Educational activities

For first-year students, we provide one selective course (Physics and Engineering in Biology & Medicine) and one required laboratory course (Natural Science Training & Laboratory: Physics part).

The selective course (Physics and Engineering in Biology & Medicine) has two classes: advanced and basic. Students can choose one of the two classes according to their preference and purpose.

In cooperation with colleagues, we also provide one required course (Basic Informatics and Modelling for Natural Science) together with one selective course (Mathematical Modelling). In both of the two courses, we provide various skills concerned with the mathematical modelling from a physical point of view.

In addition to the courses for first-year students, we also have one course for graduate students where we believe that we can provide beneficial knowledge for medical students from our diverse backgrounds in physics.

Research activities

Ryotaro Inoue (RI) has published studies in the field of solid-state physics. Our research topics include the following:

- Charge dynamics in the electronic phase near the Mott transition
- Investigation of microwave conductivity measurement technique
- Development of fiber-coupled terahertz systems and its application
- Investigation of low-energy charge transport in superconductor-semiconductor systems
- Photo-induced transport in ferroelectric systems

Marika Yokota (MY) has published studies in the field of solid polymers. Our research topics include the following:

- Heat capacity of solid polymer using molecular vibrational analysis
- Elucidation of the vibrational state of molecules and atoms in the condensed state from heat capacity analysis of solids.
- Properties of the amorphous state in thermodynamic disequilibrium from the point of view of thermodynamics and mechanics.

Current research accomplishments

(1) The photovoltaic (PV) effect in ferroelectrics offers great potential for light-energy conversion that generates a voltage beyond the bandgap limit of present semiconductor-based solar cells. We develop photovoltaics in ferroelectric materials using several techniques such as introduction of domain structures, visible-light excitation via impurity levels.

(2) We are discussing the physical properties of carbon-backbone polymers such as poly(alkene)s, poly(vinyl)s, poly(ester)s, poly(acrylate)s and poly(oxide)s. Since the thermal vibration of constituent atoms or molecules contributes the heat capacity of polymers, the vibrational states of the atoms and molecules can be investigated by thermodynamic data. The temperature dependence of heat capacity is analyzed by our newly established method, molecular vibrational analysis, where molecular dynamics simulation data and Infrared/Raman spectroscopy data are used. The absolute value of heat capacity also provides the important information about the amorphous state of polymers.

SELECTED PUBLICATIONS

1. Noguchi Y, Taniguchi Y, Inoue R, Miyayama M, Successive redox-mediated visible-light ferrophotovoltaics. **Nat. Commun.** 2020;11:966.
2. Inoue R, Ishikawa S, Imura R *et al.* Giant Photovoltaic Effect of Ferroelectric Domain Walls in Perovskite Single Crystals. **Scientific Reports.** 2015;5:14741.
3. Yokota M, Goto S, Tsukushi I. Evaluation of the absolute configurational entropy of tri-O-methyl-β-cyclodextrin, a molecule with many degrees of freedom. **Thermochimica Acta.** 2023;720:179427.
4. Yokota M, Tsukushi I. Prediction of the heat capacity of main-chain-type polymers below the glass transition temperature. **Polymer Journal.** 2020;52:1113–1120.

PUBLICATION LIST 2022
Division of Natural Sciences

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kimura Y, Yoshida Y, Tanaka Y, Maesato M, Komatsu T, Kitagawa H.	An Approach to an Ideal Molecule-Based Mixed Conductor with Comparable Proton and Electron Conductivity	Inorganic Chemistry	2022;61(10):4453-4458	4.6

Division of Liberal Arts

Chair and Professor, Chiaki Hidai, M.D., Ph.D.

Empowerment Through Education

WHO WE ARE AND WHAT WE DO

The English teaching faculty at Nihon University School of Medicine (NUSM) is comprised of instructors with diverse backgrounds and experiences. Our international outlook allows us to bring together various perspectives and experiences to create a unique English program entirely focused on English skill development for medical students. Our research objectives revolve around one simple question: how can we make education better? Our research focuses on the study of educational methods and assessment strategies which can lead to more effective educational outcomes. A noteworthy research achievement was winning the Award for Academic Excellence in educational research presented at the International Poster Session of the Japan Society for Medical Education annual academic conference in 2016. Furthermore, we aim to provide an education that integrates the arts and sciences, transcending disciplinary boundaries, encompassing a wide range of subjects including philosophy, ethics, behavioral science, psychology, health and physical education, as well as other humanities, social sciences, and information science disciplines.

WHY WE DO IT

A big challenge for us is designing English activities and assessment strategies which promote a growth mindset. This means fostering the belief among students that their abilities, qualities and intelligence can be developed through hard work and effort. A key to developing the growth mindset is to make extensive use of formative assessment strategies and to provide feedback which is meaningful and practical on a regular basis. Although providing each student with the attention they need is extraordinarily challenging, we believe that the stronger a student's growth mindset is, the more likely it is they will be set on a path toward becoming a lifelong learner. That is why we invest so much of our time and energy into not only providing feedback and opportunities for interaction, but also into researching the latest cutting-edge educational methods and technologies. Combining innovations such as blended flipped classroom methods together with evidence-based traditional methods allows us to create an active learning environment in which all students have the potential to thrive.

WHAT WE ENVISION FOR THE FUTURE

In this new educational age with ICT playing a more prominent role, it is our hope that the continued combined efforts of everyone at NUSM — students, faculty and administrative staff — will result in a richer educational environment in which we can all joyfully engage together in Autonomous Creativity with an Enlightened Mind, and a Compassionate Heart in order to overcome all challenges.

PUBLICATION LIST 2022
Division of Liberal Arts

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	O'Shea R, Thornton S, Hiromitsu K.	General English vs English for Medical Purposes: A comparative analysis of medical schools students' performance in general English assessments vs English for Medical Purposes assessments	Journal of Medical English Education	2022;21(3):141-143.	Not available
2	O'Shea R.	Review of English Conversation for Nurses	Nursing English Nexus	2022; 6(1):29.	Not available
3	Abe Y, Tonouchi R, Hara M, Okada T, Jego EH, Taniguchi T, Koshinaga T, Morioka I.	Visceral Fat Area Measured by Abdominal Bioelectrical Impedance Analysis in School-Aged Japanese Children	Journal of Clinical Medicine	2022;11(14):4148.	3.9

Division of Medical Research Planning and Development

Chair and Professor, Taro Matsumoto, M.D., Ph.D.

The objective of our laboratory is to promote and develop basic and clinical studies in the School of Medicine

The Research Planning and Development Medical Research Support Center was established in 2006 to manage and operate experimental apparatuses and facilities for joint use, which is important to promote basic and clinical studies in the Nihon University School of Medicine, realize basic study achievements in clinical studies, and support basic experiments to solve questions that arise in clinical studies. The first chairperson was Dr. Ichiro Murai, who is an expert on pineal hormone research. The second chairperson was Dr. Yukimoto Ishii, who is a gastrointestinal surgeon and an expert on expiratory metabolism analysis. On clinical studies, Prof. Kimitoshi Kato had been performed antibiotic combination therapy with amoxicillin, tetracycline, and metronidazole (ATM therapy) for an intractable disease, ulcerative colitis (UC). The objective of our laboratory are to provide basic medical education, and to promote and develop basic and clinical studies as a member of the Animal Care and Use Committee, the Recombinant DNA Experiment Safety Committee and the ethics committee in the School of Medicine, for which we are required to be well-acquainted with basic and clinical studies.

Dr. Hiroyuki Matsuda's group is aim at the improvement of our understanding of the pathophysiological mechanism of acute kidney injury (AKI) to chronic kidney disease (CKD) progression, and the development of novel strategies to prevent the epithelial cell integrity and mitochondrial function in proximal tubules. It is well recognized that malignant hypertension leads to renal sclerosis. Paradoxically, the genetically hypertensive rats are relatively resistant to renal damages compared with normotensive rats, suggesting that their genetic factors can affect susceptibility to hypertension-induced renal diseases. COMMD5, also known as Hypertension-related, calcium-regulated gene (HCaRG) is characterized by a conserved COMM domain at the carboxy-terminal end, and abundantly expressed in kidneys of spontaneously hypertensive rats relative to normotensive rats. We have reported that COMMD5 accelerates renal proximal tubular repair that improved survival by facilitating re-differentiation in the resident proximal tubular epithelial cells after ischemia/reperfusion injury (*JASN*. 2011). We next demonstrated that COMMD5 is under-expressed in human renal cell carcinomas, and more expressed in normal tissue adjacent to renal cell carcinomas of patients with favorable prognosis (*Oncotarget*. 2017; *Cell reports*, 2018). In addition, we demonstrated that COMMD5 in renal cell carcinomas reduced the malignant phenotypes, including rapid proliferation, self-renewal capability, tumor invasion and tumorigenesis (*Anticancer Research*, 2021).

Currently, our laboratory performs studies centering in translational research aiming at the diagnosis, identification of the pathology, and treatment of digestive diseases. Basic and clinical studies are designed based on the achievements concerning digestive diseases determined by biological and medical statistics, simple test methods are developed, and clinical studies on new treatment methods are performed.

SELECTED PUBLICATIONS

1. Matsuda H, Hamet P, Tremblay J, *et al.* HCaRG accelerates renal tubular repair after ischemia kidney injury. Journal of American Society Nephrology 22: 2077-2089, 2011.
2. Matsuda H, Hamet P, Tremblay J, *et al.* HCaRG/COMMD5 inhibits ErbB receptor-driven renal cell carcinoma. Oncotarget 8: 69559-69576, 2017.
3. Ikeda J, Matsuda H, Tremblay J, *et al.* COMMD5 inhibits Malignant Behavior of Renal Cancer Cells. Anticancer Research. 41: 2805-2815, 2021.

PUBLICATION LIST 2022

Division of Medical Research Planning and Development

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
No list					

Division of Health Planning Center

https://www.nihon-u.ac.jp/hospital/division/kenshin/

PUBLICATION LIST 2022
Division of Health Planning Center

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Tani S, Imatake K, Suzuki Y, Yagi T, Takahashi A, Matsumoto N, Okumura Y.	Combined higher frequency fish consumption and healthy lifestyle may lower the triglyceride/HDL-C ratio in middle-aged Japanese males: Anti-atherosclerotic effect of fish consumption.	Annals of Nutrition and Metabolism	2022;78(3):166-176.	3.9
2	Tani T, Imatake K, Suzuki Y, Yagi T, Takahashi A, Matsumoto N, Okumura Y.	The Frequency and Amount of Fish Intake Are Correlated with the White Blood Cell Count and Aerobic Exercise Habit: A Cross-sectional Study.	INTERNAL MEDICINE	2022;61(11):1633-1643.	1.2
3	Tani T, Atsumi W, Imatake K, Suzuki Y, Yagi T, Takahashi A, Matsumoto N, Okumura Y.	Associations of higher fish consumption and lifestyle with lower monocyte/HDL-C ratio in a Japanese population: Implication for the anti-atherosclerotic effect of fish consumption.	Journal of Cardiology	2022;80(5):402-409.	2.5