



Research Report

Nihon University School of Medicine

Issued in 2023

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Research Report 2021
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《Paper of the Year 2021》

Personal Ranking

※ 筆頭著者が専任教職員で ABSTRACT のある原著論文と総説論文の中から選定

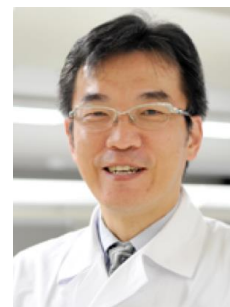
※ 2023 年 4 月 1 日現在, 在籍している専任教職員

Rank	Name	Division	Journal	IF
1	Aramaki Osamu	Digestive Surgery	European Journal of Cancer	10.002
2	Yamazaki Shintaro	Digestive Surgery	BioScience Trends	9.083
3	Otsuka Yuichiro	Public Health	Lancet Regional Health-Western Pacific	8.559
4	Takano Chika	Microbiology	Stem Cells Translational Medicine	7.655
5	Nishimori Nobuyuki	Cutaneous Science	Allergology International	7.478
5	Nomura Yasuyuki	Otolaryngology-Head and Neck Surgery	Allergology International	7.478
7	Takashima Hiroyuki	Nephrology, Hypertension and Endocrinology	Nutrients	6.706
8	Yamamuro Shun	Neurosurgery	Cancer Science	6.518
9	Yoshikawa Masahiro	Laboratory Medicine	Frontiers in Public Health	6.461
10	Otsuka Yuichiro	Public Health	Sleep	6.313

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 2021
Division of Respiratory Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Iida Y, Gon Y, Nakanishi Y, Kurosawa Y, Nakagawa Y, Mizumura K, Shimizu T, Takahashi N, Masuda S.	Genomic analysis between idiopathic pulmonary fibrosis and associated lung cancer using laser-assisted microdissection: A case report.	Thoracic Cancer	2021;12(9):1449-1452.	3.223
2	Fukuda A, Toyoshima S, Yamada S, Kurosawa Y, Okayama Y, Maruoka S, Gon Y.	Enzymatic activity of ACE2 regulates type 2 airway inflammation in mice.	ALLERGY	2021;76(6):1913-1917.	14.710
3	Shirai T, Hirai K, Gon Y, Maruoka S, Mizumura K, Hikichi M, Itoh K, Hashimoto S.	Combined assessment of serum eosinophil-derived neurotoxin and YKL-40 may identify Asthma-COPD overlap.	ALLERGOLOGY INTERNATIONAL	2021; 70(1):136-139.	7.478
4	Hiranuma H, Ishibashi N, Maebayashi T, Aizawa T, Sakaguchi M, Hata M, Okada M, Gon Y.	Whole-brain Radiation Therapy for Intracranial Metastases as Initial or Late Treatment	In Vivo	2021;35(4):2445-2450.	2.406
5	Mizumura K, Gon Y.	Iron-Regulated Reactive Oxygen Species Production and Programmed Cell Death in Chronic Obstructive Pulmonary Disease.	Antioxidants	2021;10(10):1569.	7.675
6	Kozi Y, Kurosawa Y, Yamada S, Fukuda A, Hikichi M, Hiranuma H, Akahoshi T, Gon Y.	Cluster analysis identifies a pathophysiologically distinct subpopulation with increased serum leptin levels and severe obstructive sleep apnea.	Sleep and Breathing	2021;25(2):767-776.	2.655
7	Iida Y, Okamoto-Katsuyama M, Maruoka S, Mizumura K, Shimizu T, Shikano S, Hikichi M, Takahashi M, Tsuya K, Okamoto S, Inoue T, Nakanishi Y, Takahashi N, Masuda S, Hashimoto S, Gon Y.	Effective ferroptotic small-cell lung cancer cell death from SLC7A11 inhibition by sulforaphane.	Oncology Letters	2021;21(1):71	3.111
8	Wakuda K, Yabe M, Kodama H, Nishioka N, Miyawaki T, Miyawaki E, Mamesaya N, Kawamura T, Kobayashi H, Omori S, Ono A, Kenmotsu H, Naito T, Murakami H, Harada H, Endo M, Gon Y, Takahashi T.	Efficacy of pembrolizumab in patients with brain metastasis caused by previously untreated non-small cell lung cancer with high tumor PD-L1 expression.	Lung Cancer	2021;151:60-68.	6.081
9	Sagara H, Barbier N, Ishii T, Yoshisue H, Nikolaev I, Hosoe M, Gon Y	Efficacy of one time per day, single-inhaler indacaterol/glycopyrronium/mometasone in patients with inadequately controlled asthma: post hoc analysis of IRIDIUM study in Asian population.	BMJ Open Respiratory Research	2021;8(1):e000856	5.054
10	Kobayashi H, Wakuda K, Naito T, Mamesaya N, Omori S, Ono A, Kenmotsu H, Murakami H, Endo M, Harada H, Gon Y, Takahashi T.	Chemoradiotherapy for limited-stage small-cell lung cancer and interstitial lung abnormalities.	Radiation Oncology	2021;16(1):52	4.309
11	Mamesaya N, Muramatsu K, Yabe M, Kodama H, Nishioka N, Miyawaki T, Miyawaki E, Kobayashi H, Omori S, Wakuda K, Ono A, Kenmotsu H, Naito T, Murakami H, Harada H, Sugino T, Shimizu T, Gon Y, Takahashi T.	Detection of programmed cell death-ligand 1 using 22C3 antibody in patients with unresectable stage III non-small cell lung cancer receiving chemoradiotherapy.	International Journal of Clinical Oncology	2021;26(4):659-669	3.850
12	Toyoshima S, Sakamoto-Sasaki T, Kurosawa Y, Hayama K, Matsuda A, Watanabe Y, Terui T, Gon Y, Matsumoto K, Okayama Y.	miR103a-3p in extracellular vesicles from FcεRI-aggregated human mast cells enhances IL-5 production by group 2 innate lymphoid cells.	JOURNAL OF ALLERGY AND CLINICAL IMMUNOLOGY	2021;147(5):1878-1891.	14.290
13	Chapman K, van Zyl-Smit R, Maspero J, Kerstjens HAM, Gon Y, Hosoe M, Tanase AM, Pethe A, Shu X, D'Andrea P.	One time a day mometasone/indacaterol fixed-dose combination versus two times a day fluticasone/salmeterol in patients with inadequately controlled asthma: pooled analysis from PALLADIUM and IRIDIUM studies	BMJ Open Respiratory Research	2021;8(1):e000819.	5.054
14	Hirai K, Shirai T, Shimoshikiryō T, Ueda M, Gon Y, Maruoka S, Itoh K.	Circulating microRNA-15b-5p as a biomarker for asthma-COPD overlap	ALLERGY	2021;76(3):766-774	14.710

PUBLICATION LIST 2021
Division of Respiratory Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
15	Morimoto C, Matsumoto H, Tajiri T, Gon Y, Ito R, Hashimoto S, Suzukawa M, Ohta K, Izuhara K, Ono J, Ohta S, Ito I, Oguma T, Kanemitsu Y, Nagasaki T, Izuhara Y, Niimi A, Hirai T.	High serum free IL-18 is associated with decreased omalizumab efficacy: findings from a 2-year omalizumab treatment study.	JOURNAL OF ASTHMA	2021;58(9):1133-1142	2.000
16	Shinkai M, Tsushima K, Tanaka S, Hagiwara E, Tarumoto N, Kawada I, Hirai Y, Fujiwara S, Komase Y, Saraya T, Koh H, Kagiya N, Shimada M, Kanou D, Antoku S, Uchida Y, Tokue Y, Takamori M, Gon Y, Ie K, Yamazaki Y, Harada K, Miyao N, Naka T, Iwata M, Nakagawa A, Hiyama K, Ogawa Y, Shinoda M, Ota S, Hirouchi T, Terada J, Kawano S, Ogura T, Sakurai T, Matsumoto Y, Kunishima H, Kobayashi O, Iwata S.	Efficacy and Safety of Favipiravir in Moderate COVID-19 Pneumonia Patients without Oxygen Therapy: A Randomized, Phase III Clinical Trial.	Infectious Diseases and Therapy	2021;10(4):2489-2509	6.119

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 angiography 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 angiography (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 2021

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List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kojima K, Hiro T, Koyama Y, Ohgaku A, Fujito H, Ebuchi Y, Arai R, Monden M, Migita S, Morikawa T, Tamaki T, Murata N, Akutsu N, Nishida T, Kitano D, Sudo M, Fukamachi D, Yoda S, Takayama T, Hirayama A, Okumura Y.	High Wall Shear Stress Is Related to Atherosclerotic Plaque Rupture in the Aortic Arch of Patients with Cardiovascular Disease: A Study with Computational Fluid Dynamics Model and Non-Obstructive General Angioscopy.	Journal of Atherosclerosis and Thrombosis	2021;28(7):742-753.	4.399
2	Iso K, Nagashima K, Arai M, Watanabe R, 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.	Clinical outcomes of ablation versus non-ablation therapy for atrial fibrillation in Japan: analysis of pooled data from the AF Frontier Ablation Registry and SAKURA AF Registry.	HEART AND VESSELS	2021;36(4):549-560.	1.814
3	Nishida T, Hiro T, Takayama T, Sudo M, Haruta H, Fukamachi D, Hirayama A, Okumura Y.	Clinical significance of microvessels detected by in vivo optical coherence tomography within human atherosclerotic coronary arterial intima: a study with multimodality intravascular imagings.	HEART AND VESSELS	2021;36(6):756-765.	1.814
4	Nakamura T, Takami M, Fukuzawa K, Kiuchi K, Kono H, Kobori A, Sakamoto Y, Watanabe R, Okumura Y, Yamashita S, Yamashiro K, Miyamoto K, Kusano K, Kanda T, Masuda M, Yoshitani K, Yoshida A, Hirayama Y, Adachi K, Mine T, Shimane A, Takeda M, Takei A, Okajima K, Fujiwara R, Hirata KI.	Incidence and Characteristics of Coronary Artery Spasms Related to Atrial Fibrillation Ablation Procedures - Large-Scale Multicenter Analysis.	CIRCULATION JOURNAL	2021;85(3):264-271.	3.350
5	Nakahara S, Wakamatsu Y, Sato H, Otsuka N, Fukuda R, Watanabe R, Kurokawa S, Ishikawa T, Takaoka M, Nagashima K, Kobayashi S, Taguchi I, Okumura Y.	A porcine study of the area of heated tissue during hot-balloon ablation: Implications for the clinical efficacy and safety .	JOURNAL OF CARDIOVASCULAR ELECTROPHYSIOLOGY	2021;32(2):260-269.	2.942
6	Ohgaku A, Fukamachi D, Takahashi K, Tamiya R, Migita S, Mizobuchi S, Miyagawa M, Koyama Y, Fujito H, Arai R, Ebuchi Y, Migita S, Morikawa T, Monden M, Takei N, Tamaki T, Kojima K, Akutsu N, Murata N, Kitano D, Okumura Y.	Absence of coronary angiography-derived in-stent thrombi is associated with major bleeding events in acute myocardial infarction.	Atherosclerosis	2021;319:62-71.	6.851
7	Suzuki Y, Matsumoto N, Nagumo S, Matsuo R, Kuronuma K, Ashida T, Tani S, Yoda S, Amano Y, Okumura Y.	Incremental Predictive Value of Coronary Calcium Score in Risk Stratification of Coronary Revascularization in Patients With Normal or Mild Ischemia Using Nuclear Myocardial Perfusion Single Photon Emission Computed Tomography .	CIRCULATION JOURNAL	2021;85(6):877-882.	3.350
8	Nakai T, Ikeya Y, Kogawa R, Otsuka N, Wakamatsu Y, Kurokawa S, Ohkubo K, Nagashima K, Okumura Y.	What Are the Expectations for Cardiac Resynchronization Therapy? A Validation of Two Response Definitions .	Journal of Clinical Medicine	2021;10(3):514.	4.964
9	Hirata M, Wakamatsu Y, Nagashima K, Kurokawa S, Otsuka N, Yagyu S, Hirata S, Nakai T, Okumura Y.	One Electrogram-Tracing Tells All: what is the mechanism of this supraventricular tachycardia?	JOURNAL OF CARDIOVASCULAR ELECTROPHYSIOLOGY	2021;32(4):1191-1194.	2.942
10	Wakamatsu Y, Nagashima K, Kurokawa S, Otsuka N, Hayashida S, Yagyu S, Hirata S, Ohkubo K, Nakai T, Okumura Y.	Impact of the Combined Use of Intracardiac Ultrasound and a Steerable Sheath Visualized by a 3D Mapping System on Pulmonary Vein Isolation.	PACE-PACING AND CLINICAL ELECTROPHYSIOLOGY	2021;44(4):693-702.	1.912

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Division of Cardiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
11	Kurosawa T, Li Y, Sudo M, Haruta H, Hagikura K, Takayama T, Hiro T, Shiomi M, Hao H, Matsumoto T, Hirayama A, Okumura Y.	Effect of the dipeptidyl peptidase-4 inhibitor linagliptin on atherosclerotic lesions in Watanabe heritable hyperlipidemic rabbits: iMap-IVUS and pathological analysis.	HEART AND VESSELS	2021;36(1):127-135.	1.814
12	Otsuka N, Okumura Y, Arai M, Kurokawa S, Nagashima K, Watanabe R, Wakamatsu Y, Yagyu S, Ohkubo K, Nakai T, Hao H, Takahashi R, Taniguchi Y, Li Y.	Effect of obesity and epicardial fat/fatty infiltration on electrical and structural remodeling associated with atrial fibrillation in a novel canine model of obesity and atrial fibrillation: A comparative study .	JOURNAL OF CARDIOVASCULAR ELECTROPHYSIOLOGY	2021;32(4):889-899.	2.942
13	Okumura Y, Fukuda I, Nakamura M, Yamada N, Takayama M, Maeda H, Yamashita T, Ikeda T, Mo M, Kobayashi T, Niwa A, Matsuo H, Yokoi H, Koga M, Yamazaki T, Hirayama A, J'xactly Investigators.	A Multicenter Prospective Observational Cohort Study to Investigate the Effectiveness and Safety of Rivaroxaban in Japanese Venous Thromboembolism Patients (The J'xactly Study)	CIRCULATION JOURNAL	2021;85(3):330.	3.350
14	Migita S, Kitano D, Li Y, Koyama Y, Shimodai-Yamada S, Onishi A, Fuchimoto D, Suzuki S, Nakamura Y, Matsuyama TA, Hirota S, Sakuma M, Tsujimoto M, Hirayama A, Okumura Y, Hao H.	Pathological findings after third- and second-generation everolimus-eluting stent implantations in coronary arteries from autopsy cases and an atherosclerotic porcine model.	Scientific Reports	2021;11(1):6281.	4.997
15	Arai R, Fukamachi D, Ebuchi Y, Migita S, Morikawa T, Monden M, Takei N, Tamaki T, Kojima K, Akutsu N, Murata N, Kitano D, Okumura Y.	Impact of the COVID-19 outbreak on hospitalizations and outcomes in patients with acute myocardial infarction in a Japanese Single Center.	HEART AND VESSELS	2021;36(10):1474-1483.	1.814
16	Tani S, Matsuo R, Imatake K, Suzuki Y, Yagi T, Takahashi A, Matsumoto N, Okumura Y.	Gender differences in the associations among fish intake, lifestyle, and non-HDL-C level in Japanese subjects over the age of 50 years: Anti-atherosclerotic effect of fish consumption	NUTRITION METABOLISM AND CARDIOVASCULAR DISEASES	2021;31(5):1434-1444	4.666
17	Yamada A, Hashimoto N, Fujito H, Hatta T, Saito Y, Otsuka N, Wakamatsu Y, Arai M, Watanabe R, Kurokawa S, Kitano D, Nagashima K, Yoda S, Okumura Y.	Comprehensive assessment of left atrial and ventricular remodeling in paroxysmal atrial fibrillation by the cardiovascular magnetic resonance myocardial extracellular volume fraction and feature tracking strain.	Scientific Reports	2021;11(1):10941.	4.997
18	Saito Y, Matsumoto N, Aizawa Y, Fukamachi D, Kitano D, Toyama K, Fujito H, Sezai A, Okumura Y.	Prognostic Value of Liver Stiffness Measured by Two-Dimensional Elastography in Acute Decompensated Heart Failure with Preserved Ejection Fraction.	INTERNATIONAL HEART JOURNAL	2021;62(4):821-828.	1.823
19	Otsuka N, Wakamatsu Y, Nagashima K, Hirata S, Hirata M, Yagyu S, Kurokawa S, Nakai T, Okumura Y.	Old yet new form of permanent junctional reciprocating tachycardia: What is the mechanism?	JOURNAL OF CARDIOVASCULAR ELECTROPHYSIOLOGY	2021;32(8):2312-2315.	2.942
20	Nakahara S, Wakamatsu Y, Fukuda R, Hori Y, Nishiyama N, Sato H, Nagashima K, Mizutani Y, Ishikawa T, Kobayashi S, Taguchi I, Okumura Y.	Utility of hot-balloon-based pulmonary vein isolation under balloon surface temperature monitoring: First clinical experience.	JOURNAL OF CARDIOVASCULAR ELECTROPHYSIOLOGY	2021;32(10):2625-2635.	2.942
21	Ikeya Y, Saito Y, Nakai T, Kogawa R, Otsuka N, Wakamatsu Y, Kurokawa S, Ohkubo K, Nagashima K, Okumura Y.	Prognostic importance of the Controlling Nutritional Status (CONUT) score in patients undergoing cardiac resynchronization therapy.	Open Heart	2021;8(2):e001740.	Not available
22	Fujito H, Yoda S, Hatta T, Hori Y, Hayase M, Miyagawa M, Suzuki Y, Matsumoto N, Okumura Y.	Prognostic Significance of Left Ventricular Dyssynchrony Assessed with Nuclear Cardiology for the Prediction of Major Cardiac Events after Revascularization.	Internal medicine	2021;60(23):3679-3692.	1.282

PUBLICATION LIST 2021
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List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
23	Kojima K, Fukamachi D, Hirayama A, Okumura Y.	Clinical insights of non-obstructive general angioscopy for assessing atherosclerotic pathology of aortic valve in vivo.	INTERNATIONAL JOURNAL OF CARDIOVASCULAR IMAGING	2021;37(6):1839-1841.	2.316
24	Fujito H, Saito Y, Nishimaki H, Hori Y, Ebuchi Y, Hao H, Okumura Y.	Fatal Embolic ST-Elevation Myocardial Infarction Secondary to Healed-Phase Mitral Valve Infective Endocarditis.	INTERNATIONAL HEART JOURNAL	2021;62(2):432-436.	1.823
25	Kojima K, Fukamachi D, Okumura Y.	Ischemic Stroke Patients with Non-Valvular Atrial Fibrillation have a Risk for Aortogenic Embolizations.	Journal of Atherosclerosis and Thrombosis	2021;28(7):786-788.	4.399
26	Arai R, Murata N, Yamada A, Monden M, Morikawa T, Akutsu N, Fukamachi D, Okumura Y.	Pitfall of Isolated Right Ventricular Infarction Caused by Non-Dominant Right Coronary Artery.	CIRCULATION JOURNAL	2021;85(6):956.	3.350
27	Yagyu S, Nagashima K, Wakamatsu Y, Otsuka N, Hayashida S, Kurokawa S, Hirata S, Okumura Y.	Three-dimensional visualization of bidirectional preferential pathway conduction of premature ventricular contractions originating from the outflow tract.	JOURNAL OF CARDIOVASCULAR ELECTROPHYSIOLOGY	2021 ;32(6):1678-1686.	2.942
28	Fukamachi D, Okumura Y.	A Novel Diagnostic Method for Acute Pulmonary Thromboembolisms: An X-Ray Fluoroscopic Video Analysis Workstation.	JACC Case Reports	2021;3(6):941-943.	Not available
29	Arai R, Murata N, Yamada A, Migita S, Koyama Y, Morikawa T, Ihara S, Akutsu N, Kuwana T, Fukamachi D, Kinoshita K, Okumura Y, Hao H.	Multimodal Findings of COVID-19-Related Rhabdomyolysis Complicated With Pericarditis Mimicking Fulminant Myocarditis.	Circulation reports	2021;3(7):419-420.	Not available
30	Obikane H, Migita S, Yoshida KI, Shimodai-Yamada S, Okumura Y, Hao H.	Pathology of Pulmonary Vein Isolation in a Patient With Transthyretin-Related Amyloidosis.	Circulation reports	2021;3(8):474-475.	Not available
31	Sasa Y, Arai R, Murata N, Yamada A, Monden M, Morikawa T, Akutsu N, Fukamachi D, Okumura Y.	Diagnostic Utility of Cardiac Magnetic Resonance in Recurrent "Third Time" Myocarditis Without Electrocardiographic Changes.	INTERNATIONAL HEART JOURNAL	2021;62(6):1414-1419.	1.823
32	Yagi T, Nagao K, Tachibana E, Yonemoto N, Sakamoto K, Ueki Y, Imamura H, Miyamoto T, Takahashi H, Hanada H, Chiba N, Tani S, Matsumoto N, Okumura Y.	Treatment With Vasopressor Agents for Cardiovascular Shock Patients With Poor Renal Function; Results From the Japanese Circulation Society Cardiovascular Shock Registry	Frontiers in Medicine	2021;8:648824.	5.058
33	Tani S, Kawauchi K, Atsumi W, Matsuo R, Ashida T, Imatake K, Suzuki Y, Yagi T, Takahashi A, Matsumoto N, Okumura Y.	Association among daily fish intake, white blood cell count, and healthy lifestyle behaviors in an apparently healthy Japanese population: implication for the anti-atherosclerotic effect of fish consumption	HEART AND VESSELS	2021;36(7):924-933.	1.814
34	Tani S, Matsuo R, Atsumi W, Kawauchi K, Ashida T, Yagi T, Imatake K, Suzuki Y, Takahashi A, Matsumoto N, Okumura Y.	Higher Frequency of Fish Intake May Be Associated with a Lower Neutrophil/Lymphocyte Ratio: Anti-Atherosclerotic Effects of Fish Consumption	Annals of Nutrition and Metabolism	2021;77(3):146-153.	5.923
35	Hayashida S, Nagashima K, Kurokawa S, Arai M, Watanabe R, Wakamatsu Y, Otsuka N, Yagyu S, Iso K, Okumura Y.	Formation of low-voltage zones on the anterior left atrial wall due to mechanical compression by the ascending aorta.	JOURNAL OF CARDIOVASCULAR ELECTROPHYSIOLOGY	2021;32(8):2275-2284.	2.942

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Division of Cardiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
36	Arai R, Fukamachi D, Ebuchi Y, Migita S, Morikawa T, Monden M, Tamaki T, Kojima K, Akutsu N, Murata N, Kitano D, Okumura Y.	Mechanical Complications of Myocardial Infarction.	INTERNATIONAL HEART JOURNAL	2021;62(3):499-509	1.823
37	Kojima K, Fukamachi D, Okumura Y.	Can non-obstructive general angioscopy predict an aortic dissection before an attack?	Journal of Cardiology	2021;77(1):106-108.	3.115

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.

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Division of Gastroenterology and Hepatology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Yoshida M, Esaki M, Satoh T, Yamakawa S, Nakajima N, Ono H, Gotoda T.	Transrectal laparoscopy using flexible endoscopy with a submucosal tunneling method: Porcine survival model.	Digestive Endoscopy	2021;33(1):133-140.	6.337
2	Honda M, Asakura H, Kanda T, Somura Y, Ishii T, Yamana Y, Kaneko T, Mizutani T, Takahashi T, Kumagawa M, Sasaki R, Masuzaki R, Kanezawa S, Nirei K, Yamagami H, Matsumoto N, Nagashima M, Chiba T, Moriyama M.	Male-Dominant Hepatitis A Outbreak Observed among Non-HIV-Infected Persons in the Northern Part of Tokyo, Japan.	Viruses	2021;13(2):207.	5.818
3	Nagami Y, Sakai T, Yamamura M, Nakatani M, Katsuno T, Suekane T, Uno H, Minamino H, Okuyama M, Okamoto J, Kumamoto M, Noguchi A, Yamamori K, Takaishi O, Ochi M, Miyazaki T, Tsuji S, Ikehara H, Kawaguchi K, Hayashi T, Mannami T, Kakimoto K, Naito Y, Hashimoto S, Li Z, Komeda Y, Kishino T, Yamamoto Y, Iguchi M, Akamatsu T, Horii T, Miura K, Yamashina T, Sugihara Y, Watanabe N, Kiyotoki S, Fujii R, Murata M, Ono S, Narasaka T, Kitamura S, Kono M, Kato M, Kawaratani H, Tanaka K, Yaoita T, Yamaguchi S, Abe K, Kawamura T, Kinoshita Y, Imai K, Fujinami H, Yada T, Miyamoto H, Yoshida H, Fujiwara Y.	Continuous warfarin administration versus heparin bridging therapy in post colorectal polypectomy haemorrhage: a study protocol for a multicentre randomised controlled trial (WHICH study).	Trials	2021;22(1):33.	2.728
4	Kasai T, Suzuki S, Kusano C, Ikehara H, Ichijima R, Ohyauchi M, Kawamura M, Yoda Y, Nakahara M, Kawabe K, Gotoda T.	High Body Mass Index Is Correlated with the Success of Vonoprazan-Based Second-Line Therapy for Helicobacter Pylori Infection.	Tohoku Journal of Experimental Medicine	2021;253(2):85-94.	2.547
5	Kanogawa N, Ogasawara S, Ooka Y, Inoue M, Wakamatsu T, Yokoyama M, Maruta S, Unozawa H, Iwanaga T, Sakuma T, Fujita N, Koroki K, Kanzaki H, Maeda T, Kobayashi K, Kiyono S, Nakamura M, Kondo T, Saito T, Motoyama T, Suzuki E, Nakamoto S, Tawada A, Chiba T, Arai M, Kanda T, Maruyama H, Kato J, Takemura R, Nozaki-Taguchi N, Shiroh I, Yokosuka O, Kato N.	Propofol versus midazolam for sedation during radiofrequency ablation in patients with hepatocellular carcinoma.	JGH Open	2021;5(2):273-279.	Not available
6	Okuno H, Ogino H, Ihara E, Nishioka K, Tanaka Y, Chinen T, Kohjima M, Oono T, Tanaka M, Goya T, Fujimori N, Iboshi Y, Gotoda T, Ogawa Y.	Discriminant equation using mucosally expressed cytokines and transcription factor for making definite diagnosis of inflammatory bowel disease unclassified.	BMC Gastroenterology	2021;21(1):73.	2.848
7	Chen M, Cao J, Hu J, Topatana W, Li S, Juengpanich S, Lin J, Tong C, Shen J, Zhang B, Wu J, Pocha C, Kudo M, Amedei A, Trevisani F, Sung PS, Zaydfudim VM, Kanda T, Cai X.	Clinical-Radiomic Analysis for Pretreatment Prediction of Objective Response to First Transarterial Chemoembolization in Hepatocellular Carcinoma.	Liver Cancer	2021;10(1):38-51.	12.430
8	Esaki M, Minoda Y, Wada M, Sakisaka S, Tsuruta S, Hosokawa T, Matsuguchi T, Ichijima R, Suzuki S, Tamura Y, Iwao A, Yamakawa S, Irie A, Ihara E, Ogawa Y.	Self-Completion Method of Endoscopic Submucosal Dissection Using Endosaber without Any Other Device or Assistance: An ex vivo Porcine Model Study.	Digestion	2021;102(2):139-146.	3.672
9	Kusano C, Gotoda T, Ikehara H, Suzuki S, Shibuya H, Horii T, Arata S, Dohmen T.	The Accuracy of the Serum Antibody Test for Helicobacter pylori Infection among Junior High School Students.	Digestion	2021;102(2):155-160.	3.672

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Division of Gastroenterology and Hepatology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
10	Esaki M, Horii T, Ichijima R, Wada M, Sakisaka S, Abe S, Tomoeda N, Kitagawa Y, Nishioka K, Minoda Y, Tsuruta S, Suzuki S, Akiho H, Ihara E, Ogawa Y, Gotoda T.	Assistant skill in gastric endoscopic submucosal dissection using a clutch cutter.	World Journal of Gastrointestinal Surgery	2021;13(2):116-126.	2.505
11	Widya AR, Monno Y, Okutomi M, Suzuki S, Gotoda T, Miki K.	Stomach 3D Reconstruction Using Virtual Chromoendoscopic Images.	IEEE Journal of Translational Engineering in Health and Medicine	2021;9:1700211.	2.890
12	Kanda T, Sasaki R, Masuzaki R, Moriyama M.	Artificial intelligence and machine learning could support drug development for hepatitis A virus internal ribosomal entry sites.	Artificial Intelligence in Gastroenterology	2021;2(1):1-9.	Not available
13	Nishida N, Sugiyama M, Ohashi J, Kawai Y, Khor SS, Nishina S, Yamasaki K, Yazaki H, Okudera K, Tamori A, Eguchi Y, Sakai A, Kakisaka K, Sawai H, Tsuchiura T, Ishikawa M, Hino K, Sumazaki R, Takikawa Y, Kanda T, Yokosuka O, Yatsushashi H, Tokunaga K, Mizokami M.	Importance of HBsAg recognition by HLA molecules as revealed by responsiveness to different hepatitis B vaccines.	Scientific Reports	2021;11(1):3703.	4.997
14	Kanzaki H, Chiba T, Ao J, Koroki K, Kanayama K, Maruta S, Maeda T, Kusakabe Y, Kobayashi K, Kanogawa N, Kiyono S, Nakamura M, Kondo T, Saito T, Nakagawa R, Ogasawara S, Suzuki E, Ooka Y, Muroyama R, Nakamoto S, Yasui S, Tawada A, Arai M, Kanda T, Maruyama H, Mimura N, Kato J, Zen Y, Ohtsuka M, Iwama A, Kato N.	The impact of FGF19/FGFR4 signaling inhibition in antitumor activity of multi-kinase inhibitors in hepatocellular carcinoma.	Scientific Reports	2021;11(1):5303.	4.997
15	Ichijima R, Suzuki S, Esaki M, Horii T, Kusano C, Ikehara H, Gotoda T.	Efficacy and safety of grasping forceps-assisted endoscopic resection for gastric neoplasms: A multi-centre retrospective study.	World Journal of Gastrointestinal Oncology	2021;13(3):174-184.	3.404
16	Izu A, Sugitani M, Kinukawa N, Matsumura H, Ogawa M, Moriyama M, Yamazaki S, Takayama T, Hano H, Yao T, Kanda H, Suzuki K, Hayashi S, Ariizumi S, Yamamoto M, Morishita Y, Matsumoto K, Nakamura N, Nakano M.	Hepatocellular adenoma, approximately half and predominantly inflammatory subtype, in 38 Japanese patients with several differences in age, gender and clinical background factors from Western populations.	Hepatology Research	2021;51(3):336-342.	4.942
17	Ao J, Chiba T, Kanzaki H, Kanayama K, Shibata S, Kurosugi A, Iwanaga T, Kan M, Sakuma T, Qiang N, Ma Y, Kojima R, Kusakabe Y, Nakamura M, Kobayashi K, Kiyono S, Kanogawa N, Saito T, Nakagawa R, Kondo T, Ogasawara S, Suzuki E, Nakamoto S, Muroyama R, Tawada A, Kato J, Kanda T, Maruyama H, Kato N.	Serum Angiopoietin 2 acts as a diagnostic and prognostic biomarker in hepatocellular carcinoma.	Journal of Cancer	2021;12(9):2694-2701.	4.478
18	Shibuya H, Suzuki S, Takahashi T.	Pre-cut fistulotomy using scissor-type endoscopic submucosal dissection knife.	Digestive Endoscopy	2021;33(3):e47-e48.	6.337
19	Takahashi H, Kanda T, Matsumoto N, Mizutani T, Kaneko T, Honda M, Yamana Y, Ishii T, Kumagawa M, Sasaki R, Masuzaki R, Nirei K, Yamagami H, Ogawa M, Matsuoka S, Moriyama M.	HCV GT1b-patient with alanine aminotransferase elevation and sustained virologic response achieved by grazoprevir/elbasvir discontinuation.	Future Virology	2021;16(3):161-165.	3.015

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List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
20	Ao J, Chiba T, Shibata S, Kurosugi A, Qiang N, Ma Y, Kan M, Iwanaga T, Sakuma T, Kanzaki H, Kanayama K, Kojima R, Kusakabe Y, Nakamura M, Saito T, Nakagawa R, Kondo T, Ogasawara S, Suzuki E, Muroyama R, Kato J, Mimura N, Kanda T, Maruyama H, Kato N.	Acquisition of mesenchymal-like phenotypes and overproduction of angiogenic factors in lenvatinib-resistant hepatocellular carcinoma cells.	Biochemical and Biophysical Research Communications	2021;549:171-178.	3.322
21	Eto H, Suzuki S, Kusano C, Ikehara H, Ichijima R, Ito H, Kawabe K, Kawamura M, Yoda Y, Nakahara M, Gotoda T.	Impact of body size on first-line Helicobacter pylori eradication success using vonoprazan and amoxicillin dual therapy.	Helicobacter	2021;26(2):e12788.	5.182
22	Matsumoto N, Ogawa M, Kaneko M, Kumagawa M, Watanabe Y, Hirayama M, Nakagawara H, Masuzaki R, Kanda T, Moriyama M, Takayama T, Sugitani M.	Quantitative Ultrasound Image Analysis Helps in the Differentiation of Hepatocellular Carcinoma (HCC) From Borderline Lesions and Predicting the Histologic Grade of HCC and Microvascular Invasion.	Journal of Ultrasound in Medicine	2021;40(4):689-698.	2.754
23	Kew GS, Soh AYS, Lee YY, Gotoda T, Li YQ, Zhang Y, Chan YH, Siah KTH, Tong D, Law SYK, Ruszkiewicz A, Tseng PH, Lee YC, Chang CY, Quach DT, Kusano C, Bhatia S, Wu JCY, Singh R, Sharma P, Ho KY.	Multinational survey on the preferred approach to management of Barrett's esophagus in the Asia-Pacific region.	World Journal of Gastrointestinal Oncology	2021;13(4):279-294.	3.404
24	Kaneko M, Matsumoto N, Kumagawa M, Watanabe Y, Hirayama M, Nakagawara H, Yamamoto T, Ogawa M, Moriyama M.	Renal vein measurement using ultrasonography in patients with cirrhotic ascites and congestive heart failure.	Journal of Medical Ultrasonics	2021;48(2):225-234.	1.878
25	Suzuki S, Gotoda T, Ikehara H, Ichijima R, Kusano C.	Minimizing endoscopist facial exposure to droplets: Optimal patient-endoscopist distance and use of a barrier device.	Journal of Gastroenterology and Hepatology	2021;36(4):1051-1056.	4.369
26	Takimoto R, Kamigaki T, Gotoda T, Takahashi T, Okada S, Ibe H, Oguma E, Goto S.	Esophageal cancer responsive to the combination of immune cell therapy and low-dose nivolumab: two case reports.	Journal of Medical Case Reports	2021;15(1):191.	Not available
27	Okuno H, Ogino H, Ihara E, Nishioka K, Iboshi Y, Chinen T, Ochiai T, Akiho H, Nakamura K, Gotoda T, Ogawa Y.	Interleukin-1 β as a Predictor of Glucocorticoid Response in Ulcerative Colitis.	Digestion	2021;102(3):357-367.	3.672
28	Inoki K, Abe S, Tanaka Y, Yamamoto K, Hihara D, Ichijima R, Nakatani Y, Chen HY, Takamaru H, Sekiguchi M, Yamada M, Sakamoto T, Nonaka S, Suzuki H, Yoshinaga S, Oda I, Matsuda T, Saito Y.	Reduced Intravenous Fluorescein Dose for Upper and Lower Gastrointestinal Tract Probe-Based Confocal Laser Endomicroscopy.	Clinical Endoscopy	2021;54(3):363-370.	Not available
29	Kuniyoshi N, Imazu H, Hayama J, Nomura S, Kagawa A, Hamana S, Osawa R, Oki Y, Fujisawa M, Aoki H, Higaki T, Takayama T, Ohni S, Moriyama M.	Intracholecystic Papillary Neoplasm of the Gallbladder Preoperatively Diagnosed by Endoscopic Ultrasonography and Peroral Cholangioscopy.	ACG Case Reports Journal	2021;8(5):e00574.	Not available
30	Asatani A, Kanda T, Honda M, Ishii T, Yamana Y, Kaneko T, Mizutani T, Takahashi H, Kumagawa M, Sasaki R, Masuzaki R, Kanezawa S, Matsumoto N, Nirei K, Yamagami H, Moriyama M.	Occurrence of hepatitis in an elderly woman during the treatment of pembrolizumab for right advanced renal pelvis, ureteral cancer, and bladder cancer.	JGH Open	2021;5(6):722-724.	Not available

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List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
31	Kitano M, Yamashita Y, Kamata K, Ang TL, Imazu H, Ohno E, Hirooka Y, Fusaroli P, Seo DW, Napoléon B, Teoh AYB, Kim TH, Dietrich CF, Wang HP, Kudo M, Working group for the International Consensus Guidelines for Contrast-Enhanced Harmonic Endoscopic Ultrasound.	The Asian Federation of Societies for Ultrasound in Medicine and Biology (AFSUMB) Guidelines for Contrast-Enhanced Endoscopic Ultrasound.	Ultrasound in Medicine and Biology	2021;47(6):1433-1447.	3.694
32	Abe H, Midorikawa Y, Higaki T, Yamazaki S, Aramaki O, Nakayama H, Moriguchi M, Kanda T, Moriyama M, Okada M, Nishimaki H, Sugitani M, Tsuji S, Takayama T.	Magnetic resonance elastography-based prediction of hepatocellular carcinoma recurrence after curative resection.	Surgery	2021;170(1):167-172.	4.348
33	Shibutani K, Okada M, Tsukada J, Ibukuro K, Abe H, Matsumoto N, Midorikawa Y, Moriyama M, Takayama T.	Predictive value of combined computed tomography volumetry and magnetic resonance elastography for major complications after liver resection.	Abdominal Radiology	2021;46(7):3193-3204.	2.886
34	Kumagawa M, Matsumoto N, Miura K, Ogawa M, Takahashi H, Hatta Y, Kondo R, Koizumi N, Takei M, Moriyama M.	Correlation between alterations in blood flow of malignant lymphomas after induction chemotherapies and clinical outcomes: a pilot study utilising contrast-enhanced ultrasonography for early interim evaluation of lymphoma treatment.	Clinical Radiology	2021;76(7):550.e9-550.e17.	3.389
35	Kanda T, Sasaki-Tanaka R, Masuzaki R, Matsumoto N, Okamoto H, Moriyama M.	Knockdown of Mitogen-Activated Protein Kinase Kinase 3 Negatively Regulates Hepatitis A Virus Replication.	International Journal of Molecular Sciences	2021;22(14):7420.	6.208
36	Matsumoto N, Ogawa M, Kanda T, Matsuoka S, Moriyama M, Matsusaki K.	Large-volume cell-free and concentrated ascites reinfusion therapy improves venous flow in patients with liver cirrhosis.	Journal of Medical Ultrasonics	2021;48(3):315-322.	1.878
37	Matsumoto N, Kumagawa M, Ogawa M, Kaneko M, Watanabe Y, Nakagawara H, Masuzaki R, Kanda T, Moriyama M, Sugitani M.	Ultrasonographic grayscale findings related to fibrosis in patients with non-alcoholic fatty liver disease: comparison with transient elastography and Fib-4 index.	Journal of Medical Ultrasonics	2021;48(3):323-333.	1.878
38	Nirei K, Kanda T, Masuzaki R, Mizutani T, Moriyama M.	Follow-Up of Patients Who Achieved Sustained Virologic Response after Interferon-Free Treatment against Hepatitis C Virus: Focus on Older Patients.	Medicina	2021;57(8):761.	2.948
39	Suzuki M, Ishizaki N, Kayo T, Furuta T, Igarashi R, Maki T, Hoshi K, Yamabe A, Fujisawa M, Funakubo A, Mitsuma T, Irisawa A, Shibukawa G.	Pilot Study of Acupuncture's Antispasmodic Effect on Upper Gastrointestinal Tract during Endoscopic Submucosal Dissection for Early Gastric Cancer: Controlled Clinical Trial.	Journal of Clinical Medicine	2021;10(14):3050.	4.964
40	Totsuka M, Honda M, Kanda T, Ishii T, Matsumoto N, Yamana Y, Kaneko T, Mizutani T, Takahashi H, Kumagawa M, Sasaki R, Masuzaki R, Kanezawa S, Nirei K, Yamagami H, Matsuoka S, Ohnishi H, Okamoto H, Moriyama M.	Japanese Man with HCV Genotype 4 Infection and Cirrhosis Who was Successfully Treated by the Combination of Glecaprevir and Pibrentasvir.	Internal Medicine	2021;60(13):2061-2066.	1.282
41	Maehara K, Esaki M, Minoda Y.	Ultra-thin endoscope-assisted insertion of a suction tube for the removal of massive gastric blood clots.	Digestive Endoscopy	2021;33(5):e106-e108.	6.337
42	Naganuma H, Ishida H, Uno A, Nagai H, Ogawa M, Kamiyama N.	Refraction artifact on abdominal sonogram.	Journal of Medical Ultrasonics	2021;48(3):273-283.	1.878

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List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
43	Kanda T.	No additive effects of peginterferon on the short-term improvement of liver histology by entecavir monotherapy in chronic hepatitis B patients.	Hepatology International	2021;15(3):579-581.	9.046
44	Midorikawa Y, Tatsuno K, Moriyama M.	Genome-wide analysis of hepatitis B virus integration in hepatocellular carcinoma: Insights next generation sequencing.	Hepatobiliary Surgery and Nutrition	2021;10(4):548-552.	8.265
45	Abe Y, Kusano C, Takano C, Morioka I, Gotoda T.	Association between Helicobacter pylori antibody-positive status and extragastric diseases in Japanese junior high school students.	Pediatrics International	2021;63(9):1087-1094.	1.617
46	Koroki K, Kanogawa N, Maruta S, Ogasawara S, Iino Y, Obu M, Okubo T, Itokawa N, Maeda T, Inoue M, Haga Y, Seki A, Okabe S, Koma Y, Azemoto R, Atsukawa M, Itobayashi E, Ito K, Sugiura N, Mizumoto H, Unozaawa H, Iwanaga T, Sakuma T, Fujita N, Kanzaki H, Kobayashi H, Kiyono S, Nakamura M, Saito T, Kondo T, Suzuki E, Ooka Y, Nakamoto S, Tawada A, Chiba T, Arai M, Kanda T, Maruyama H, Kato J, Kato N.	Posttreatment after Lenvatinib in Patients with Advanced Hepatocellular Carcinoma.	Liver Cancer	2021;10(5):473-484.	12.430
47	Sugita T, Suzuki S, Ichijima R, Ogura K, Kusano C, Ikehara H, Gotoda T, Moriyama M.	Diagnostic Ability of High-definition Imaging Using Ultrastim Endoscopes in Early Gastric Cancer.	Journal of Gastric Cancer	2021;21(3):246-257.	3.197
48	Esaki M, Ihara E, Gotoda T.	Endoscopic instruments and techniques in endoscopic submucosal dissection for early gastric cancer.	Expert Review of Gastroenterology & Hepatology	2021;15(9):1009-1020.	4.095
49	Ishigaki K, Nakai Y, Sasahira N, Sugimori K, Kitamura K, Iwai T, Matsubara S, Shimura K, Itoi T, Ryozaawa S, Ushio J, Doi S, Imazu H, Maetani I, Isayama H, Acquire Study Group.	A prospective multicenter study of endoscopic ultrasound-guided fine needle biopsy using a 22-gauge Franseen needle for pancreatic solid lesions.	Journal of Gastroenterology and Hepatology	2021;36(10):2754-2761.	4.369
50	Ichijima R, Suzuki S, Esaki M, Sugita T, Ogura K, Kusano C, Ikehara H, Gotoda T.	Efficacy of macrogol 4000 plus electrolytes in bowel preparation for colonoscopy in patients with chronic constipation.	BMC Gastroenterology	2021;21(1):387.	2.848
51	Iwamoto M, Koshinaga T, Fujita E, Hanada M, Uehara S, Moriyama M.	Ileal Dieulafoy lesion arose 15 years after partial small bowel resection for meconium obstruction of the neonate: a case report.	BMC Pediatrics	2021;21(1):437.	2.567
52	Kanno A, Yasuda I, Irisawa A, Hara K, Ashida R, Iwashita T, Takenaka M, Katanuma A, Takikawa T, Kubota K, Kato H, Nakai Y, Ryozaawa S, Kitano M, Isayama H, Kamada H, Okabe Y, Hanada K, Ohtsubo K, Doi S, Hisai H, Shibukawa G, Imazu H, Masamune A, Collaborators.	Adverse events of endoscopic ultrasound-guided fine-needle aspiration for histologic diagnosis in Japanese tertiary centers: Multicenter retrospective study.	Digestive Endoscopy	2021;33(7):1146-1157.	6.337
53	Kusakabe Y, Chiba T, Oshima M, Koide S, Rizq O, Aoyama K, Ao J, Kaneko T, Kanzaki H, Kanayama K, Maeda T, Saito T, Nakagawa R, Kobayashi K, Kiyono S, Nakamura M, Ogasawara S, Suzuki E, Nakamoto S, Yasui S, Mikata R, Muroyama R, Kanda T, Maruyama H, Kato J, Mimura N, Ma A, Jin J, Zen Y, Otsuka M, Kaneda A, Iwama A, Kato N.	EZH1/2 inhibition augments the anti-tumor effects of sorafenib in hepatocellular carcinoma.	Scientific Reports	2021;11(1):21396.	4.997

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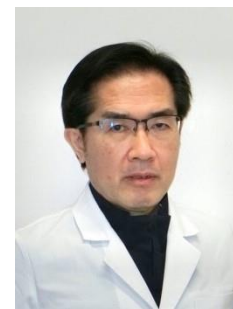
Division of Gastroenterology and Hepatology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
54	Saito R, Koizumi N, Nishiyama Y, Imaizumi T, Kusahara K, Yagasaki S, Matsumoto N, Masuzaki R, Takahashi T, Ogawa M.	Evaluation of ultrasonic fibrosis diagnostic system using convolutional network for ordinal regression.	International Journal of Computer Assisted Radiology and Surgery	2021;16(11):1969-1975.	3.421
55	Amano H, Kanda T, Mochizuki H, Kojima Y, Suzuki Y, Hosoda K, Ashizawa H, Miura Y, Tsunoda S, Hirotsu Y, Ohyama H, Kato N, Moriyama M, Obi S, Omata M.	The Use of Electronic Medical Records-Based Big-Data Informatics to Describe ALT Elevations Higher than 1000 IU/L in Patients with or without Hepatitis B Virus Infection.	Viruses	2021;13(11):2216.	5.818
56	Shibutani K, Okada M, Tsukada J, Hyodo T, Ibukuro K, Abe H, Matsumoto N, Midorikawa Y, Moriyama M, Takayama T.	A proposed model on MR elastography for predicting postoperative major complications in patients with hepatocellular carcinoma.	BJR Open	2021;3(1):20210019.	Not available
57	Yamana Y, Kanda T, Matsumoto N, Honda M, Kumagawa M, Sasaki R, Kanezawa S, Mizutani T, Yamagami H, Masuzaki R, Ishii T, Nirei K, Moriyama M.	Efficacy of Glecaprevir/Pibrentasvir for Real-World HCV Infected Patients in the Northern Part of Tokyo, Japan.	Journal of Clinical Medicine	2021;10(23):5529.	4.964
58	Widya AR, Monno Y, Okutomi M, Suzuki S, Gotoda T, Miki K.	Learning-Based Depth and Pose Estimation for Monocular Endoscope with Loss Generalization.	Annual International Conference of the IEEE Engineering in Medicine and Biology Society	2021;2021:3547-3552.	Not available
59	Watanabe Y, Ogawa M, Tamura Y, Suda S, Kaneko M, Kumagawa M, Hirayama M, Matsumoto N, Yamamoto T, Moriyama M.	A Case of Pseudoprogression in Hepatocellular Carcinoma Treated With Atezolizumab Plus Bevacizumab.	Journal of Investigative Medicine High Impact Case Reports	2021;9:23247096211058489.	Not available
60	Esaki M, Esaki M, Maehara K, Minoda K, Ogino H, Ihara E, Ogawa Y.	Rubber band-assisted, one-person-operated cold snare polypectomy for colorectal polyps.	Endoscopy International Open	2021;9(11):E1845-E1846.	Not available
61	Horii T, Suzuki S, Takano C, Shibuya H, Ichijima R, Kusano C, Ikehara H, Gotoda T.	Lower impact of vonoprazan-amoxicillin dual therapy on gut microbiota for Helicobacter pylori eradication.	Journal of Gastroenterology and Hepatology	2021;36(12):3314-3321.	4.369
62	Kawaratan H, Sawai H, Onishi M, Kogiso T, Shimada N, Uojima H, Nakajima T, Matsumoto N, Ikejima K, Ishikawa T, Terai S, Motoyama H, Komori A, Hirashima N, Saito S, Eguchi Y, Nojima M, Kawai Y, Tateyama M, Yoshiji H, Tanaka Y.	A genome-wide association study identifying SVEP1 variant as a predictor of response to tolvaptan for cirrhotic ascites.	Liver International	2021;41(12):2944-2953.	8.754
63	Suzuki S, Gotoda T, Takano C, Horii T, Sugita T, Ogura K, Ichijima R, Kusano C, Ikehara H.	Long term impact of vonoprazan-based Helicobacter pylori treatment on gut microbiota and its relation to post-treatment body weight changes.	Helicobacter	2021;26(6):e12851.	5.182
64	Watanabe Y, Ogawa M, Kaneko M, Kumagawa M, Hirayama M, Matsumoto N, Nakagawara H, Yamamoto T, Moriyama M.	Comparison of local recurrence in transcatheter arterial chemoembolization of hepatocellular carcinoma with or without accumulation of iodized oil beyond corona enhancement area: Short-term	Radiology and Oncology	2021;56(1):69-75.	4.214
65	Aoki H, Matsumoto N, Takahashi H, Honda M, Kaneko T, Arima S, Ishii T, Mizutani T, Masuzaki R, Nirei K, Yamagami H, Ogawa M, Kanda T, Moriyama M, Miura K.	Immune Checkpoint Inhibitor as a Therapeutic Choice for Double Cancer: A Case Series.	Anticancer Research	2021;41(12):6225-6230.	2.435
66	Iwatsuka K, Kikuta D, Shibuya H, Ogawa M, Gotoda T, Moriyama M, Nakagawara H, Hemmi A, Yamao K.	Treatment Outcome of Nab-paclitaxel Plus Gemcitabine for Leptomeningeal Carcinomatosis from Pancreatic Ductal Adenocarcinoma: An Autopsy Case Report.	Internal Medicine	2021;60(23):3743-3748.	1.282

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 pathomorphological analysis and animal experiments on CNS herpes simplex virus infection in neuroinfectious diseases, clinical and basic research on immune-related neurological diseases, including multiple sclerosis and neuromyelitis optica, as well as 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 assay and cell-based assay using frozen rat brain sections and detection using primary hippocampal cultured cells, and have established evidence for treatment and outcome. We aim to establish an algorithm.

- Neuroinfectious diseases: Observational studies on the impact of multiplex PCR testing on the diagnosis and prognosis of neuroinfectious diseases, analysis of herpes simplex virus infection of the central nervous system, and immunological analysis using a mouse model of herpes simplex encephalomyelitis.
- Immunological neurological diseases: a multicenter study to establish a rapid screening method for anti-neural antibodies in patients with neuromuscular diseases, studies on clinical presentation and pathophysiology of autoimmune-mediated encephalitis secondary to infectious encephalitis, clinical and basic studies in multiple sclerosis and neuromyelitis optica, electrophysiological findings and prognosis in Guillain-Barre syndrome Clinical studies related to electrophysiological findings and prognosis in Guillain-Barré syndrome, GAD antibody-related diseases, and outcome of anti-NMDA receptor encephalitis.
- Epilepsy: studies on the background pathophysiology, clinical features, and prognosis of acute symptomatic seizures and epilepsy.
- Motor Neuron Disease: Pathophysiology by analysis of transcriptional activity of androgen receptor in spinal and bulbar muscular atrophy, and pathogenesis and prognosis of amyotrophic lateral sclerosis.

We will attract people to our department and

cultivate medical professionals with a research mindset by appealing nature of neurology in an easy-to-understand manner. Furthermore, we promise to deliver highly original Nihon University research findings that are directly related to clinical practice. We will engage in medical treatment and research to overcome neuroinfectious diseases and intractable neurological diseases under the themes of "Construction of medical treatment strategies for acute encephalitis: Elucidation of the cross-talk between infectious diseases and immunity" and "Elucidation of pathophysiology and development of treatment methods for intractable neurological diseases to improve patient QOL.

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

PUBLICATION LIST 2021

Division of Neurology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Akimoto T, Hara M, Morita A, Uehara S, Nakajima H.	Relationship between Nutritional Scales and Prognosis in Elderly Patients after Acute Ischemic Stroke: Comparison of Controlling Nutritional Status Score and Geriatric Nutritional Risk Index.	Annals of Nutrition and Metabolism	2021;77(2):116-123.	5.923
2	Azumagawa K, Nakashima I, Kaneko K, Torisu H, Sakai Y, Kira R, Sakuma H, Tanaka K, Shigeri Y, Tanaka Y, Nakajima H, Shimakawa S, Tamai H.	A nation-wide survey of Japanese pediatric MOG antibody-associated diseases.	Brain and Development	2021;43(6):705-713.	2.272
3	Kaneko Y, Suzuki M, Ishihara M, Kitamura M, Bando S, Sagawa T, Yamada K, Kubo H, Nakajima H, Uchiyama M.	A Case of High Altitude Cerebral Edema With a Prolonged Motivational Deficit.	Wilderness & environmental medicine	2021;32(1):88-91.	1.479
4	Ogawa K, Suma T, Akimoto T, Hara M, Fujishiro M, Yoshino A, Nakajima H.	Clinical Study of Cerebral Ischemia in Moyamoya Disease from the View of Development of the Anterior Choroidal Artery.	Journal of stroke and cerebrovascular diseases	2021;30(11):106078.	2.677
5	Fujishiro M, Ishihara H, Ogawa K, Murase T, Nakamura T, Watanabe K, Sakoda H, Ono H, Yamamotoya T, Nakatsu Y, Asano T, Kushiyama A.	Impact of plasma xanthine oxidoreductase Activity on the mechanisms of distal symmetric polyneuropathy development in patients with type 2 diabetes.	Biomedicines	2021;9(8):1052.	4.757
6	Ichikawa C, Tanaka S, Takubo M, Kushimoto M, Ikeda J, Ogawa K, Tsujino I, Suzuki Y, Abe M, Ishihara H, Fujishiro M.	Tuberculosis relapse in the epididymis after the completion of nine months of anti-tuberculosis chemotherapy in a patient with poorly-controlled diabetes mellitus.	Therapeutics and Clinical Risk Management	2021;17: 463-470.	2.755
7	Hirose S, Hara M, Koda K, Natori N, Yokota Y, Ninomiya S, Nakajima H.	Acute autoimmune transverse myelitis following COVID-19 vaccination: a case report.	Medicine	2021;100(51):e28423.	1.817

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 2021
Division of Hematology and Collagen Disease

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kitamura N, Hamaguchi M, Nishihara M, Ikumi N, Sugiyama K, Nagasawa N, Tsuzuki H, Yoshizawa S, Tanikawa Y, Oshima M, Asatani S, Kobayashi H, Takei M.	The effects of mepolizumab on peripheral circulation and neurological symptoms in eosinophilic granulomatosis with polyangiitis (EGPA) patients.	Allergy International	2021;70(1):148-149.	7.478
2	Nishiwaki A, Kobayashi H, Ikumi N, Kobayashi Y, Yokoe I, Sugiyama K, Matsukawa Y, Takei M, Kitamura N.	Salivary Gland Focus Score Is Associated With Myocardial Fibrosis in Primary Sjögren Syndrome Assessed by a Cardiac Magnetic Resonance Approach.	Journal of Rheumatology	2021;48(6):859-866.	5.346
3	Nishihara M, Hamaguchi M, Ikumi N, Nishiwaki A, Sugiyama K, Nagasawa N, Tsuzuki H, Yoshizawa S, Tanikawa Y, Asatani S, Kobayashi H, Takei M, Kitamura N.	Successful early introduction of mepolizumab for peripheral neuropathy with a peripheral circulatory disorder in a patient with myeloperoxidase anti-neutrophil cytoplasmic antibody-negative eosinophilic granulomatosis with polyangiitis.	Modern Rheumatology Case Reports	2021;5(2):354-359.	Not available
4	Yokoe I, Kobayashi H, Nishiwaki A, Nagasawa Y, Kitamura K, Haraoka M, Kobayashi Y, Takei M, Nakamura H.	Asymptomatic myocardial dysfunction was revealed by feature tracking cardiac magnetic resonance imaging in patients with primary Sjögren's syndrome	International Journal of Rheumatic Diseases	2021;24(12):1482-1490.	2.558
5	Saito T, Hatta Y, Hayakawa F, Takahashi T, Hagihara M, Iida H, Minauchi K, Yamazaki E, Sugiura I, Murayama T, Sakura T, Mori N, Imai K, Yahagi Y, Atsuta Y, Saito AM, Hirakawa A, Kiyoi H, Matsumura I, Miyazaki Y, Japan Adult Leukemia Study Group.	Combination of clofarabine, etoposide, and cyclophosphamide in adult relapsed/refractory acute lymphoblastic leukemia: a phase 1/2 dose-escalation study by the Japan Adult Leukemia Study Group.	International Journal of Hematology	2021;113(3):395-403	2.324
6	Miura K, Tsujimura H, Masaki Y, Iino M, Takizawa J, Maeda Y, Yamamoto K, Tamura S, Yoshida A, Yagi H, Yoshida I, Kitazume K, Masunari T, Choi I, Kakinoki Y, Suzuki R, Yoshino T, Nakamura S, Hatta Y, Yoshida T, Kanno M.	Consolidation with ⁹⁰ Yttrium-ibritumomab tiuxetan after bendamustine and rituximab for relapsed follicular lymphoma.	Hematological Oncology	2021;39(1):51-59	4.850
7	Nakasone H, Kako S, Mori T, Takahashi S, Onizuka M, Fujiwara SI, Sakura T, Sakaida E, Yokota A, Aotsuka N, Hagihara M, Tsukada N, Hatta Y, Usuki K, Watanabe R, Gotoh M, Fujisawa S, Yano S, Kanamori H, Okamoto S, Kanda Y.	Stopping tyrosine kinase inhibitors started after allogeneic HCT in patients with Philadelphia chromosome-positive leukemia.	Bone Marrow Transplantation	2021;56(6):1402-1412	5.174
8	Kumagawa M, Matsumoto N, Miura K, Ogawa M, Takahashi H, Hatta Y, Kondo R, Koizumi N, Takei M, Moriyama M.	Correlation between alterations in blood flow of malignant lymphomas after induction chemotherapies and clinical outcomes: a pilot study utilising contrast-enhanced ultrasonography for early interim evaluation of lymphoma treatment.	Clinical Radiology	2021;76(7):550.e9-550.e17	3.389
9	Nakasone H, Kako S, Tachibana T, Tanaka M, Onizuka M, Takahashi S, Yokota A, Fujiwara SI, Sakura T, Sakaida E, Fujisawa S, Yamazaki R, Gotoh M, Hagihara M, Aotsuka N, Tsukada N, Hatta Y, Shimizu H, Usuki K, Watanabe R, Mori T, Yano S, Kanamori H, Kanda Y.	Novel Indicators of Transplant Outcomes for PhALL: Current Molecular-Relapse-Free Survival.	Transplantation and Cellular Therapy	2021;27(9):800.e1-800.e8	Not available
10	Noguchi Y, Iriyama N, Takahashi H, I Uchino Y, Nakagawa N, Hamada T, Iizuka K, Koike T, Kurihara K, Endo T, Yoshida T, Muira K, Nakayama T, Hatta Y, Takei M.	Maintenance Therapy With Bortezomib and Dexamethasone for Transplant-ineligible Patients With Multiple Myeloma.	Cancer Diagnosis & Prognosis	2021;1(2):35-42	Not available
11	Nakagawa M, Iriyama N, Ishikawa T, Muira K, Uchino Y, Takahashi H, Hamada T, Iizuka K, Koike T, Kurihara K, Nakayama T, Hatta Y, Takei M.	Absolute Lymphocyte Counts After Lenalidomide Initiation may Predict the Prognosis of Patients With Relapsed or Refractory Multiple Myeloma.	Cancer Diagnosis & Prognosis	2021;1(3):221-229	Not available

PUBLICATION LIST 2021

Division of Hematology and Collagen Disease

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
12	Aoki H, Matsumoto N, Takahashi H, Honda M, Kaneko T, Arima S, Ishii T, Mizutani T, Masuzaki R, Nirei K, Yamagami H, Ogawa M, Kanda T, Moriyama M, Miura K.	Immune checkpoint inhibitor as a therapeutic choice for double cancer: A case series.	Anticancer Research	2021;41(12):6225-6230	2.435
13	Kawabata H, Fujimoto S, Sakai T, Yanagisawa H, Kitawaki T, Nara K, Hagihara M, Yamamoto H, Tanimizu M, Kato C, Origuchi T, Sunami K, Sunami Y, Masunari T, Nakamura N, Kobayashi M, Yamagami K, Miura K, Takai K, Aoki S, Tsukamoto N, Masaki Y.	Patient's age and D-dimer levels predict the prognosis in patients with TAFRO syndrome.	International Journal of Hematology	2021;114(2):179-188	2.324
14	Lo CW, Matsuura R, Iimura K, Wada S, Shinjo A, Benno Y, Nakagawa M, Takei M, Aida Y.	UVC disinfects SARS-CoV-2 by induction of viral genome damage without apparent effects on viral morphology and proteins.	Scientific Reports	2021;11(1):13804	4.997
15	Matsuura R, Lo CW, Wada S, Somei J, Ochiai H, Murakami T, Saito N, Ogawa T, Shinjo A, Benno Y, Nakagawa M, Takei M, Aida Y.	SARS-CoV-2 Disinfection of Air and Surface Contamination by TiO ₂ Photocatalyst-Mediated Damage to Viral Morphology, RNA, and Protein.	Viruses	2021;13(5):942	Not available

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 2021
Division of Nephrology, Hypertension and Endocrinology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Maruyama Y, Kanda E, Kikuchi K, Abe M, Masakane I, Yokoo T, Nitta K.	Association between anemia and mortality in hemodialysis patients is modified by the presence of diabetes.	JOURNAL OF NEPHROLOGY	2021;34(3):781-790.	4.406
2	Okamura M, Ueno T, Tanaka S, Murata Y, Kobayashi H, Miyamoto A, Abe M, Fukuda N.	Increased expression of acyl-CoA oxidase 2 in the kidney with plasma phytanic acid and altered gut microbiota in spontaneously hypertensive rats.	HYPERTENSION RESEARCH	2021;44(6):651-661.	5.525
3	Takashima H, Maruyama T, Abe M.	Significance of Levocarnitine Treatment in Dialysis Patients.	Nutrients	2021;13(4):1219.	6.706
4	Okamura M, Fukuda N, Horikoshi S, Kobayashi H, Tsunemi A, Akiya Y, Endo M, Matsumoto T, Abe M.	Transcriptional Suppression of Diabetic Nephropathy with Novel Gene Silencer Pyrrole-Imidazole Polyamides Preventing USF1 Binding to the TGF- β 1 Promoter.	INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES	2021;22(9):4741.	6.208
5	Abe M, Masakane I, Wada A, Nakai S, Nitta K, Nakamoto H.	Super high-flux membrane dialyzers improve mortality in patients on hemodialysis: a 3-year nationwide cohort study.	Clinical Kidney Journal	2021;15(3):473-483.	5.860
6	Abe M, Masakane I, Wada A, Nakai S, Kanda E, Nitta K, Nakamoto H.	High-performance dialyzers and mortality in maintenance hemodialysis patients.	Scientific Reports	2021;11(1):12272.	4.997
7	Abe M, Masakane I, Wada A, Nakai S, Nitta K, Nakamoto H.	Dialyzer surface area is a significant predictor of mortality in patients on hemodialysis: a 3-year nationwide cohort study.	Scientific Reports	2021;11(1):20616.	4.997
8	Abe M, Masakane I, Wada A, Nakai S, Nitta K, Nakamoto H.	Dialyzer Classification and Mortality in Hemodialysis Patients: A 3-Year Nationwide Cohort Study.	Frontiers in Medicine	2021;8:740461.	5.058
9	Nakamura Y, Kobayashi H, Tanaka S, Hatanaka Y, Fuke Y, Fukuda N, Abe M.	Primary aldosteronism and obstructive sleep apnea: A single-center cross-sectional study of the Japanese population.	MEDICINE	2021;100(11):e25049.	1.817
10	Nakamura Y, Kobayashi H, Tanaka S, Hatanaka Y, Fukuda N, Abe M.	Association between plasma aldosterone and markers of tubular and glomerular damage in primary aldosteronism.	CLINICAL ENDOCRINOLOGY	2021;94(6):920-926.	3.523
11	Wada T, Hara A, Muso E, Maruyama S, Kato S, Furuichi K, Yoshimura K, Toyama T, Sakai N, Suzuki H, Tsukamoto T, Miyazaki M, Sato E, Abe M, Shibagaki Y, Narita I, Goto S, Sakamaki Y, Yokoyama H, Mori N, Tanaka S, Yuzawa Y, Hasegawa M, Matsubara T, Wada J, Tanabe K, Masutani K, Abe Y, Tsuruya K, Fujimoto S, Iwatsubo S, Tsuda A, Suzuki H, Kasuno K, Terada Y, Nakata T, Iino N, Sofue T, Miyata H, Nakano T, Ohtake T, Kobayashi S, LICENSE study Group.	Effects of LDL apheresis on proteinuria in patients with diabetes mellitus, severe proteinuria, and dyslipidemia.	Clinical and Experimental Nephrology	2021;25(1):1-8.	2.621

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Division of Nephrology, Hypertension and Endocrinology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
12	Murashima M, Hamano T, Abe M, Masakane I.	Encapsulating Peritoneal Sclerosis and Mortality Related to Infection in Patients on Combination Once-Weekly Hemodialysis with Peritoneal Dialysis.	AMERICAN JOURNAL OF NEPHROLOGY	2021;52(4):336-341.	4.605
13	Otsuka H, Kobayashi H, Suzuki K, Hayashi Y, Ikeda J, Kushimoto M, Hara M, Abe M, Kato K, Soma M.	Mobility performance impacts mortality risk in community-dwelling healthy older adults in Japan: a prospective observational study	AGING CLINICAL AND EXPERIMENTAL RESEARCH	2021;33(9):2511-2517.	4.481
14	Naruse M, Tanabe A, Yamamoto K, Rakugi H, Kometani M, Yoneda T, Kobayashi H, Abe M, Ohno Y, Inagaki N, Izawa S, Sone M.	Adrenal Venous Sampling for Subtype Diagnosis of Primary Hyperaldosteronism	Endocrinology and Metabolism	2021;0136(5):965-973.	3.607
15	Saito K, Kurihara I, Itoh H, Ichijo T, Katabami T, Tsuike M, Wada N, Yoneda T, Sone M, Oki K, Yamada T, Kobayashi H, Tamura K, Ogawa Y, Kawashima J, Inagaki N, Yamamoto K, Yamada M, Kamemura K, Fujii Y, Suzuki T, Yasoda A, Tanabe A, Naruse M, Japan Primary Aldosteronism Study/Japan Rare Intractable Adrenal Diseases Study Group.	Subtype-specific trends in the clinical picture of primary aldosteronism over a 13-year period	JOURNAL OF HYPERTENSION	2021;39(11):2325-2332.	4.776
16	Haze T, Hirawa N, Yano Y, Tamura K, Kurihara I, Kobayashi H, Tsuike M, Ichijo T, Wada N, Katabami T, Yamamoto K, Oki K, Inagaki N, Okamura S, Kai T, Izawa S, Yamada M, Chiba Y, Tanabe A, Naruse M.	Association of aldosterone and blood pressure with the risk for cardiovascular events after treatments in primary aldosteronism	ATHEROSCLEROSIS	2021;324:84-90.	6.851
17	Okamoto K, Ohno Y, Sone M, Inagaki N, Ichijo T, Yoneda T, Tsuike M, Wada N, Oki K, Tamura K, Kobayashi H, Izawa S, Tanabe A, Naruse M.	Should Adrenal Venous Sampling Be Performed in PA Patients Without Apparent Adrenal Tumors?	Frontiers in Endocrinology	2021;12:645395.	6.055
18	Nakamaru R, Yamamoto K, Akasaka H, Rakugi H, Kurihara I, Yoneda T, Ichijo T, Katabami T, Tsuike M, Wada N, Yamada T, Kobayashi H, Tamura K, Ogawa Y, Kawashima J, Inagaki N, Fujita M, Watanabe M, Kamemura K, Okamura S, Tanabe A, Naruse M, JPAS/JRAS Study Group.	Age-stratified comparison of clinical outcomes between medical and surgical treatments in patients with unilateral primary aldosteronism	Scientific Reports	2021;11(1):6925.	4.997
19	Nakamaru R, Yamamoto K, Akasaka H, Rakugi H, Kurihara I, Yoneda T, Ichijo T, Katabami T, Tsuike M, Wada N, Yamada T, Kobayashi H, Tamura K, Ogawa Y, Kawashima J, Inagaki N, Fujita M, Oki K, Kamemura K, Tanabe A, Naruse M, JPAS/JRAS study group.	Sex Differences in Renal Outcomes After Medical Treatment for Bilateral Primary Aldosteronism	HYPERTENSION	2021;77(2):537-545.	9.897
20	Ohno Y, Naruse M, Beuschlein F, Schreiner F, Parasiliti-Caprino M, Deinum J, Drake WM, Fallo F, Fuss CT, Grytaas MA, Ichijo T, Inagaki N, Kakutani M, Kastelan D, Kraljevic I, Katabami T, Kocjan T, Monticone S, Mulatero P, O'Toole S, Kobayashi H, Sone M, Tsuike M, Wada N, Williams TA, Reincke M, Tanabe A.	Adrenal Venous Sampling-Guided Adrenalectomy Rates in Primary Aldosteronism: Results of an International Cohort (AVSTAT)	JOURNAL OF CLINICAL ENDOCRINOLOGY & METABOLISM	2021;106(3):e1400-e1407.	6.134

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 including diabetes, hoping to contribute to progresses in the medical science and to provide better treatment strategies of metabolic diseases. 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 drug mechanisms for establishing better treatment strategies. 3) Studies for prevention of 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). The ultimate objective is clarifying the full picture of the mechanisms underlying secretion of the hormones, which will be useful for developing novel therapeutic strategies of diabetes.

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 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 cardiovascular complications in type 2 diabetes patients. Clinical studies focusing on risk factors of cardiovascular complications in elderly patients with diabetes 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, as well as Prof. Katagiri from Tohoku University and Prof. Asano from Hiroshima University

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 2021
Division of Diabetes and Metabolism

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Ichikawa C, Tanaka S, Takubo M, Kushimoto M, Ikeda J, Ogawa K, Tsujino I, Suzuki Y, Abe M, Ishihara H, Fujishiro M	Tuberculosis relapse in the epididymis after the completion of nine months of anti-tuberculosis chemotherapy in a patient with poorly controlled diabetes mellitus.	Therapeutics and Clinical Risk Management	2021;17:463-470	2.755
2	Fujishiro M, Ishihara H, Ogawa K, Murase T, Nakamura T, Watanabe K, Sakoda H, Ono H, Yamamotoya T, Nakatsu Y, Asano T, Kushiyama A	Impact of plasma xanthine oxidoreductase activity on the mechanisms of distal symmetric polyneuropathy development in patients with type 2 diabetes.	Biomedicines	2021;9(8):1052	4.757
3	Koike M, Saito H, Kohno G, Takubo M, Watanabe K, Ishihara H	Effects of GLP-1RA and SGLT2i, alone or in combination, on mouse models of type 2 diabetes representing different disease stages.	International Journal of Molecular Sciences	2021;22(21):11463	6.208
4	Furukawa A, Tanaka A, Yamaguchi S, Kosuda M, Yamana M, Nagasawa A, Kohno G, Ishihara H	Using recombinase-mediated cassette exchange to engineer MIN6 insulin-secreting cells based on a newly identified safe harbor locus.	Journal of Diabetes Investigation	2021;12:2129-2140	3.681

Division of General Medicine

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



**Research 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., Ph.D.
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/angiography)

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 Mellitus, 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 2021
Division of General Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kojima K, Hiro T, Koyama Y, Ohgaku A, Fujito H, Ebuchi Y, Arai R, Monden M, Migita S, Morikawa T, Tamaki T, Murata N, Akutsu N, Nishida T, Kitano D, Sudo M, Fukamachi D, Yoda S, Takayama T, Hirayama A, Okumura Y.	High Wall Shear Stress Is Related to Atherosclerotic Plaque Rupture in the Aortic Arch of Patients with Cardiovascular Disease: A Study with Computational Fluid Dynamics Model and Non-Obstructive General Angioscopy	Journal of Atherosclerosis and Thrombosis	2021;28(7):742-753.	4.399
2	Yamaoka B, Nagasaki-Maeoka E, Uekusa S, Hidaka A, Hijikata K, Kato R, Fujiwara K, Koshinaga T, Uehara S.	Exosomal miR-214-3p as a potential novel biomarker for rhabdoid tumor of the kidney	Pediatric Surgery International	2021;37:1783-1790	2.003
3	Otsuka H, Kobayashi H, Suzuki K, Hayashi Y, Ikeda J, Kushimoto M, Hara M, Abe M, Kato K, Soma M.	Mobility performance impacts mortality risk in community-dwelling healthy older adults in Japan: a prospective observational study	Aging Clinical and Experimental Research	2021;33(9):2511-2517.	4.481
4	Ikeda J, Matsuda H, Maiko Ogasawara, Ishii Y, Yamaguchi K, Takahashi S, Fukuda N, Masuhiro Y, Endo M, Soma M, Hamet P, Tremblay J	COMMD5 Inhibits Malignant Behavior of Renal Cancer Cells	ANTICANCER RESEARCH	2021;41(6):2805-2815.	2.435

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. During 2015–2016, he was involved in the development of sleep manipulation therapy for drug-resistant depression 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, cutting-edge research to expand our understanding of the mind for the future benefit of patients, and the finest education for students and young doctors to allow 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. They have also recently launched a new project to develop a diagnostic program for the early detection of depression based on sleep electroencephalograms.

2) Cognitive neuroscience

The cognitive neuroscience team has been aiming 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 of the team are conducted at the Sleep Medicine Center of the Itabashi Hospital. They have recently launched a new research project to assess the use of a wearable movement-detecting device for differential diagnosis of sleep-wake disorders in adolescents.

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.

PUBLICATION LIST 2021

Division of Psychiatry

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kaneko Y, Suzuki M, Nagai K, Uchiyama M	Differential effects of aging and cognitive decline on visual exploration behavior in the elderly	Neuroscience Research	2021;171:62-66.	2.904
2	Matsui K, Yoshiike T, Nagao K, Utsumi T, Tsuru A, Otsuki R, Ayabe N, Hazumi M, Suzuki M, Saitoh K, Aritake-Okada S, Inoue Y, Kuriyama K	Association of Subjective Quality and Quantity of Sleep with Quality of Life among a General Population	International Journal of Environmental Research and Public Health	2021;18:12835.	4.614
3	Numata S, Nakataki M, Hasegawa N, Takaesu Y, Takeshima M, Onitsuka T, Nakamura T, Edagawa R, Edo H, Miura K, Matsumoto J, Yasui-Furukori N, Kishimoto T, Hori H, Tsuboi T, Yasuda Y, Furihata R, Muraoka H, Ochi S, Nagasawa T, Kyou T, Murata A, Katsumoto E, Ohi K, Hishimoto A, Inada K, Watanabe K, Hashimoto R	Improvements in the Degree of Understanding the Treatment Guidelines for Schizophrenia and Major Depressive Disorder in a Nationwide Dissemination and Implementation Study	Neuropsychopharmacology Reports	2021;41(2):199-206.	Not available
4	Matsui K, Yoshiike T, Tsuru A, Otsuki R, Nagao K, Ayabe N, Hazumi M, Utsumi T, Yamamoto K, Fukumizu M, Kuriyama K	Psychological burden of attention-deficit/hyperactivity disorder traits on medical workers under the COVID-19 outbreak: a cross-sectional web-based questionnaire survey	BMJ Open	2021;11:e053737.	3.007
5	Kaneko Y, Suzuki M, Ishihara M, Kitamura M, Bando S, Nakajima S, Sagawa T, Osaki K, Yamada K, Kubo H, Nakajima H, Uchiyama M	A case of high altitude cerebral edema with a prolonged motivational deficit	Wilderness & Environmental Medicine	2021;32:88-91.	1.479
6	Kaneko Y, Kawae A, Saitoh K, Gon Y, Uchiyama M, Suzuki M.	Exploding head syndrome accompanied by repeating panic attacks: A case report	Frontiers in Psychiatry	2021;11:613420.	5.435
7	Kanamori T, Kaneko Y, Yamada K, Suzuki M	Successful combination therapy of trazodone and fluvoxamine for pica in Alzheimer's disease: A case report	Frontiers in Psychiatry	2021;12:704847.	5.435

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 sensor 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.

PUBLICATION LIST 2021
Division of Pediatrics and Child Health

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Seimiya A, Morioka I, Okahashi A, Nagano N, Yoda H.	Survey of infants hospitalized for respiratory syncytial virus disease in Tokyo, 2018.	Pediatrics International	2021;63(2):219-221.	1.617
2	Suzuki J, Urakami T, Yoshida K, Kuwabara R, Mine Y, Aoki M, Morioka I.	Association between scanning frequency of flash glucose monitoring and continuous glucose monitoring-derived glycemic makers in children and adolescents with type 1 diabetes.	Pediatrics International	2021;63(2):154-159.	1.617
3	Yoshida K, Urakami T, Morioka I.	Glucagon stimulation test as a possible predictor of residual β -cell function.	Pediatrics International	2021;63(5):536-542.	1.617
4	Tonouchi R, Okada T, Abe Y, Kazama M, Kuromori Y, Yoshino Y, Iwata F, Hara M, Saito E, Morioka I.	Subclass distribution of low-density lipoprotein triglyceride and the clustering of metabolic syndrome components in Japanese children.	Pediatrics International	2021;63(6):664-670.	1.617
5	Watanabe H, Kanemaru K, Hagikura K, Matsumoto T, Ayusawa M, Morioka I	Soluble factors released by dedifferentiated fat cells reduce the functional activity of iPS cell-derived cardiomyocytes.	Cell Biology International	2021;45(2):295-304.	4.473
6	Kyo K, Takano C, Kasuga Y, Ogawa E, Ishige M, Pham NTK, Okitsu S, Ushijima H, Urakami T, Fuchigami T, Hayakawa S, Morioka I.	Severe rotavirus gastroenteritis in children older than 5 years after vaccine introduction.	Journal of Infection and Chemotherapy	2021;27(4):598-603.	2.065
7	Tanimura K, Shi Y, Uchida A, Uenaka M, Imafuku H, Ikuta T, Fujioka K, Morioka I, Deguchi M, Minematsu T, Yamada H.	Immunoglobulin fetal therapy and neonatal therapy with antiviral drugs improve neurological outcome of infants with symptomatic congenital cytomegalovirus infection.	Journal of Reproductive Immunology	2021;143:103263.	3.993
8	Abe Y, Kusano C, Takano C, Morioka I, Gotoda T.	Association between Helicobacter pylori antibody-positive status and extragastric diseases in Japanese junior high school students.	Pediatrics International	2021;63(9):1087-1094.	1.617
9	Bonora E, Chakrabarty S, Kellaris G, Tsutsumi M, Taniguchi-Ikeda M, Bianco F, Bergamini C, Ullah F, Isidori F, Liparulo I, Diquigiovanni C, Masin L, Rizzardi N, Cratere MG, Boschetti E, Papa V, Maresca A, Cenacchi G, Casadio R, Martelli P, Matera I, Ceccherini I, Fato R, Raiola G, Arrigo S, Signa S, Sementa AR, Severino M, Striano P, Fiorillo C, Goto T, Uchino S, Oyazato Y, Nakamura H, Mishra SK, Yeh YS, Kato T, Nozu K, Tanboon J, Morioka I, Nishino I, Toda T, Goto Y, Ohtake A, Kosaki K, Yamaguchi Y, Nonaka I, Iijima K, Mimaki M, Kurahashi H, Raams A, MacInnes A, Alders M, Engelen M, Linthorst G, de Koning T, den Dunnen W, Dijkstra G, van Spaendonck K, van Gent DC, Aronica EM, Picco P, Carelli V, Seri M, Katsanis N, Duijkers FAM, Taniguchi-Ikeda M, De Giorgio R.	Biallelic variants in LIG3 cause a novel mitochondrial neurogastrointestinal encephalomyopathy.	Brain	2021;144(5):1451-1466.	15.255
10	Fujii-Tezuka R, Ishige-Wada M, Nagoshi N, Okano H, Mugishima H, Takahashi S, Morioka I, Matsumoto T.	Umbilical artery tissue contains p75 neurotrophin receptor-positive pericyte-like cells that possess neurosphere formation capacity and neurogenic differentiation potential.	Regenerative Therapy	2021;16:1-11.	3.651

PUBLICATION LIST 2021
Division of Pediatrics and Child Health

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
11	Okumura A, Ichimura S, Hayakawa M, Arai H, Maruo Y, Kusaka T, Kunikata T, Kumada S, Morioka I.	Neonatal jaundice in preterm infants with bilirubin encephalopathy.	Neonatology	2021;118(3):301-309.	5.106
12	Suzuki J, Urakami T, Morioka I.	Greater insulin resistance in short children born small-for-gestational age than in children with growth hormone deficiency at the early period of growth hormone therapy.	Pediatrics International	2021;63(10):1180-1184.	1.617
13	Nishimura K, Yamana K, Fukushima S, Fujioka K, Miyabayashi H, Murabayashi M, Masunaga K, Okahashi A, Nagano N, Morioka I.	Comparison of two hepatitis B vaccination strategies targeting vertical transmission: A 10-year Japanese multicenter prospective cohort study.	Vaccines	2021;9(1):58.	4.961
14	Okumura A, Kitai M, Arai H, Hayakawa M, Maruo Y, Kusaka T, Kunikata T, Kumada S, Morioka I.	Auditory brainstem response in preterm infants with bilirubin encephalopathy.	Early Human Development	2021;154:105319.	2.699
15	Jimbo S, Fujita Y, Ishii W, Namiki H, Kato M, Komori A, Abe Y, Kamiyama H, Ayusawa M, Morioka I.	Decreased stroke volume and venous return in school children with postural tachycardia syndrome.	The Tohoku Journal of Experimental Medicine	2021;253(3):181-190.	2.547
16	Yamaguchi H, Nozu K, Ishiko S, Nagase H, Ninchoji T, Nagano C, Takeda H, Unzaki A, Ishibashi K, Morioka I, Iijima K, Ishida A.	Multivariate analysis of the impact of weather and air pollution on emergency department visits for nighttime headaches among children: Retrospective, clinical observational study.	BMJ Open	2021;11(4):e046520.	3.007
17	Aoki R, Nagano N, Okahashi A, Ohashi S, Fujinaka Y, Takigawa I, Masunaga K, Morioka I.	Novel physique index for the screening of skeletal dysplasia at birth.	Children	2021;8(5):331.	2.835
18	Ito M, Yagasaki H, Kanezawa K, Shimozawa K, Hirai M, Morioka I.	Incidence and outcomes of refractory immune thrombocytopenic purpura in children: a retrospective study in a single institution.	Scientific Reports	2021;11(1):14263.	4.997
19	Nagano N, Imaizumi T, Akimoto T, Hijikata M, Aoki R, Seimiya A, Okahashi A, Kawakami K, Komatsu A, Kawana K, Morioka I.	Clinical evaluation of a novel urine collection kit using filter paper in neonates: an observational study.	Children	2021;8(7):561.	2.835
20	Ishiguro N, Morioka I, Nakano T, Furukawa M, Tanaka S, Kinoshita M, Manabe A.	Clinical and virological outcomes with baloxavir compared with oseltamivir in paediatric patients aged 6 to <12 years with influenza: an open-label randomised, active-controlled trial protocol.	BMC Infectious Diseases	2021;21(1):777.	3.669
21	Noto T, Nagano N, Kato R, Hashimoto S, Saito K, Miyabayashi H, Sasano M, Sumi K, Yoshino A, Morioka I.	Natural-course evaluation of infants with positional severe plagiocephaly using a three-dimensional scanner in Japan: Comparison with those who received cranial helmet therapy.	Journal of Clinical Medicine	2021;10(16):3531.	4.964
22	Okahashi A, Kobayashi M, Okuyama K, Hiraishi N, Morioka I.	Survey of physician knowledge of congenital cytomegalovirus infection and clinical practices in Japan: A web-based survey.	Medicine	2021;100(44):e27589.	1.817
23	Shimizu S, Ayusawa M, Go H, Nakazaki K, Namiki H, Kasuga Y, Nishimura K, Kanezawa K, Morohashi T, Morioka I.	Characteristics of Kawasaki disease patients during the COVID-19 pandemic in Japan: A single-center observational study.	Children	2021;8(10):913.	2.835

PUBLICATION LIST 2021
Division of Pediatrics and Child Health

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
24	Kobayashi M, Okahashi A, Okuyama K, Hiraishi N, Morioka I.	Awareness and knowledge of congenital cytomegalovirus infection among pregnant women and the general public: a web-based survey in Japan.	Environmental Health and Preventive Medicine	2021;26(1):117.	4.395
25	Yamaguchi H, Nozu K, Ishiko S, Kondo A, Ninchoji T, Nagano C, Takeda H, Unzaki A, Ishibashi K, Morioka I, Nagase H, Iijima K, Ishida A.	Impact of the state of emergency during COVID-19 pandemic in 2020 on asthma exacerbations among children in Kobe city, Japan.	International Journal of Environmental Research and Public Health	2021;18(21):11407.	4.614
26	Yamaguchi H, Nozu K, Ishiko S, Kondo A, Yamamoto N, Tamura A, Aoto Y, Unzaki A, Ishibashi K, Morioka I, Nagase H, Ishida A.	Multivariate analysis of the impact of weather and air pollution on emergency department visits for unprovoked seizure among children: A retrospective clinical observational study.	Epilepsy & Behavior	2021;125:108434.	3.337
27	Mori M, Warabe S, Taguchi T, Hasegawa H, Ishige M, Tanuma N, Hirakawa A, Koike R, Kusuda S.	Study protocol: a multicenter, uncontrolled, open-label study of palivizumab in neonates, infants, and preschool children at high risk of severe respiratory syncytial virus infection.	BMC Pediatrics	2021;21(1):106.	2.567
28	Yoshinaga M, Horigome H, Ayusawa M, Yasuda K, Kogaki S, Doi S, Tateno S, Ohta K, Hokosaki T, Nishihara E, Iwamoto M, Sumitomo N, Ushinohama H, Izumida N, Tauchi N, Kato Y, Kato T, Chisaka T, Higaki T, Yoneyama T, Abe K, Nozaki Y, Komori A, Kawai S, Ninomiya Y, Tanaka Y, Nuruki N, Sonoda M, Ueno K, Hazeki D, Nomura Y, Sato S, Hirono K, Hosokawa S, Takechi F, Ishikawa Y, Hata T, Ichida F, Ohno S, Makita N, Horie M, Matsushima S, Tsutsui H, Ogata H, Takahashi H, Nagashima M.	Electrocardiographic diagnosis of hypertrophic cardiomyopathy in the pre- and post-diagnostic phases in children and adolescents.	Circulation Journal	2021;86 (1):118-127.	3.350
29	Yamanaka MS, Hosokawa Y, Ayusawa M, Hirose N, Kaneoka K.	Epidemiology of sports-related fatalities during organized school sports in Japanese high schools between 2009 and 2018.	PLoS One	2021;16(8):e0256383.	3.752
30	Yamamoto S, Kato M, Watanabe K, Ishimaru S, Hasegawa D, Noguchi M, Hama A, Sato M, Koike T, Iwasaki F, Yagasaki H, Takahashi Y, Kosaka Y, Hashii Y, Morimoto A, Atsuta Y, Hasegawa D, Yoshida N.	Prognostic value of the revised International Prognostic Scoring System five-group cytogenetic abnormality classification for the outcome prediction of hematopoietic stem cell transplantation in pediatric myelodysplastic syndrome.	Bone Marrow Transplantation	2021;56(12):3016-3023.	5.174
31	Kishi I, Nagano N, Katayama D, Imaizumi T, Akimoto T, Fuwa K, Aoki R, Hijikata M, Kayama K, Kato R, Okahashi A, Morioka I.	Successful treatment of hyperbilirubinemia by monitoring serum unbound bilirubin in an extremely preterm infant with bacterial infection.	Clinical Laboratory	2021;67(1):183-186.	1.053
32	Kasuga Y, Nishimura K, Go H, Nakazaki K, Go H, Shimizu S, Kanezawa K, Tanaka M, Oshima T, Morioka I.	Severe olfactory and gustatory dysfunctions in a Japanese pediatric patient with coronavirus disease (COVID-19).	Journal of Infection and Chemotherapy	2021;27(1):110-112.	2.065
33	Takano C, Ishige M, Ogawa E, Nagano N, Morohashi T, Okahashi A, Kawakami K, Komatsu A, Kawana K, Urakami T, Morioka I.	Nutrient management of the intrapartum period in maternal maple syrup urine disease.	Molecular Genetics and Metabolism Reports	2021;26:100711.	2.082
34	Shimizu S, Morohashi T, Takahashi Y, Takahashi S, Morioka I.	Immunoglobulin A nephropathy in a patient with an MYH9-related disorder.	Pediatrics International	2021;63(11):1398-1400.	1.617

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List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
35	Sato Y, Aoki R, Nagano N, Takano C, Seimiya A, Kato R, Ogawa E, Ishige M, Okazaki Y, Murayama K, Morioka I.	Unique and abnormal subependymal pseudocysts in a newborn with mitochondrial disease.	Science Progress	2021;104(2):368504211011873.	1.512
36	Tamura T, Yagasaki H, Nakahara E, Ito M, Ueno M, Kanezawa K, Hirai M, Morioka I.	A Filipino infant with severe neutropenia owing to SRP54 mutations was successfully treated with ethnically mismatched cord blood transplantation from a Japanese cord blood bank.	Annals of Hematology	2021;100(11):2859-2860.	4.030
37	Ueno M, Yagasaki H, Hirai M, Kanezawa K, Ito M, Nakahara E, Morioka I.	Four-year remission despite umbilical cord graft rejection in juvenile myelomonocytic leukemia with PTPN11 mutations.	Pediatric Blood & Cancer	2021;68(8):e29078.	3.838
38	Morioka I, Nakamura H.	Treatment criteria for infants with hyperbilirubinemia in Japan.	Seminars in Perinatology	2021;45(1):151352	3.311
39	Kasuga Y, Kanezawa K, Shimizu S, Nakazaki K, Go H, Nishimura K, Morioka I.	What is the difference in severity of paediatric coronavirus disease 2019?	Acta Paediatrica	2021;110(5):1687-1688.	4.056
40	Ayusawa M, Morioka I, Tremoulet A.	Editorial: Kawasaki Disease.	Frontiers in Pediatrics	2021;8:631157.	3.569
41	Takano C, Grubbs BH, Ishige M, Ogawa E, Morioka I, Hayakawa S, Miki T.	Clinical perspective on the use of human amniotic epithelial cells to treat congenital metabolic diseases with a focus on maple syrup urine disease.	Stem Cells Translational Medicine	2021;10(6):829-835.	7.655
42	Tanimura K, Uchida A, Imafuku H, Tairaku S, Fujioka K, Morioka I, Yamada H.	The current challenges in developing biological and clinical predictors of congenital cytomegalovirus infection.	International Journal of Molecular Sciences	2021;22 (24):13487.	6.208
43	Sato-Shirai I, Ogawa E, Arisaka A, Osaka H, Murayama K, Kuwajima M, Watanabe M, Ichimoto K, Ohtake A, Kumada S.	Valine-restricted diet for the patients with ECHS1 deficiency: Divergent clinical outcomes in two Japanese siblings.	Brain & Development	2021;43(2):308-313.	2.272
44	Fuwa K, Tabata N, Ogawa R, Nagano N, Yamaji N, Ota E, Namba F.	Umbilical cord milking versus delayed cord clamping in term infants: a systematic review and meta-analysis.	Journal of Perinatology	2021;41(7):1549-1557.	3.225
45	Okumura A, Kitai Y, Arai H, Hayakawa M, Maruo Y, Kusaka T, Kunikata T, Kumada S, Morioka I.	Magnetic resonance imaging findings in preterm infants with bilirubin encephalopathy beyond three years of corrected age.	Pediatric Neurology	2021;121:56-58.	4.210
46	Mikami Y, Fuwa K, Arima E, Suda Y, Yanagihara I, Ibara S.	Validation of the loop-mediated isothermal amplification method for rapid and sensitive detection of Ureaplasma species in respiratory tracts of preterm infants.	PLoS One	2021;16(3):e0247618.	3.752
47	Arai-Ichinoi N, Kikuchi A, Wada Y, Sakamoto O, Kure S.	Hypoglycemic attacks and growth failure are the most common manifestations of citrin deficiency after 1 year of age.	Journal of Inherited Metabolic Disease	2021;44(4):838-846.	4.750

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.-2008 Aug.: Assistant Professor
Department of Dermatology,
University of Tokyo
Hospital Tokyo, Japan
- 2005 Apr.-2007 Apr.: Full-time physician
National Sagami 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 below.

- 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.

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List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Morita A, Takahashi H, Ozawa K, Imafuku S, Takekuni N, Takahashi K, Matsuyama T, Okubo Y, Zhao Y, Kitamura S, Takei K, Yokoyama M, Hayashi N, Terui T.	Long-term analysis of adalimumab in Japanese patients with moderate to severe hidradenitis suppurativa: Open-label phase 3 results.	Journal of Dermatology	2021;48(1):3-13.	3.468
2	Fujita H, Ohtsuki M, Morita A, Nagao R, Seko N, Matsumoto K, Tani Y, Terui T.	Safety and effectiveness of secukinumab in psoriasis vulgaris and psoriatic arthritis: Real-world evidence in Japan.	Journal of Dermatology	2021;48(2):175-183.	3.468
3	Hayama K, Fujita H, Asai-Sato M, Kawana K, Terui T.	Successful treatment of intractable chronic spontaneous urticaria with omalizumab in a patient with ovarian cancer.	European Journal of Dermatology	2021;31(1):100-101.	2.805
4	Hayama K, Fujita H, Iwatsuki K, Terui T.	Improved quality of life of patients with generalized pustular psoriasis in Japan: A cross-sectional survey.	Journal of Dermatology	2021;48(2):203-206.	3.468
5	Ikumi N, Fujita H, Terui T.	Guselkumab improves joint pain in patients with pustulotic arthro-osteitis: A retrospective pilot study.	Journal of Dermatology	2021;48(2):199-202.	3.468
6	Ohtsuka M, Hamada T, Miyagaki T, Shimauchi T, Yonekura K, Kiyohara E, Fujita H, Izutsu K, Okuma K, Kawai K, Koga H, Sugaya M.	Outlines of the Japanese Guidelines for the Management of Primary Cutaneous Lymphomas 2020.	Journal of Dermatology	2021;48(2):e49-e71.	3.468
7	Izaki S, Hayama K, Fujita H.	A case of contact dermatitis due to dental surface anaesthetic.	Contact Dermatitis	2021;84(3):210-212.	6.419
8	Nishimura-Tagui M, Hayama K, Fujita H, Miyamoto Y, Ishii N, Terui T.	Disseminated Mycobacterium massiliense skin infection in an immunocompromised patient requiring long-term treatment.	Journal of Dermatology	2021;48(4):e201-e202.	3.468
9	Toyoshima S, Sakamoto-Sasaki T, Kurosawa Y, Hayama K, Matsuda A, Watanabe Y, Terui T, Gon Y, Matsumoto K, Okayama Y.	miR103a-3p in extracellular vesicles from FcεRI-aggregated human mast cells enhances IL-5 production by group 2 innate lymphoid cells.	Journal of Allergy and Clinical Immunology	2021;147(5):1878-1891.	14.290
10	Nishimori N, Toyoshima S, Sasaki-Sakamoto T, Hayama K, Terui T, Okayama Y.	Serum level of hemokinin-1 is significantly lower in patients with chronic spontaneous urticaria than in healthy subjects.	Allergology International	2021;70(4):480-488.	7.478
11	Ikumi N, Hayama K, Terui T, Kitamura N, Takei M, Fujita H.	Retrospective study of the differences in the management for pustulotic arthro-osteitis in patients with palmoplantar pustulosis between dermatologists and rheumatologists.	Journal of Dermatology	2021;48(11):e551- e553.	3.468
12	Okubo Y, Morishima H, Zheng R, Terui T.	Sustained efficacy and safety of guselkumab in patients with palmoplantar pustulosis through 1.5 years in a randomized phase 3 study.	Journal of Dermatology	2021;48(12):1838-1853.	3.468
13	Ikumi N, Terui T, Fujita H.	Peripheral arthritis presenting pencil-in-cup deformity in a patient with palmoplantar pustulosis.	Journal of Dermatology	2021;48(12):e612- e613.	3.468

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List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
14	Nagaoka-Takatori A, Ishii M, Hayama K, Obinata D, Yamaguchi K, Takahashi S, Fujita H.	A Case of IgA Vasculitis During Nivolumab Therapy for Renal Cell Carcinoma.	Clinical cosmetic and investigational dermatology	2021;24(14):1885-1888.	2.765

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 hepatectomy (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.

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List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Midorikawa Y, Takayama T, Higaki T, Aramaki O, Teramoto K, Yoshida N, Mitsuka Y, Tsuji S.	Comparison of the surgical outcomes in patients with synchronous versus metachronous multiple hepatocellular carcinoma.	BioScience Trends	2021;14(6):415-421	9.083
2	Yamazaki S, Takayama T, Matsuno Y, Mitsuka Y, Yoshida N, Moriguchi M, Higaki T.	Subcuticular sutures reduce surgical site infection after repeat liver resection: a matched cohort analysis	BioScience Trends	2021;14(6):422-427	9.083
3	Midorikawa Y, Takayama T, Higaki T, Aramaki O, Yoshida N, Teramoto K, Tsuji S.	Selection of patients with esophageal varices for liver resection of hepatocellular carcinoma	BioScience Trends	2021;14(6):436-442	9.083
4	Matsuno Y, Yamazaki S, Mitsuka Y, Abe H, Moriguchi M, Higaki T, Takayama T.	Subcuticular Sutures Versus Staples for Wound Closure in Open Liver Resection: A Randomised Clinical Trial.	World Journal of Surgery	2021;45(2):571-580	3.282
5	Izu A, Sugitani M, Kinukawa N, Matsumura H, Ogawa M, Moriyama M, Yamazaki S, Takayama T, Hano H, Yao T, Kanda H, Suzuki K, Hayashi S, Ariizumi S, Yamamoto M, Morishita Y, Matsumoto K, Nakamura N, Nakano M.	Hepatocellular adenoma, approximately half and predominantly inflammatory subtype, in 38 Japanese patients with several differences in age, gender, and clinical background factors from Western populations	Hepatology Research	2021;51(3):336-342	4.942
6	Harada M, Aramaki O, Midorikawa Y, Higaki T, Nakayama H, Moriguchi M, Takayama T.	Impact of patient age on outcome after resection for hepatocellular carcinoma	BioScience Trends	2021;15(1):33-40	9.083
7	Hagiwara K, Hayashi S, Suzuki T, Song K, Takayama T.	Urinary bladder fistula following laparoscopic inguinal hernioplasty: a case report.	BMC Surgery	2021;21(1):183	2.030
8	Takayama T, Yamazaki S, Matsuyama Y, Midorikawa Y, Shiina S, Izumi N, Hasegawa K, Kokudo N, Sakamoto M, Kubo S, Kudo M, Murakami T, Nakashima O, Liver Cancer Study Group of Japan.	Prognostic grade for resecting hepatocellular carcinoma: multicentre retrospective study.	British Journal of Surgery	2021;108(4):412-418	11.782
9	Yamazaki S, Takayama T, Mitsuka Y, Yoshida N, Higaki T.	Criteria for liver resection for metastasis from bile duct cancer.	Surgery Today	2021;51(5):727-732	2.540
10	Kuniyoshi N, Imazu H, Hayama J, Nomura S, Kagawa A, Hamana S, Osawa R, Oki Y, Fujisawa M, Aoki H, Higaki T, Takayama T, Ohni S, Moriyama M.	Intracholecystic Papillary Neoplasm of the Gallbladder Preoperatively Diagnosed by Endoscopic Ultrasonography and Peroral Cholangioscopy	ACG Case Reports Journal	2021;8(5):e00574	Not available
11	Takayama T, Midorikawa Y, Higaki T, Nakayama H, Moriguchi M, Aramaki O, Yamazaki S, Aoki M, Kogure K, Makuuchi M.	Algorithm for Resecting Hepatocellular Carcinoma in the Caudate Lobe	Annals of Surgery	2021;273(6):e222-e229	13.787
12	Kanai H, Furuya M, Yoneji K, Hagiwara K, Nukaya A, Kondo M, Aso T, Fujii A, Sasai K.	Canine idiopathic chylothorax: Anatomic characterization of the pre- and postoperative thoracic duct using computed tomography lymphography	Veterinary Radiology & Ultrasound	2021;62(4):429-436	1.318

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List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
13	Abe H, Midorikawa Y, Higaki T, Yamazaki S, Aramaki O, Nakayama H, Moriguchi M, Kanda T, Moriyama M, Okada M, Nishimaki H, Sugitani M, Tsuji S, Takayama T.	Magnetic resonance elastography-based prediction of hepatocellular carcinoma recurrence after curative resection.	Surgery	2021;170(1):167-172	4.348
14	Shibutani K, Okada M, Tsukada J, Ibukuro K, Abe H, Matsumoto N, Midorikawa Y, Moriyama M, Takayama T.	Predictive value of combined computed tomography volumetry and magnetic resonance elastography for major complications after liver resection	Abdominal Radiology	2021;46(7):3193-3204	2.886
15	Yamazaki S, Takayama T, Aoki M, Yoshida N, Higaki T.	High dorsal resection for hepatocellular carcinoma: surgical plane and outcomes.	Quantitative Imaging in Medicine and Surgery	2021;11(8):3792-3796	4.630
16	Iwasaki A, Shinozaki-Ushiku A, Kunita A, Yamazawa S, Sato Y, Yamashita H, Fukayama M, Seto Y, Ushiku T.	Human Leukocyte Antigen Class I Deficiency in Gastric Carcinoma: An Adaptive Immune Evasion Strategy Most Common in Microsatellite Instable Tumors	The American Journal of Surgical Pathology	2021;45(9):1213-1220	Not available
17	Aramaki O, Takayama T, Moriguchi M, Sakamoto H, Yodono H, Kokudo N, Yamanaka N, Kawasaki S, Sasaki Y, Kubota K, Otsuji E, Tanaka S, Matsuyama Y, Fujii M, ACE 500 study group.	Arterial chemoembolisation with cisplatin versus epirubicin for hepatocellular carcinoma (ACE 500 study): A multicentre, randomised controlled phase 2/3 trial.	European Journal of Cancer	2021;157:373-382	10.002
18	Shibutani K, Okada M, Tsukada J, Hyodo T, Ibukuro K, Abe H, Matsumoto N, Midorikawa Y, Moriyama M, Takayama T.	A proposed model on MR elastography for predicting postoperative major complications in patients with hepatocellular carcinoma	BJR Open	2021;3(1):20210019	Not available
19	Ishigami H, Tsuji Y, Shinohara H, Koderu Y, Kanda M, Yabusaki H, Ito S, Imano M, Yamashita H, Hidemura A, Yamaguchi H, Fukagawa T, Oba K, Kitayama J, Seto Y.	Intraperitoneal Chemotherapy as Adjuvant or Perioperative Chemotherapy for Patients with Type 4 Scirrhous Gastric Cancer: PHOENIX-GC2 Trial.	Journal of Clinical Medicine	2021;10(23):5666	4.964
20	Hayashi S, Takayama T, Ikarashi M, Hagiwara K, Matsuno Y, Suzuki T.	Transanal minimally invasive surgery for rectal neuroendocrine tumors	Surgical Endoscopy	2021;35(12):6746-6753	3.453
21	Takayama T, Hasegawa K, Izumi N, Kudo M, Shimada M, Yamanaka N, Inomata M, Kaneko S, Nakayama H, Kawaguchi Y, Kashiwabara K, Tateishi R, Shiina S, Koike K, Matsuyama Y, Omata M, Makuuchi M, Kokudo N.	Surgery versus Radiofrequency Ablation for Small Hepatocellular Carcinoma: A Randomized Controlled Trial (SURF Trial)	Liver Cancer	2021;11(3):209-218	12.430

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.

are also planning more basic cardiovascular research, including investigation of ischemia-reperfusion injury in a murine heterotopic heart transplantation model.

[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

PUBLICATION LIST 2021
Division of Cardiovascular Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kamata K, Hao H, Ishige T, Shimodai-Yamada S, Sezai A, Taoka M, Osaka S, Suzuki K, Tanaka M.	Exophytic cavernous hemangioma arising from the right ventricle: Report of a rare case	PATHOLOGY INTERNATIONAL	2021;71(4):267-271.	2.121
2	Iida A, Sezai A, Orime Y, Nakata K, Takamori T, Taniguchi Y, Shiono M.	An Experimental Study of the Effects of IABP on Coronary Artery Bypass Graft Flow Waveform	Annals of Thoracic and Cardiovascular Surgery	2021;27(3):176-184.	1.889
3	Sezai A, Taoka M, Osaka S, Kitazumi Y, Suzuki K, Kamata K, Tanaka M.	A Comparative Prospective Observational Study on the Use of Direct Oral Anticoagulants after Cardiac Surgery for the Management of Atrial Fibrillation	Annals of Thoracic and Cardiovascular Surgery	2021;27(3):191-199.	1.889
4	Saito Y, Matsumoto N, Aizawa Y, Fukamachi D, Kitano D, Toyama K, Fujito H, Sezai A, Okumura Y.	Prognostic Value of Liver Stiffness Measured by Two-Dimensional Elastography in Acute Decompensated Heart Failure with Preserved Ejection Fraction	International Heart Journal	2021;62(4):821-828.	1.823
5	Hata M, Wakui S, Ishii Y, Hinoura R, Isaka S, Tanaka M.	Suturing Fenestration of the Left Subclavian Artery Orifice in Frozen Elephant Trunk Procedure	THORACIC AND CARDIOVASCULAR SURGEON	2021;69(4):362-365.	1.756
6	Machii Y, Sezai A, Taoka M, Osaka S, Suzuki K, Onuki Y, Tanaka M.	Native Valve Attachment to the Prosthetic Valve 2.5 Years After the Third Tricuspid Valve Replacement	ANNALS OF THORACIC SURGERY	2021;112(5):e329-e331.	5.113
7	Machii Y, Shimada N, Okamoto T, Tanaka M.	A case of right ventricular infarction due to acute type A aortic dissection with anomalous aortic origin of the right coronary artery from the left sinus of Valsalva	JOURNAL OF CARDIAC SURGERY	2021;36(12):4776-4778.	1.778

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 2021
Division of Respiratory Surgery

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

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 2021
Division of Pediatric Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Akimoto T, Hara M, Morita A, Uehara S, Nakajima H.	Relationship between nutritional Scales and Prognosis in elderly patients after acute ischemic stroke: Comparison of controlling nutritional status score and Geriatric nutritional risk index	Annals of nutrition and metabolism	2021;77(2):116-123	5.923
2	Ogawa-Ochiai K, Osuga K, Nozaki T, Tazuke Y, Sakai S, Uehara S, Hoshi R, Ishikawa H, Yoshimura K, Okuyama H.	Effect of Japanese Kampo medicine, eppikajutsuto, in patients with lymphatic malformation: A retrospective observational study.	Medicine	2021;100(51):e28420	1.817
3	Iwamoto M, Koshinaga T, Fujita E, Hanada M, Uehara S, Moriyama M.	Ileal Dieulafoy lesion arose 15 years after partial small bowel resection for meconium obstruction of the neonate: a case report.	BMC pediatrics	2021;21(1):437	2.567
4	Hoshi R, Uehara S, Hashimoto M, Hosokawa T, Kawashima H, Kaneda H, Hoshino M, Koshinaga T.	Diagnosis and management of genital injuries in girls: 14-year experience	Pediatrics International	2021;63(5):523-528	1.617
5	Yamaoka B, Nagasaki-Maeoka E, Uekusa S, Hidaka A, Hijikata K, Kato R, Fujiwara K, Koshinaga T, Uehara S.	Exosomal miR-214-3p as a potential novel biomarker for rhabdoid tumor of the kidney	Pediatric Surgery International	2021;37(12):1783-1790	2.003
6	Kawano T, Souzaki R, Sumida W, Shimojima N, Hishiki T, Kinoshita Y, Uchida H, Tajiri T, Yoneda A, Oue T, Kuroda T, Hirobe S, Koshinaga T, Hiyama E, Nio M, Inomata Y, Taguchi T, Ieiri S.	Current thoracoscopic approach for mediastinal neuroblastoma in Japan- results from nationwide multicenter survey	Pediatric Surgery International	2021;37(21):1651-8	2.003
7	Haruta M, Arai Y, Okita H, Tanaka Y, Takimoto T, Kamijo T, Oue T, Souzaki R, Taguchi T, Kuwahara Y, Chin M, Nakadate H, Hiyama E, Ishida Y, Koshinaga T, Kaneko Y.	Frequent breakpoints of focal deletion and uniparental disomy in 22q11.1 or 11.2 segmental duplication region reveal distinct tumorigenesis in rhabdoid tumor of the kidney	Genes chromosomes & cancer	2021;60(8):546-558	4.263

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 2021

Division of Breast and Endocrine Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Enomoto K, Fukumoto S, Mori S, Nozaki F, Hara Y, Tada K.	Survival With Surgery Is Superior to Survival Without Surgery in Breast Cancer Patients Aged 85 years or Older: A Retrospective Study.	American Surgeon	2021;87(11):1746-1751.	1.002
2	Murayama T, Takeuchi Y, Yamawaki K, Natsume T, Li M, Marcela RN, Nishimura T, Kogure Y, Nakata A, Tominaga K, Sasahara A, Yano M, Ishikawa S, Ohta T, Ikeda K, Horie-Inoue K, Inoue S, Seki M, Suzuki Y, Sugano S, Enomoto T, Tanabe M, Tada KI, Kanemaki MT, Okamoto K, Tojo A, Gotoh N.	MCM10 compensates for Myc-induced DNA replication stress in breast cancer stem-like cells.	Cancer Science	2021;112(3):1209-1224	6.518

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 2021

Division of Plastic and Reconstructive Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kashimura T, Yoshida K, Soejima K.	A Novel Technique of Negative Pressure Wound Therapy for Pharyngeal Cutaneous Fistulas Around Tracheostomas	Journal of craniofacial surgery	2021;32(8):e765-e767.	1.172
2	Kashimura T, Nagasaki K, Horigome M, Yoshida K, Soejima K.	Selection of Artificial Dermis for Shortening Treatment Period: Integra versus Pelnac	Plastic and reconstructive surgery- Global open	2021;10;9(6):e3599.	Not available

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 endovascular 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.

- Department of Neurosurgery, Johns Hopkins University, Baltimore, USA
- Division of Neurosurgery, University of Toronto, Toronto, Canada
- Ludwig-Maximilians Universität, Institute for Stroke and Dementia Research, Munich, German

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

PUBLICATION LIST 2021

Division of Neurosurgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Tatsuoka J, Igarashi T, Kajimoto R, Kobayashi M, Moro N, Suma T, Oshima H, Yoshino A.	High-dose-infliximab-associated Cerebral Venous Sinus Thrombosis: A Case Report and Review of the Literature	Internal Medicine	2021;60(16):2677-2681.	1.282
2	Sumi K, Suma T, Yoshida R, Kajimoto R, Kobayashi M, Katsuhara T, Hirayama K, Tang X, Otani N, Yoshino A.	Massive intracranial hemorrhage caused by intraventricular meningioma: case report	BMC Neurology	2021;21(1):25.	2.903
3	Yamamuro S, Takahashi M, Satomi K, Sasaki N, Kobayashi T, Uchida E, Kawauchi D, Nakano T, Fujii T, Narita Y, Kondo A, Wada K, Yoshino A, Ichimura K, Tomiyama A.	Lomustine and nimustine exert efficient antitumor effects against glioblastoma models with acquired temozolomide resistance	CANCER SCIENCE	2021;112(11):4736-4747.	6.518
4	Sumi K, Otani N, Mori F, Yamamuro S, Oshima H, Yoshino A.	Venous hypertension caused by a meningioma involving the sigmoid sinus: case report	BMC Neurology	2021;21(1):119.	2.903
5	Yamamuro S, Negishi H, Shijo K, Yoshino A	Treatment-responsive case of focal clivus IgG4-related hypertrophic pachymeningitis mimicking meningioma; case report.	ACTA NEUROLOGICA BELGICA	2021;121(5):1395-1397.	2.471
6	Kanamori M, Takami H, Yamaguchi S, Sasayama T, Yoshimoto K, Tominaga T, Inoue A, Ikeda N, Kambe A, Kumabe T, Matsuda M, Tanaka S, Natsumeda M, Matsuda K-I, Nonaka M, Kurihara J, Yamaoka M, Kagawa N, Shinojima N, Negoto T, Nakahara Y, Arakawa Y, Hatazaki S, Shimizu H, Yoshino A, Abe H, Akimoto J, Kawanishi Y, Suzuki T, Natsume A, Nagane M, Akiyama Y, Keino D, Fukami T, Tomita T, Kanaya K, Tokuyama T, Izumoto S, Nakada M, Kuga D, Yamamoto S, Anei R, Uzuka T, Fukai J, Kijima N, Terashima K, Ichimura K, Nishikawa R.	So-called bifocal tumors with diabetes insipidus and negative tumor markers: are they all germinoma?	NEURO-ONCOLOGY	2021;23(2):295-303.	13.029

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 percutaneous 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 2021
Division of Orthopaedic Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Koda M, Hanaoka H, Fujii Y, Hanawa M, Kawasaki Y, Ozawa Y, Fujiwara T, Furuya T, Ijima Y, Saito J, Kitamura M, Miyamoto T, Ohtori S, Matsumoto Y, Abe T, Takahashi H, Watanabe K, Hirano T, Ohashi M, Shoji H, Mizouchi T, Kawahara N, Kawaguchi M, Orita Y, Sasamoto T, Yoshioka M, Fujii M, Yonezawa K, Soma D, Taneichi H, Takeuchi D, Inami S, Moridaira H, Ueda H, Asano F, Shibao Y, Aita I, Takeuchi Y, Mimura M, Shimbo J, Someya Y, Ikenoue S, Sameda H, Takase K, Ikeda Y, Nakajima F, Hashimoto M, Hasue F, Fujiyoshi T, Kamiya K, Watanabe M, Katoh H, Matsuyama Y, Hasegawa T, Yoshida G, Arima H, Yamato Y, Oe S, Togawa D, Kobayashi S, Akeda K, Kawamoto E, Imai H, Sakakibara T, Sudo A, Ito Y, Kikuchi T, Takigawa T, Morita T, Tanaka N, Nakanishi K, Kamei N, Kotaka S, Baba H, Okudaira T, Konishi H, Yamaguchi T, Ito K, Katayama Y, Matsumoto T, Matsumoto T, Kanno H, Aizawa T, Hashimoto K, Eto T, Sugaya T, Matsuda M, Fushimi K, Nozawa S, Iwai C, Taguchi T, Kanchiku T, Suzuki H, Nishida N, Funaba M, Sakai T, Imajo Y, Yamazaki M.	Randomized trial of granulocyte colony-stimulating factor for spinal cord injury.	Brain	2021;144(3):789-799.	15.255
2	Date S, Nakanishi K, Fujiwara Y, Yamada K, Kamei N, Kurumadani H, Yoshimura M, Ueda A, Ishii Y, Ohta R, Kotaka S, Tsuchikawa Y, Nakamae T, Ishikawa M, Hirao K, Fujimoto Y, Adachi N, Sunagawa T.	Quantitative evaluation of abnormal finger movements in myelopathy hand during the grip and release test using gyro sensors.	PLoS One	2021;16(10):e0258808.	3.752
3	Yamada K, Nakamae T, Nakanishi K, Kamei N, Hiramatsu T, Okuda T, Hashimoto T, Ujigo S, Morisako T, Tsuchikawa Y, Maruyama T, Fukui H, Adachi N, Shimbo T, Olmarker K, Fujimoto Y.	Long-term outcome of targeted therapy for low back pain in elderly degenerative lumbar scoliosis.	European Spine Journal	2021;30(7):2020-2032.	2.721
4	Lee H, Sumino T, Suzuki T, Sano Y, Endo N, Chang Y, Fujimaki H, Ryu K, Nakanishi K.	The medial tangent of the proximal tibia is a suitable extra-articular landmark in determining the tibial anteroposterior axis	BMC Musculoskeletal Disorders	2021;22(1):346.	2.562
5	Lee H, Ishikawa H, Shibuya T, Takai C, Nemoto T, Nomura Y, Abe A, Otani H, Ito S, Nakazono K, Abe K, Nakanishi K, Murasawa A.	The Combination of Modified Mitchell's Osteotomy and Shortening Oblique Osteotomy for Patients with Rheumatoid Arthritis: An Analysis of Changes in Plantar Pressure Distribution	International Journal of Environmental Research and Public Health	2021;18(19):9948.	4.614
6	Matsumoto K, Tokuhashi Y, Sawada H, Sosuke S, Hirata K, Ozaki R, Ohni S, Nishimaki H, 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):558-562	1.805
7	Nagai T, Wakabayashi H, Maeda K, Momosaki R, Nishiyama A, Murata H, Uei H.	Influence of potentially inappropriate medications on activities of daily living for patients with osteoporotic vertebral compression fractures: A retrospective cohort study	Journal of Orthopaedic Science	2021;26(3):448-452	1.805
8	Nagai T, Uei H, Nakanishi K.	Association among Geriatric Nutritional Risk Index and functional prognosis in elderly patients with osteoporotic vertebral compression fractures	Indian journal of orthopaedic	2021;21;56(2):338-344	1.038
9	Tomizuka Y, Schmidt CC, Davidson AJ, Spicer CS, Smolinski MP, Mauro RJ, Delserso SM, Szabo LH, Smolinski PJ, Miller MC.	Partial Distal Biceps Avulsion Results in a Significant Loss of Supination Force.	Journal of Bone and Joint Surgery American Volume	2021;103(9):812-819.	6.558

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 School 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 2021
Division of Rehabilitation Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Nagai T, Wakabayashi H, Maeda K, Momosaki R, Nishiyama A, Murata H, Uei H.	Influence of potentially inappropriate medications on activities of daily living for patients with osteoporotic vertebral compression fractures: A retrospective cohort study	Journal of Orthopaedic Science	2021;26(3):448-452	1.805
2	Nagai T, Uei H, Nakanishi K	Association among Geriatric Nutritional Risk Index and functional prognosis in elderly patients with osteoporotic vertebral compression fractures	Indian journal of orthopaedic	2021;21;56(2):338-344	1.038

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 pharmaceutical 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 (microdissection and single 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 inhibitor 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 2021
Division of Obstetrics and Gynecology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Maebayashi A, Hayashi N, Kamata S, Sugita A, Tang X, Kawana K.	Thrombus formation and ischemic necrosis of the uterus and adnexa due to purpura fulminans: A case report.	Journal of Obstetrics and Gynaecology Research	2021;47(12):4478-4483	1.697
2	Nagano N, Imaizumi T, Akimoto T, Hijikata M, Aoki R, Seimiya A, Okahashi A, Kawakami K, Komatsu A, Kawana K, Morioka I.	Clinical Evaluation of a Novel Urine Collection Kit Using Filter Paper in Neonates: An Observational Study	Children (Basel)	2021;8(7):561	2.835
3	Oda H, Nagamatsu T, Cabral H, Miyazaki T, Iriyama T, Kawana K, Fujii T, Osuga Y.	Thrombomodulin promotes placental function by up-regulating placental growth factor via inhibition of high-mobility-group box 1 and hypoxia-inducible factor 1 α	Placenta	2021;111:1-9	3.287
4	Ikeda Y, Adachi K, Tomio K, Eguchi-Kojima S, Tsuruga T, Uchino-Mori M, Taguchi A, Komatsu A, Nagamatsu T, Kawana-Tachikawa A, Uemura Y, Igimi S, Osuga Y, Fujii T, and Kawana K.	A placebo-controlled, double-blind randomized (Phase IIB) trial of oral administration with HPV16 E7-expressing Lactobacillus, GBLB101c, for treatment of cervical intraepithelial neoplasia grade 2 (CIN2)	Vaccines	2021;9(4):329	4.961
5	Tokunaga H, Mikami M, Nagase S, Kobayashi Y, Tabata T, Kaneuchi M, Satoh T, Hirashima Y, Matsumura N, Yokoyama Y, Kawana K, Kyo S, Aoki D, Katabuchi H.	The 2020 Japan Society of Gynecologic Oncology guidelines for the treatment of ovarian cancer, fallopian tube cancer, and primary peritoneal cancer	Journal of Gynecologic Oncology	2021;32(2):e49	4.756
6	Kawakami K, Tanaka Y, Ikeda Y, Komatsu A, Kobayashi O, Nakajima T, Nakao T, Takeya C, Asai-Sato M, Chishima F, Iwata M, Kawana K	Is routine X-ray pelvimetry of value to decide on mode of delivery for women with labor dystocia?	Clinical and Experimental Obstetrics & Gynecology	2021;48(2):317-322	0.192
7	Kawata A, Taguchi A, Baba S, Miyamoto Y, Tanikawa M, Sone K, Tsuruga T, Mori M, Oda K, Kawana K, Osuga Y, Fujii, T.	A low preoperative albumin-to-globulin ratio is a negative prognostic factor in patients with surgically treated cervical cancer	International Journal of Clinical Oncology	2021;26(5):980-985	3.850
8	Takano C, Ishige M, Ogawa E, Nagano N, Morohashi T, Okahashi A, Kawakami K, Komatsu A, Kawana K, Urakami T, Morioka I.	Nutrient management in the intrapartum period in maternal maple syrup urine disease.	Molecular Genetics and Metabolism Reports	2021;26:100711	2.082
9	Hayama K, Fujita H, Asai-Sato M, Kawana K, Terui T.	Successful treatment of intractable chronic spontaneous urticaria with omalizumab in a patient with ovarian cancer.	European Journal of Dermatology	2021;31(1):100-101	2.805
10	Oda H, Nagamatsu T, Schust DJ, Cabral H, Miyazaki T, Iriyama T, Kawana K, Osuga Y, Fujii T.	Recombinant Thrombomodulin Attenuates Preeclamptic Symptoms by Inhibiting High-Mobility Group Box 1 in Mice.	Endocrinology	2021;162(4):bqaa248.	5.051

Division of Urology

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

Urologic Oncology, Voiding dysfunction and Urogynecology



The research fields of Satoru Takahashi, M.D., Ph.D. include urologic oncology, voiding dysfunction and urogynecology. The main research focus in urologic oncology is androgen receptors (AR) concerning the development and progression of prostate cancer which include establishment of a new therapeutic agent.

Androgen receptors and prostate cancer¹

We investigated the role of OCT1 in castration-resistant prostate cancer (CRPC) using AR-positive 22Rv1 cells. OCT1 knockdown inhibited cell proliferation and migration. We identified four AR and OCT1-target genes (DLGAP5, KIF15, NCAPG, and NUF2) and found that DLGAP5 and NUF2 knockdown also suppressed cell growth and migration. DLGAP5 overexpression was associated with poor cancer-specific survival in prostate cancer patients, particularly in CRPC cases. These findings suggest that AR/OCT1-regulated genes may play a crucial role in CRPC progression.

Analysis of surgical outcomes in pelvic organ prolapse^{2,3}

This Japanese study from April 2014 to March 2015 compared tension-free vaginal mesh surgery (TVM) and laparoscopic sacrocolpopexy (LSC) for treating pelvic organ prolapse. Out of 3,023 patients, TVM cases were older and had higher adverse events (7.1% vs. 1.8%), notably in genitourinary complications (5.7% vs. 1.1%). TVM was quicker (150 vs. 286 minutes) and cheaper. Both methods effectively treated the condition, but the vaginal mesh is recommended for high-risk, elderly patients, while LSC is better for younger, sexually active patients. As LSC emerges as a preferred POP treatment over transvaginal mesh, we are assessing its initial outcomes, noting reduced surgical time using a 'tacker' device during fixation.

Developing guidelines for female lower urinary tract symptoms and investigating the effects of drug use^{4,5}

In September 2019, we established the "Japanese Clinical Guidelines for Female Lower Urinary Tract Symptoms (second edition)." This guideline focuses on female urinary issues beyond incontinence, addressing 26 clinical topics, including symptom definition, epidemiology, pathology, diagnosis, and treatment methods. Depending on the specifics of the symptoms, treatments such as measuring residual urine, botulinum toxin injections, or surgery are recommended.

Additionally, we evaluated the effectiveness of mirabegron 50 mg for women with overactive bladder, which includes urgency urinary incontinence or mixed urinary incontinence. Analyzing data from two Japanese studies, we found that mirabegron 50 mg significantly reduced daily micturition, improved other symptoms and quality of life. Thus, mirabegron 50 mg effectively alleviated the overactive bladder symptoms in these women.

Future outlook

Our future goals include elucidating the progression mechanism of refractory prostate cancer, developing compounds targeting it, and aiming to make pelvic organ prolapse surgeries more minimally invasive. We also aim to evaluate and utilize the treatment outcomes for prostate cancer, urothelial carcinoma, and renal cancer at our facility for future therapies. Furthermore, we are introducing minimally invasive surgeries for benign prostatic hyperplasia and are currently assessing their effectiveness.

1. Yamamoto S, Takayama KI, Obinata D, et al. Identification of new octamer transcription factor 1-target genes upregulated in castration-resistant prostate cancer. *Cancer Sci* 2019;110(11):3476-3485. DOI: 10.1111/cas.14183.
2. Obinata D, Sugihara T, Yasunaga H, et al. Tension-free vaginal mesh surgery versus laparoscopic sacrocolpopexy for pelvic organ prolapse: Analysis of perioperative outcomes using a Japanese national inpatient database. *Int J Urol* 2018;25(7):655-659. DOI: 10.1111/iju.13587.
3. Yoshizawa T, Mochida J, Yamaguchi K, et al. Laparoscopic sacrocolpopexy for pelvic organ prolapse: Comparison of standard versus tacker combination method. *Int J Urol* 2021;28(12):1227-1232. DOI: 10.1111/iju.14676.
4. Takahashi S, Mishima Y, Kuroishi K, Ukai M. 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(1):7-15. DOI: 10.1111/iju.14700.
5. Takahashi S, Takei M, Asakura H, et al. Clinical Guidelines for Female Lower Urinary Tract Symptoms (second edition). *Int J Urol* 2021;28(5):474-492. DOI: 10.1111/iju.14492.

PUBLICATION LIST 2021

Division of Urology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Taguchi S, Kawai T, Nakagawa T, Nakamura Y, Kamei J, Obinata D, Yamaguchi K, Kaneko T, Kakutani S, Tokunaga M, Uemura Y, Sato Y, Fujimura T, Fukuhara H, Enomoto Y, Nishimatsu H, Takahashi S, Kume H.	Prognostic significance of the albumin-to-globulin ratio for advanced urothelial carcinoma treated with pembrolizumab: a multicenter retrospective study.	Scientific Reports	2021;11(1):15623	4.997
2	Fernandes RC, Toubia J, Townley S, Hanson AR, Dredge BK, Pillman KA, Bert AG, Winter JM, Iggo R, Das R, Obinata D.	Post-transcriptional Gene Regulation by MicroRNA-194 Promotes Neuroendocrine Transdifferentiation in Prostate Cancer.	Cell Reports	2021;34(1):108585	9.995
3	Hori Y, Obinata D, Funakoshi D, Sakurai F, Yoshizawa T, Matsui T, Mochida J, Yamaguchi K, Takahashi S.	Preoperative CT volumetry of estimated residual kidney for prediction of postoperative chronic kidney disease in patients with renal cell carcinoma.	Clinical and Experimental Nephrology	2021;25(3):315-321	2.621
4	Ikeda J, Matsuda H, Ogasawara M, Ishii Y, Yamaguchi K, Takahashi S, Fukuda N, Masuhiro Y, Endo M, Soma M, Hamet P, Tremblay J.	COMMD5 Inhibits Malignant Behavior of Renal Cancer Cells.	Anticancer Research	2021;41(6):2805-2815	2.435
5	Nagaoka-Takatori A, Ishii M, Hayama K, Obinata D, Yamaguchi K, Takahashi S, Fujita H.	A Case of IgA Vasculitis During Nivolumab Therapy for Renal Cell Carcinoma.	Clinical Cosmetic and Investigational Dermatology	2021;14:1885-1888	2.765
6	Takahashi S, Kato D, Tabuchi H, Uno S.	Safety and effectiveness of mirabegron in male patients with overactive bladder with or without benign prostatic hyperplasia: A Japanese post-marketing study.	Lower Urinary Tract Symptoms	2021;13(1):79-87	1.374
7	Takahashi S, Kato K, Takei M, Yokoyama O, Gotoh M.	Efficacy and safety of the noradrenaline reuptake inhibitor, TAS-303, in women with stress urinary incontinence: Results of a double-blind, randomized, placebo-controlled, early phase II trial.	International Journal of Urology	2021;28(1):82-90	2.896
8	Takahashi S, Takei M, Asakura H, Gotoh M, Ishizuka O, Kato K, Koyama M, Takeyama M, Tomoe H, Yamanishi T, Yokoyama O, Yoshida M, Yoshimura Y, Yoshizawa T,	Clinical Guidelines for Female Lower Urinary Tract Symptoms (second edition).	International Journal of Urology	2021;28(5):474-492	2.896
9	Yoshizawa T, Mochida J, Yamaguchi K, Kadotani M, Hashimoto S, Funakoshi D, Sakurai F, Hori Y, Obinata D, Takahashi S.	Laparoscopic sacrocolpopexy for pelvic organ prolapse: Comparison of standard versus tackler combination method.	International Journal of Urology	2021;28(12):1227-1232	2.896

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 Keratoconjunctival 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 Keratoconjunctival 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.

PUBLICATION LIST 2021
Division of Ophthalmology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Watanabe M, Yokota H, Aso H, Hanazaki H, Hanaguri J, Yamagami S, Nagaoka T.	Development of Stage 4 Macular Hole after Spontaneous Closure in a Patient with Stage 2 Macular Hole and a Lamellar Macular Hole-Associated Epiretinal Proliferation.	Case reports in ophthalmology	2021;12(2):481-484.	Not available
2	Omoto T, Agata C, Akiyama R, Kitamoto K, Toyono T, Yoshida J, Yamagami S, Usui T, Miyai T.	Iridotrabeular and Iridocorneal Contact Changes after Cataract Surgery and Endothelial Keratoplasty in Bilateral Iridoschisis.	Case reports in ophthalmology	2021;12(1):198-203.	Not available
3	Shiraki Y, Shoji J, Inada N, Tomioka A, Yamagami S.	IL-1 α antibody inhibits dose-dependent exacerbation of eosinophilic inflammation by crude house-dust-mite antigen in the conjunctiva of an atopic keratoconjunctivitis mouse model.	Current eye research	2021;46(8):1115-1124.	2.555
4	Miyazaki D, Kandori-Inoue M, Shimizu Y, Ohtani F, Chono I, Inoue Y, Yamagami S.	Role Played by Receptors for Advanced Glycosylation End Products in Corneal Endothelial Cells after HSV-1 Infection.	International journal of molecular sciences	2021;22(11):5833.	6.208
5	Takamura Y, Kida T, Noma H, Inoue M, Yoshida S, Nagaoka T, Noda K, Yamada Y, Morioka M, Gozawa M, Matsumura T, Inatani M.	The Impact of Interval between Recurrence and Re-injection in Anti-VEGF Therapy for Diabetic Macular Edema in Pro Re Nata Regimen.	Journal of clinical medicine	2021;10(24):5738.	4.964
6	Horinaka M, Shoji J, Tomioka A, Tonozuka Y, Inada N, Yamagami S.	Alterations in Mucin-Associated Gene Expression on the Ocular Surface in Active and Stable Stages of Atopic and Vernal Keratoconjunctivitis.	Journal of ophthalmology	2021;2021:9914786	1.974
7	Hirano T, Toriyama Y, Takamura Y, Sugimoto M, Nagaoka T, Sugiura Y, Okamoto F, Saito M, Noda K, Yoshida S, Ishibazawa A, Sawada O, Murata T.	Treat-and-extend therapy with aflibercept for diabetic macular edema: a prospective clinical trial.	Japanese journal of ophthalmology	2021;65(3):354-362.	2.211
8	Hirano T, Toriyama Y, Takamura Y, Sugimoto M, Nagaoka T, Sugiura Y, Okamoto F, Saito M, Noda K, Yoshida S, Ishibazawa A, Sawada O, Murata T.	Outcomes of a 2-year treat-and-extend regimen with aflibercept for diabetic macular edema.	Scientific reports	2021;11(1):4488.	4.997
9	Aso H, Yokota H, Hanazaki H, Yamagami S, Nagaoka T.	The kebab technique uses a bipolar pencil to retrieve a dropped nucleus of the lens via a small incision.	Scientific reports	2021;11(1):7897.	4.997
10	Yokota H, Nagaoka T, Noma H, Ofusa A, Kanemaki T, Aso H, Hanazaki H, Yamagami S, Shimura M.	Role of ICAM-1 in impaired retinal circulation in rhegmatogenous retinal detachment.	Scientific reports	2021;11(1):15393.	4.997
11	Ohtani F, Miyazaki D, Shimizu Y, Haruki T, Yamagami S, Inoue Y.	Role of interferon regulatory factor 7 in corneal endothelial cells after HSV-1 infection.	Scientific reports	2021;11(1):16487.	4.997
12	Hayashi T, Takahashi H, Inoda S, Shimizu T, Kobayashi A, Kawashima H, Yamaguchi T, Yamagami S.	Aqueous humour cytokine profiles after Descemet's membrane endothelial keratoplasty.	Scientific reports	2021;11(1):17064.	4.997
13	Hanaguri J, Yokota H, Watanabe M, Yamagami S, Kushiya A, Kuo L, Nagaoka T.	Retinal blood flow dysregulation precedes neural retinal dysfunction in type 2 diabetic mice.	Scientific reports	2021;11(1):18401.	4.997

PUBLICATION LIST 2021
Division of Ophthalmology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
14	Hayashi T, Masumoto H, Tabuchi H, Ishitobi N, Tanabe M, Grün M, Bachmann B, Cursiefen C, Siebelmann S.	A deep learning approach for successful big-bubble formation prediction in deep anterior lamellar keratoplasty.	Scientific reports	2021;11(1):18559.	4.997
15	Hanazaki H, Yokota H, Aso H, Yamagami S, Nagaoka T.	Evaluation of ocular blood flow over time in a treated retinal arterial macroaneurysm using laser speckle flowgraphy.	American journal of ophthalmology case reports	2021;21:101022.	Not available
16	Shijo T, Sakurada Y, Tanaka K, Miki A, Yoneyama S, Machida Y, Chubachi A, Wakatsuki Y, Sugiyama A, Onoe H, Kikushima W, Mori R, Kashiwagi K.	Drusenoid Pigment Epithelial Detachment: Genetic and Clinical Characteristics	International Journal of Molecular Sciences	2021;22(8):4074	6.208
17	Tanaka K, Mori R, Wakatsuki Y, Onoe H, kawamura A, Nakashizuka H.	Two-Thirds Dose Photodynamic Therapy for Pachychoroid Neovascularopathy	Journal of Clinical Medicine	2021;10(10):2168	4.964
18	Shimada H, Nakashizuka H.	Cataract Surgery by Intraoperative Surface Irrigation with 0.25% Povidone-Iodine	Journal of Clinical Medicine	2021;10(16):3611	4.964
19	Kitagawa Y, Shimada H, Kawamura A, Tanaka K, Mori R, Onoe H, Nakashizuka H.	A case of bilateral pachychoroid disease: polypoidal choroidal vasculopathy in one eye and peripheral exudative hemorrhagic chorioretinopathy in contralateral eye	BMC Ophthalmology	2021;21(1):320	2.086
20	Lee D, Nakai A, Miwa Y, Tomita Y, Serizawa N, katada Y, Hatanaka Y, Tsubota K, Negishi K, Kurihara T.	Retinal Degeneration in a Murine Model of Retinal Ischemia by Unilateral Common Carotid Artery Occlusion	BioMed Research International	2021;2021:7727648	3.246

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 eustachian 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. 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.

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.

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 2021

Division of Otolaryngology-Head and Neck Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kasuga Y, Nishimura K, Go H, Nakazaki K, Shimizu S, Kanezawa K, Tanaka M, Oshima T, Morioka I.	Severe olfactory and gustatory dysfunctions in a Japanese pediatric patient with coronavirus disease (COVID-19)	JOURNAL OF INFECTION AND CHEMOTHERAPY	2021;27(1):110-112	2.065
2	Kishino A, Masuda T, Nomura Y, Shigihara S, Oshima T.	Comparison between MB11 BERAphone® and ALGO2e color for hearing screening in Japanese healthy newborns	INTERNATIONAL JOURNAL OF PEDIATRIC OTORHINOLARYNGOLOGY	2021;144:110673	1.626
3	Nomura Y, Okubo K, Nakamura T, Sawaki S, Kitagou H, Idei N, Kaneko S, Kobayashi S, Tanaka Y, Okamoto Y.	Long-term treatment of Japanese cedar pollinosis with Japanese cedar pollen SLIT drops and persistence of treatment effect: A post-marketing clinical trial	ALLERGOLOGY INTERNATIONAL	2021;70(1):96-104	7.478
4	Katano H, Hasegawa H, Matsuzaki H, Oshima T, Tang X.	Thyroid hyalinizing trabecular adenoma with a high thyroglobulin level: a case report	Journal of Surgical Case Reports	2021(7):1-3	Not available

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 developed.

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 2021

Division of Oral Surgery

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kitano H, Mamiya A, Masuda Y, Shinoda K, Masaoka Y, Suzuki M.	A case of vastus lateralis muscle metastasis of tongue carcinoma.	Journal Of Pakistan Medical Association	2021;71(9):2271-2274.	1.002
2	Kitano H, Masaoka Y, Mamiya A, Fujiwara Y, Miki T, Hidai C.	Combination Cancer Therapy of a Dell Fragment and Cisplatin Enhanced Therapeutic Efficiency In Vivo	In Vivo	2021;35(2):779-791	2.406
3	Fujiwara Y, Kitano H, Yamamoto T, Kokubun S, Hidai C.	Activation peptide of coagulation factor IX improves the prognosis after traumatic brain injury	Biochemical and Biophysical Research Communications	2021;569:35-40	3.322
4	Kobayashi T, Abe S, Yokomizo N, Kitano H, Ono T, Takeda T, Kobayashi Y.	Identification of malocclusion risk factors after closed treatment of condylar fractures using a novel three-dimensional computed tomography approach	Journal of Oral Science	2021;63(3) :283-285	1.630

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. 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.

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.

2023

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 2021

Division of Radiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Shibutani K, Okada M, Tsukada J, Ibukuro K, Abe H, Matsumoto N, Midorikawa Y, Moriyama M, Takayama T.	Predictive value of combined computed tomography volumetry and magnetic resonance elastography for major complications after liver resection.	Abdominal radiology	2021;46(7):3193-3204.	2.886
2	Maebayashi T, Ishibashi N, Aizawa T, Sakaguchi M, Okada M.	Stereotactic radiotherapy for hepatocellular carcinoma induced by hepatitis C and the relationships of changes in carbohydrate antigen 19-9 with AFP and PIVKA-II	Cancer Radiotherapie	2021;(3):242-248.	1.217
3	Amano M, Amano Y, Takagi R, Tang X, Omori Y, Okada M.	Case report of portal hepatic schwannoma:presentation of multimodality images.	BMC Gastroenterology	2021;21(1):183	2.848
4	Sakaguchi M, Maebayashi T, Aizawa T, Ishibashi N, Okada M.	Association between unintentional splenic radiation and lymphopenia and high neutrophil/lymphocyte ratio after radiotherapy in patients with esophageal cancer	Translational Cancer Research	2021;10(12):5076-5084	0.496

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 hallucis, 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 2021

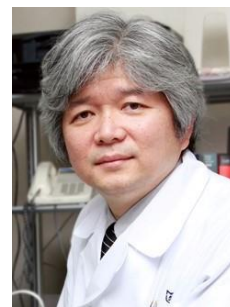
Division of Anesthesiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Doshu-Kajiura A, Suzuki J, Suzuki T	Prolonged onset and duration of action of rocuronium after accidental subcutaneous injection in a patient with chronic renal failure—a case report	JA Clinical Report	2021;7(1):18	Not available
2	Kimura Y, Yamaguchi S, Suzuki T, Kato J, Chiba S, Hirakawa N, Yamaguchi K, Tanabe Y, Takatsuna H, Kenyoshi Y, Shiosakai K, Sakai M, Iseki M	Switching From Pregabalin to Mirogabalin in Patients with Peripheral Neuropathic Pain: A Multi-Center, Prospective, Single-Arm, Open-Label Study (MIROP Study).	Pain and Therapy	2021;10(1):711-27	3.960

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 2021
Division of Emergency and Critical Care Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Chiba N, Matsuzaki M, Mawatari T, Mizuochi M, Sakurai A, Kinoshita K.	Beneficial effects of dantrolene in the treatment of rhabdomyolysis as a potential late complication associated with COVID-19: a case report	European Journal of Medical Research	2021;26(1):18.	4.981
2	Sakurai A, Oda J, Muguruma T, Kin S, Ohata S, Abe T, Morimura N.	Revision of the Protocol of the Telephone Triage System in Tokyo, Japan	Emergency Medicine International	2021;2021:8832192	1.621
3	Kuwana T, Kinoshita K, Hirabayashi M, Ihara S, Sawada N, Mutoh T, Yamaguchi J.	PMX-DHP Therapy for Dyspnea and Deoxygenation in Severe COVID-19 Pneumonia: A Case Series	Infection and Drug Resistance	2021;14:1305-1310	4.177

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.

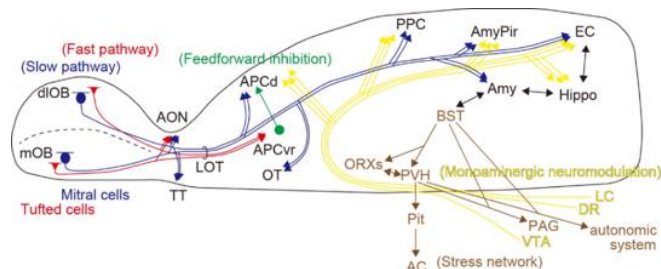
- Metabolic analysis during storage of excised organs
- Search for markers that indicate the state of excised organs

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.

Clinical 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 2021
Division of Anatomical Science

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Omotehara T, Naito M, Hayashi S, Kawate S, Shimada K, Itoh M.	Common hepatic artery originating from superior mesenteric artery with replaced right hepatic artery.	Anatomical science International	2021;96(4):568-571.	1.693
2	Kondo M, Aboshi H, Yoshikawa M, Ogata A, Murayama R, Takei M, Aizawa S.	A newly developed age estimation method according to CpG methylation of teeth-derived DNA using real-time methylation-specific PCR.	Journal of Oral Science	2021;63(1):54-58.	1.630
3	Hayashi S, Iwata T, Imagawa R, Sugawara M, Chen G, Tanimoto S, Sugawara Y, Tanaka I, Matsui T, Nishio H, Nakamura M, Katoh Y, Mori S, Kukimoto I, Aoki D.	Transcription factor homeobox D9 drives the malignant phenotype of HPV18-positive cervical cancer cells via binding to the viral early promoter.	Cancers	2021;13(18):4613.	6.575
4	Harada T, Tsuboi I, Hino H, Yuda M, Hirabayashi Y, Hirai S, Aizawa S.	Age-related exacerbation of hematopoietic organ damage induced by systemic hyper-inflammation in senescence-accelerated mice.	Scientific Reports	2021;11(1):23250.	4.997
5	Saimi M, Moriya S, Li ZL, Miyaso H, Nagahori K, Kawata S, Omotehara T, Ogawa Y, Hino H, Miyazawa K, Sakabe K, Itoh M.	Cytoneuclear Estrogen Receptor Alpha Regulates Proliferation and Migration of Endometrial Carcinoma Cells	The Tokai Journal of Experimental and Clinical Medicine	2021;46(1):7-16.	Not available

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 safely 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.

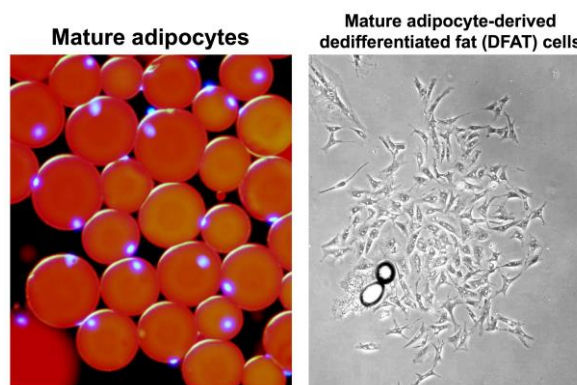
DFAT cells as a new cell source for stem cell-based therapy

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.



PUBLICATION LIST 2021
Division of Cell Regeneration and Transplantation

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kurosawa T, Li Y, Sudo M, Haruta H, Hagikura K, Takayama T, Hiro T, Shiomi M, Hao H, Matsumoto T, Hirayama A, Okumura Y.	Effect of the dipeptidyl peptidase-4 inhibitor linagliptin on atherosclerotic lesions in Watanabe heritable hyperlipidemic rabbits: iMap-IVUS and pathological analysis.	Heart and Vessels	2021;36(1):127-135	1.814
2	Watanabe H, Kanemaru K, Hagikura K, Matsumoto T, Ayusawa M, Morioka I.	Soluble factors released by dedifferentiated fat cells reduce the functional activity of iPS cell-derived cardiomyocytes.	Cell Biology International	2021;45(2):295-304	4.473
3	Okamura M, Fukuda N, Horikoshi S, Kobayashi S, Tsunemi A, Akiya Y, Endo M, Matsumoto T, Abe M.	Transcriptional suppression of diabetic nephropathy with novel gene silencer pyrrole-imidazole polyamides preventing USF1 binding to the TGF- β 1 promoter.	International Journal of Molecular Sciences	2021;22(9):4741	6.208
4	Tsuzuki H, Nagatsuka Y, Iwata M, Kitamura N, Nagasawa Y, Matsumoto T, Ito R, Takahashi T, Ito M, Nakamura H, Takei M.	Antinuclear antibodies produced in HLA-DR transgenic humanized mice developed chronic graft-versus-host disease.	Heliyon	2021;7(11):e08380	3.776
5	Shimazaki T, Noro N, Hagikura K, Matsumoto T, Yoshida-Noro C.	Quantitative analysis of factors regulating angiogenesis for stem cell therapy.	Biology (Basel)	2021;10(11):1212	5.168
6	Li Y, Tai HC, Sladojevic N, Kim HH, Liao JK.	Vascular stiffening mediated by rho-associated coiled-coil containing kinase isoforms.	Journal of the American Heart Associations	2021;10(20):e022568	6.107
7	Otsuka N, Okumura Y, Arai M, Kurokawa S, Nagashima K, Watanabe R, Wakamatsu Y, Yagyu S, Ohkubo K, Nakai T, Hao H, Takahashi R, Taniguchi Y, Li Y.	Effect of obesity and epicardial fat/fatty infiltration on electrical and structural remodeling associated with atrial fibrillation in a novel canine model of obesity and atrial fibrillation: A comparative study.	Journal of Cardiovascular Electrophysiology	2021;32(4):889-899	2.942
8	Migita S, Kitano D, Li Y, Koyama Y, Shimodai-Yamada S, Onishi A, Fuchimoto D, Suzuki S, Nakamura Y, Matsuyama TA, Hirota S, Sakuma M, Tsujimoto M, Hirayama A, Okumura Y, Hao H.	Pathological findings after third- and second-generation everolimus-eluting stent implantations in coronary arteries from autopsy cases and an atherosclerotic porcine model.	Scientific Reports	2021;11(1):6281	4.997

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 2021

Division of Physiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Kitano H, Masaoka Y, Mamiya A, Fujiwara Y, Miki T, Hidai C.	Combination Cancer Therapy of a Delt1 Fragment and Cisplatin Enhanced Therapeutic Efficiency In Vivo	in vivo	2021;35(2):779-791	2.406
2	Takano C, Grubbs BH, Ishige M, Ogawa E, Morioka I, Hayakawa S, Miki T.	Clinical perspective on the use of human amniotic epithelial cells to treat congenital metabolic diseases with a focus on maple syrup urine disease	Stem Cells Translational Medicine	2021;10(6):829-835	7.655
3	Watanabe H, Kanemaru K, Hagikura K, Matsumoto T, Ayusawa M, Morioka I.	Soluble factors released by dedifferentiated fat cells reduce the functional activity of iPS cell-derived cardiomyocytes	Cell Biology International	2021;45(2):295-304	4.473
4	Kitajima N, Takikawa K, Sekiya H, Asanuma D, Sakamoto H, Namiki S, Iino M, Hirose K.	In vivo Fluorescence Imaging of Extracellular ATP in the Mouse Cerebral Cortex with a Hybrid-type Optical Sensor	Bio-protocol	2021;11(11):e4046	Not available
5	Escartin C, Galea E, Lakatos A, O'Callaghan JP, Petzold GC, Serrano-Pozo A, Steinhäuser C, Volterra A, Carmignoto G, Agarwal A, Allen NJ, Araque A, Barbeito L, Barzilai A, Bergles DE, Bonvento G, Butt AM, Chen W-T, Cohen-Salmon M, Cunningham C, Deneen B, Strooper BD, Diaz-Castro B, Farina C, Freeman M, Gallo V, Goldman JE, Goldman SA, Götz M, Gutiérrez A, Haydon PG, Heiland DH, Hol EM, Holt MG, Iino M, Kastanenka KV, Kettenmann H, Khakh BS, Koizumi S, Lee CJ, Liddelow SA, MacVicar BA, Magistretti P, Messing A, Mishra A, Molofsky AV, Murai KK, Norris CM, Okada S, O'Leary SH, Oliveira JF, Panatier A, Pappas V, Pekna M, Pekny M, Pellerin L, Perea G, Pérez-Nievas BG, Pflieger FW, Poskanzer KE, Quintana FJ, Ransohoff RM, Riquelme-Perez M, Robel S, Rose CR, Rothstein JD, Rouach N, Rowitch DH, Semyanov A, Sirko S, Sontheimer H, Swanson RA, Vitorica J, Wanner I-B, Wood LB, Wu J, Zheng B, Zimmer ER, Zorec R, Sofroniew MV, Verkhratsky A.	Reactive astrocyte nomenclature, definitions, and future directions	NATURE NEUROSCIENCE	2021;24(3):312-325	28.771

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-Umeda et al., Endocrinology 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 from 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 organosulfur 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 2021

Division of Biochemistry

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Dou H, Korini A, Liu W, Fidler T, Endo-Umeda K, Sun X, Olszewska M, Xiao T, Abramowicz S, Yalcinkaya M, Hardaway B, Tsimikas S, Que X, Bick A, Emdin C, Natarajan P, Papapetrou EP, Witztum JL, Wang N, Tall AR.	Oxidized Phospholipids Promote NETosis and Arterial Thrombosis in LNK(SH2B3) Deficiency.	Circulation	2021;144(24):1940-1954.	39.922
2	Endo-Umeda K, Nakashima H, Uno S, Toyoshima S, Umeda N, Komine-Aizawa S, Seki S, Makishima M.	Liver X receptors regulate natural killer T cell population and antitumor activity in the liver of mice.	Scientific Reports	2021;11(1):22595.	4.997
3	Ishizawa M, Hirayu A, Makishima M.	Zinc Inhibits Cadherin 1 Expression Induced by 1 α ,25-Dihydroxyvitamin D3 in Colon Cancer Cells.	Anticancer Research	2021;41(11):5453-5459.	2.435
4	Wang X, Sato F, Tanimoto K, Rajeshwaran N, Thangavelu L, Makishima M, Bhawal UK.	The Potential Roles of Dec1 and Dec2 in Periodontal Inflammation	International Journal of Molecular Sciences	2021;22(19):10349.	6.208
5	Kobayashi H, Nakai T, Nakanishi Y, Esumi M, Masuda.	Phylogenetic analysis of combined lobular and ductal carcinoma of the breast.	Molecular Medicine Reports	2021;24(4):718.	3.423
6	Ishikiriyama T, Nakashima H, Endo-Umeda K, Nakashima M, Ito S, Kinoshita M, Ikarashi M, Makishima M, Seki S.	Contrasting functional responses of resident Kupffer cells and recruited liver macrophages to irradiation and liver X receptor stimulation.	PLoS One	2021;16(7):e0254886.	3.752
7	Oka S, Li X, Zhang F, Tewari N, Wang C, Kim I, Zhong L, Hamada N, Oi Y, Makishima M, Liu Y, Bhawal UK.	Inhibition of Dec1 provides biological insights into periodontal pyroptosis.	All Life	2021;14(1):300-307.	1.044
8	Oka S, Li X, Zhang F, Tewari N, Kim I, Chen C, Zhong L, Hamada N, Oi Y, Makishima M, Liu Y, Bhawal UK.	Loss of Dec1 prevents autophagy in inflamed periodontal ligament fibroblast.	Molecular Biology Reports	2021;48(2):1423-1431.	2.742
9	Oka S, Li X, Sato F, Zhang F, Tewari N, Kim I, Zhong L, Hamada N, Makishima M, Liu Y, Bhawal UK.	A deficiency of Dec2 triggers periodontal inflammation and pyroptosis.	Journal of Periodontal Research	2021;56(3):492-500.	3.946
10	Yukawa-Takamatsu K, Wang Y, Watanabe M, Takamura Y, Fujihara M, Nakamura-Nakayama M, Yamada S, Kikuzawa S, Makishima M, Kawasaki M, Ito S, Nakano S, Kakuta H.	Convenient Retinoid X Receptor Binding Assay Based on Fluorescence Change of the Antagonist NEt-C343.	Journal of Medicinal Chemistry	2021;64(1):861-870.	8.039
11	Watanabe M, Fujihara M, Motoyama T, Kawasaki M, Yamada S, Takamura Y, Ito S, Makishima M, Nakano S, Kakuta H.	Discovery of a "Gatekeeper" Antagonist that Blocks Entry Pathway to Retinoid X Receptors (RXRs) without Allosteric Ligand Inhibition in Permissive RXR Heterodimers.	Journal of Medicinal Chemistry	2021;64(1):430-439.	8.039
12	Oka S, Li X, Sato F, Zhang F, Tewari N, Chen C, Zhong L, Makishima M, Liu Y, Bhawal UK.	Dec2 attenuates autophagy in inflamed periodontal tissues.	Immunity, Inflammation and Disease	2021;9(1):265-273.	2.493

PUBLICATION LIST 2021
Division of Biochemistry

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
13	Saga R, Uchida T, Takino Y, Kondo Y, Kobayashi H, Kinoshita M, Saitoh D, Ishigami A, Makishima M.	Radiation-induced gastrointestinal syndrome is exacerbated in vitamin C-insufficient SMP30/GNL knockout mice	Nutrition	2021;81:110931.	4.893

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 effectively. 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°C), normothermic (37°C), and hypothermic (39°C) 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 2021

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.	Signal Detection of Potential Hepatotoxic Drugs: Case-Control Study Using Both a Spontaneous Reporting System and Electronic Medical Records.	Biological & Pharmaceutical Bulletin	2021;44(10):1514-1523.	2.264
2	Takahashi Y, Yamazaki K, Kamatani Y, Kubo M, Matsuda K, Asai S.	A genome-wide association study identifies a novel candidate locus at the DLGAP1 gene with susceptibility to resistant hypertension in the Japanese population.	Scientific Reports	2021;11(1):19497.	4.997
3	Akimoto H, Takahashi Y, Asai S.	Effects of Fibrates on Risk of Development of Diabetic Retinopathy in Japanese Working Age Patients with Type 2 Diabetes and Dyslipidemia: a Retrospective Cohort Study.	Yakugaku Zasshi : Journal of the Pharmaceutical Society of Japan	2021;141(5):761-769.	0.314

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

icosapentaenoic 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 2021
Division of Human Pathology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Migita S, Kitano D, Li Y, Koyama Y, Shimodai-Yamada S, Onishi A, Fuchimoto D, Suzuki S, Nakamura Y, Matsuyama TA, Hirota S, Sakuma M, Tsujimoto M, Hirayama A, Okumura Y, Hao H.	Pathological findings after third- and second-generation everolimus-eluting stent implantations in coronary arteries from autopsy cases and an atherosclerotic porcine model	Scientific reports	2021;11(1):6281	4.997
2	Kamata K, Hao H, Ishige T, Shimodai-Yamada S, Sezai A, Taoka M, Osaka S, Suzuki K, Tanaka M.	Exophytic cavernous hemangioma arising from the right ventricle: Report of a rare case	Pathology International	2021;71(4):267-271	2.121
3	Shibutani H, Fujii K, Kawakami R, Imanaka T, Kawai K, Tsujimoto S, Matsumura K, Otagaki M, Morishita S, Hashimoto K, Hao H, Hirota S, Shiojima I.	Interobserver variability in assessments of atherosclerotic lesion type via optical frequency domain imaging.	Journal of Cardiology	2021;77(5):465-470	3.115
4	Shibutani H, Fujii K, Kawakami R, Imanaka T, Kawai K, Tsujimoto S, Matsumura K, Otagaki M, Morishita S, Hashimoto K, Hao H, Hirota S, Shiojima I.	Diagnostic accuracy of optical coherence tomography for the identification of in-stent fibroatheroma following stent implantation: an ex vivo histological validation study.	American Journal of Cardiology	2021;37(5):1503-1509	3.133
5	Otsuka N, Okumura Y, Arai M, Kurokawa S, Nagashima K, Watanabe R, Wakamatsu Y, Yagyu S, Ohkubo K, Nakai T, Hao H, Takahashi R, Taniguchi Y, Li Y.	Effect of obesity and epicardial fat/fatty infiltration on electrical and structural remodeling associated with atrial fibrillation in a novel canine model of obesity and atrial fibrillation: A comparative study.	Journal of Cardiovascular Electrophysiology	2021;32(4):889-899	2.942
6	Fujito H, Saito Y, Nishimaki H, Hori Y, Ebuchi Y, Hao H, Okumura Y.	Fatal Embolic ST-Elevation Myocardial Infarction Secondary to Healed-Phase Mitral Valve Infective Endocarditis.	International Heart Journal Association	2021;62(2):432-436	Not available
7	Shibutani H, Fujii K, Ueda D, Kawakami R, Imanaka T, Kawai K, Matsumura K, Hashimoto K, Yamamoto A, Hao H, Hirota S, Miki Y, Shiojima I.	Automated classification of coronary atherosclerotic plaque in optical frequency domain imaging based on deep learning.	Atherosclerosis	2021;328:100-105.	6.851
8	Arai R, Murata N, Yamada A, Migita S, Koyama Y, Morikawa T, Ihara S, Akutsu N, Kuwana T, Fukamachi D, Kinoshita K, Okumura Y, Hao H	Multimodal Findings of COVID-19-Related Rhabdomyolysis Complicated With Pericarditis Mimicking Fulminant Myocarditis.	Circulation Reports	2021;3(7):419-420.	Not available
9	Shibutani H, Fujii K, Shirakawa M, Uchida K, Yamada K, Kawakami R, Imanaka T, Kawai K, Hashimoto K, Matsumura K, Hao H, Hirota S, Shiojima I, Yoshimura S.	Diagnostic Accuracy of Optical Frequency Domain Imaging for Identifying Necrotic Cores with Intraplaque Hemorrhage in Advanced Human Carotid Plaques.	American Journal of Cardiology.	2021;156:123-128.	3.133
10	Nomura Y, Nagata Y, Kashima Y, Hao H.	A rare case of a giant dacryolith removed by Dacryocystorhinostomy (DCR).	Asian Journal of Surgery	2021;43(10):1010-1011	2.808
11	Kurosawa T, Li Y, Sudo M, Haruta H, Hagikura K, Takayama T, Hiro T, Shiomi M, Hao H, Matsumoto T, Hirayama A, Okumura Y.	Effect of the dipeptidyl peptidase-4 inhibitor linagliptin on atherosclerotic lesions in Watanabe heritable hyperlipidemic rabbits: iMap-IVUS and pathological analysis.	Heart and Vessels	2021;36(1):127-135.	1.814
12	Obikane H, Migita S, Yoshida KI, Shimodai-Yamada S, Okumura Y, Hao H.	Pathology of Pulmonary Vein Isolation in a Patient With Transthyretin-Related Amyloidosis.	Circulation Reports	2021;3(8):474-475	Not available

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.

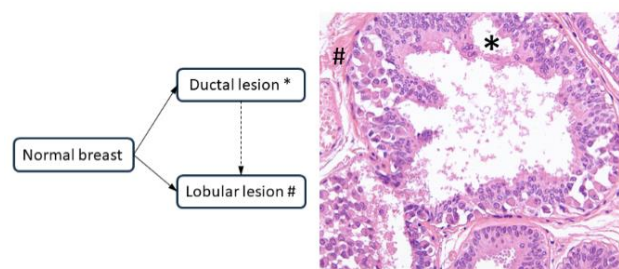
Visualization of molecular events in cancer cells

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

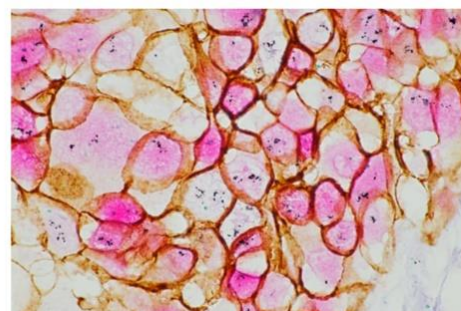
We can determine the most appropriate treatment method for individual patients by examining biomarkers. Additionally, it is crucial to maintain the accuracy and reproducibility of biomarker-based analyses. Clinical studies have been performed to standardize biomarkers.

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.

Breast cancer cells
Multiple stained by

- ER protein
- HER2 protein
- HER2 gene
- CEP17



PUBLICATION LIST 2021
Division of Oncologic Pathology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Masuda S, Suzuki R, Kitano Y, Nishimaki H, Kobayashi H, Nakanishi Y, Yokoi H	Tissue Thickness Interferes With the Estimation of the Immunohistochemical Intensity: Introduction of a Control System for Managing Tissue Thickness	Applied Immunohistochemistry & Molecular Morphology	2021;29(2):118-126	1.992
2	Watanabe S, Abe Y, Tokunaga W, Kato M, Komori A, Kobayashi H, Nishimaki H, Masuda S, Morioka I	Pericarditis as an initial manifestation of Sjögren syndrome in a child	Medicine	2021;2(1):e0031	1.817
3	Iida Y, Okamoto-Katsuyama M, Maruoka S, Mizumura K, Shimizu T, Shikano S, Hikichi M, Takahashi M, Tsuya K, Okamoto S, Inoue T, Nakanishi Y, Takahashi N, Masuda S, Hashimoto S, Gon Y	Effective ferroptotic small-cell lung cancer cell death from SLC7A11 inhibition by sulforaphane	Oncology Letters	2021;21(1):71	3.111
4	Koguchi O, Nishimaki H, Nakanishi Y, Kobayashi H, Ohni S, Tang X, Kusumi Y, Masuda S	Altered Immunohistochemical Expression Patterns of HLA Class I during the Clinical Course of Cervical Intraepithelial Neoplasia	ACTA HISTOCHEMICA ET CYTOCHEMICA	2121;54(2):57-64	1.857
5	Iida Y, Gon Y, Nakanishi Y, Kurosawa Y, Nakagawa Y, Mizumura K, Shimizu T, Takahashi N, Masuda S	Genomic analysis between idiopathic pulmonary fibrosis and associated lung cancer using laser-assisted microdissection: A case report	Thoracic Cancer	2021;12(9):1449-1452	3.223
6	Kobayashi H, Nakai T, Nakanishi Y, Esumi M, Masuda S: Phylogenetic analysis of combined lobular and ductal carcinoma of the breast.	Phylogenetic analysis of combined lobular and ductal carcinoma of the breast	Molecular Medicine Reports	2021;24(4):718	3.423
7	Tang X, Nakanishi Y, Kobayashi H, Nishimaki H, Kusumi Y, Miyagi Y, Masuda S	Mixed ductal-lobular carcinoma: an analysis of CDH1 DNA copy number variation and mutation.	Breast Cancer	2021;28(6):1318-1327	3.307
8	Ishibashi N, Nakanishi Y, Nishimaki H, Maebayashi T, Masuda S, Okada M	Bladder mucosa-associated lymphoid tissue lymphoma progressed from chronic cystitis along with a comparative genetic analysis during long-term follow-up: a case report.	Translational Andrology and Urology	2021;10(10):3899-3906	2.479

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. 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. 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 leukemia (AML).

Dr. Sachio Tsuchida is developing a method for bacterial identification using mass spectrometry techniques.

Dr. Haruka Yamamoto and Dr. Isamu Shimazaki are conducting genetic analysis research using next-generation sequencers.

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.

PUBLICATION LIST 2021
Division of Laboratory Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Nakayama T, Nakayama T, Shinya K, Shikata E, Kawana K, Yamamoto T	Haplotype-Based Case-Control Study of Calpain (CAPN2) Gene and Hypertensive Disorders of Pregnancy.	Genetics and Molecular Research	2021;20 (1): gmr18639.	Not available
2	Kono A, Shinya K, Nakayama T, Shikata E, Yamamoto T, Kawana K	Haplotype-based, Case-Control Study of Myosin Phosphatase Target Subunit 1 (PPP1R12A) Gene and Hypertensive Disorders of Pregnancy.	Hypertension in Pregnancy	2021;40(1):88-96.	2.698
3	Sogawa K, Kiyosuke M, Hattori K, Murata S, Watari T, Kusaba K, Saeki Y, Horiuchi K, Yasuda K, Uechi K, Okumura H, Sekiguchi S, Fujinaga A, Murakami M, Nakayama T	Examination of conditions for internal quality control in identification of microorganisms using MALDI-TOF MS.	Biocontrol Science	2021;26(2): 99-104	1.579
4	Noguchi Y, Iriyama N, Takahashi H, Uchino Y, Nakagawa M, Hamada T, Iizuka K, Koike T, Kurihara K, Endo T, Yoshida T, Miura K, Nakayama T, Hatta Y, Takei M	Maintenance Therapy With Bortezomib and Dexamethasone for Transplant-ineligible Patients With Multiple Myeloma.	CANCER DIAGNOSIS & PROGNOSIS	2021;1(2):35-42.	Not available
5	Nakagawa M, Iriyama N, Ishikawa T, Miura K, Uchino Y, Takahashi H, Hamada T, Iizuka K, Koike T, Kurihara K, Nakayama T, Hatta Y, Takei M	Absolute Lymphocyte Counts After Lenalidomide Initiation may Predict the Prognosis of Patients With Relapsed or Refractory Multiple Myeloma.	CANCER DIAGNOSIS & PROGNOSIS	2021;1(3):221-229.	Not available
6	Shikata E, Hattori R, Hara M, Nakayama T	The Detection of Hyaline Casts in Patients Without Renal Dysfunction Suggests Increased Plasma BNP.	Electronic Journal of the International Federation of Clinical Chemistry and Laboratory Medicine	2021;32(4):410-420.	Not available
7	Yoshikawa M, Asaba K, Nakayama T	Causal effect of atrial fibrillation/flutter on chronic kidney disease: A bidirectional two-sample Mendelian randomization study.	PLoS One	2021;16(12):e0261020.	3.752
8	Yoshikawa M, Asaba K, Nakayama T	Estimating causal effects of atherogenic lipid-related traits on COVID-19 susceptibility and severity using a two-sample Mendelian randomization approach.	BMC Medical Genomics	2021;14(1):269.	3.622
9	Yoshikawa M, Asaba K	Educational Attainment Decreases the Risk of COVID-19 Severity in the European Population: A Two-Sample Mendelian Randomization Study.	Frontiers in Public Health	2021;9:673451.	6.461
10	Tsuchida S, Umemura H, Murata S, Miyabe A, Satoh M, Matsushita K, Nakayama T, Nomura F	Effect of humidity during sample preparation on bacterial identification using matrix-assisted laser desorption/ionization time-of-flight mass spectrometry.	Journal of Chromatography B- Analytical Technologies in the Biomedical and Life Sciences	2021;1176:122780.	3.318
11	Tsuchida S, Nakayama T	Ubiquitination and Deubiquitination in Oral Disease.	International Journal of Molecular Science	2021;22(11):5488.	6.208

Division of Microbiology

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

per aspera ad astra

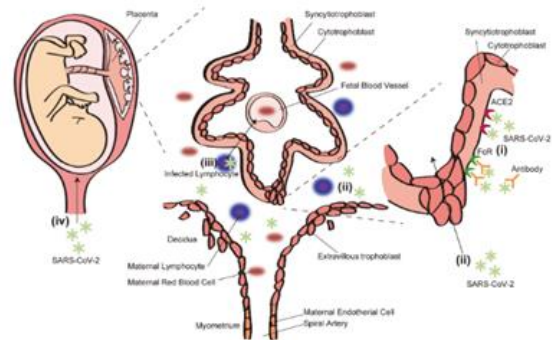


Chair person's professional experience and activities:

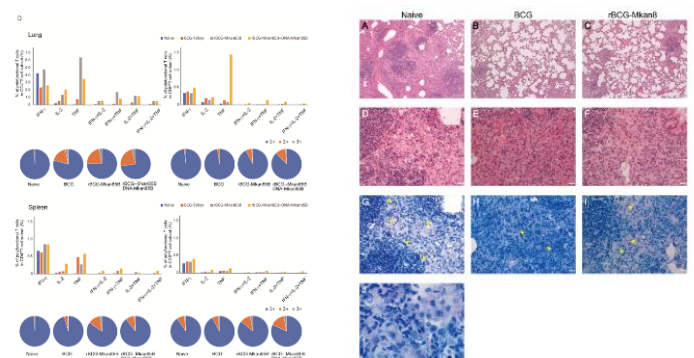
Dr. Satoshi Hayakawa graduated from Nihon University School of Medicine and obtained M.D. in 1983. After 3 years of clinical training at Nihon University Itabashi Hospital, he studied reproductive genetics with the late Dr. Susumu Ohno and molecular immunology with the late Dr. Takeshi Matsunaga at the Beckman Research Institute of the City of Hope Medical Center, California, from 1985 to 1986. Returning to Japan, he obtained a Ph.D. from Nihon University and has been studied at the Department of Obstetrics and Gynecology and Pathology in Nihon University as well as at the National Institute of Infectious Diseases. Since 2007, he has been a professor of Microbiology and Clinical Immunology. He has a wide range of research themes, such as mucosal immunity in female reproductive organs, cancer immunology, evolutionary medicine, and history of medicine. For the first time, he discovered extra-thymic T cell differentiation in human decidual tissues and characterised their regulatory nature. He also reported an association between genetic polymorphism in class II HLA and TCR repertoire and susceptibility to inflammatory bowel diseases; he disproved an established theory of Th2 predominance in mammalian pregnancy. He published over 250 refereed articles in English. For the past few years, he has concentrated on research on the mechanisms of vertical viral infections, the involvement of local immune systems, and their molecular epidemiology.

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 analyse 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.

新型コロナウイルス感染症
COVID-19

診療の手引き 第10.0版

PUBLICATION LIST 2021

Division of Microbiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Komine-Aizawa S, Mizuno S, Matsuo K, Namiki T, Hayakawa S, Honda M.	Recombinant BCG-Prime and DNA-Boost Immunization Confers Mice with Enhanced Protection against <i>Mycobacterium kansasii</i>	Vaccines	2021;9(11):1260.	4.961
2	Sharif N, Ahmed SN, Opu RR, Daullah MU, Khan S, Talukder AA, Okitsu S, Ushijima H, Zhang M, Dey SK.	Impact of meteorological parameters and population density on variants of SARS-CoV-2 and outcome of COVID-19 pandemic in Japan	EPIDEMIOLOGY AND INFECTION	2021;149:e103.	4.434
3	Suzaki A, Ohtani K, Komine-Aizawa S, Matsumoto A, Kamiya S, Hayakawa S	Pathogenic Characterization of <i>Clostridium perfringens</i> Strains Isolated From Patients With Massive Intravascular Hemolysis	Frontiers in Microbiology	2021;12:713509.	6.064
4	Suzuki S, Gotoda T, Takano C, Horii T, Sugita T, Ogura K, Ichijima R, Kusano C, Ikehara H.	Long term impact of vonoprazan-based <i>Helicobacter pylori</i> treatment on gut microbiota and its relation to post-treatment body weight changes	Helicobacter	2021;26(6):e12851.	5.182
5	Kawata K, Hoque SA, Nishimura S, Yagyu F, Islam MT, Sharmin LS, Pham NTK, Onda-Shimizu Y, Quang TD, Takanashi S, Okitsu S, Khamrin P, Maneekarn N, Hayakawa S, Ushijima H.	Role of rotavirus vaccination on G9P[8] rotavirus strain during a seasonal outbreak in Japan.	Human Vaccines & Immunotherapeutics	2021;17(10):3613-3618.	4.526
6	Phan T, Ide T, Komoto S, Khamrin P, Pham NTK, Okitsu S, Taniguchi K, Nishimura S, Maneekarn N, Hayakawa S, Ushijima H.	Genomic analysis of group A rotavirus G12P[8] including a new Japanese strain revealed evidence for intergenotypic recombination in VP7 and VP4 genes	Infection Genetics and Evolution	2021; 87:104656.	4.393
7	Kumthip K, Khamrin P, Ushijima H, Maneekarn N	Molecular detection and characterization of norovirus in asymptomatic food handlers in Chiang Mai, Thailand	Infection Genetics and Evolution	2021;89:104725.	4.393
8	Jampanil N, Kumthip K, Yodmeeklin A, Kanai Y, Okitsu S, Kobayashi T, Ukarapol N, Ushijima H, Maneekarn N, Khamrin P.	Epidemiology and genetic diversity of group A rotavirus in pediatric patients with acute gastroenteritis in Thailand, 2018-2019.	Infection Genetics and Evolution	2021;95:104898.	4.393
9	Pham NTK, Thongprachum A, Shimizu Y, Shiota I, Hoque SA, Khamrin P, Takano C, Trinh QD, Okitsu S, Komine-Aizawa S, Shimizu H, Maneekarn N, Hayakawa S, Ushijima H.	Genetic diversity of Parechovirus A in infants and children with acute gastroenteritis in Japan during 2016-2018	Infection, Genetics and Evolution	2021;90:104776.	4.393
10	Horii T, Suzuki S, Takano C, Shibuya H, Ichijima R, Kusano C, Ikehara H, Gotoda T.	Lower impact of vonoprazan-amoxicillin dual therapy on gut microbiota for <i>Helicobacter pylori</i> eradication	Journal of Gastroenterology and Hepatology	2021;36(12):3314-3321	4.369
11	Sasano M, Seki M, Takano C, Komine-Aizawa S, Hayakawa S.	An improved primer design for the loop-mediated isothermal amplification (LAMP) method to detect oxacillinase (OXA)48 β -lactamase genes in Gram-negative bacteria for clinical applications	Journal of Infection and Chemotherapy	2021;27(7):1005-1012.	2.065
12	Seki M, Choi H, Kim K, Whang J, Sung J, Mitarai S	Tuberculosis: A persistent unpleasant neighbour of humans.	Journal of Infection and Public Health	2021;14(4): 508-513,	7.537

PUBLICATION LIST 2021
Division of Microbiology

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
13	Dey SK, Sharif N, Billah B, Siddique TTI, Islam T, Parvez AK, Talukder AA, Phan T, Ushijima H.	Molecular epidemiology and genetic diversity of norovirus infection in children with acute gastroenteritis in Bangladesh, 2014-2019	Journal of Medical Virology	2021;93(6):3564-3571.	20.693
14	Okitsu S, Khamrin P, Thongprachum A, Hikita T, Kumthip K, Pham NTK, Takanashi S, Hayakawa S, Maneekarn N, Ushijima H.	Diversity of human sapovirus genotypes detected in Japanese pediatric patients with acute gastroenteritis, 2014-2017	Journal of Medical Virology	2021;93(8):4865-4874.	20.693
15	Pham NTK, Trinh QD, Takada K, Takano C, Sasano M, Okitsu S, Ushijima H, Komine-Aizawa S, Hayakawa S.	The Epithelial-to-Mesenchymal Transition-Like Process Induced by TGF- β 1 Enhances Rubella Virus Binding and Infection in A549 Cells via the Smad Pathway	Microorganisms	2021;9(3):662.	4.926
16	Yoshida T, Takada K, Komine-Aizawa S, Kamei Y, Ishihara O, Hayakawa S.	Lactobacillus crispatus promotes invasion of the HTR-8/SVneo trophoblast cell line	Placenta	2021;111:76-81.	3.287
17	Tohma K, Lepore CJ, Martinez M, Degiuseppe JJ, Khamrin P, Saito M, Mayta H, Nwaba AUA, Ford-Siltz LA, Green KY, Galeano ME, Zimic M, Stupka JA, Gilman RH, Maneekarn N, Ushijima H, Parra GI.	Genome-wide analyses of human noroviruses provide insights on evolutionary dynamics and evidence of coexisting viral populations evolving under recombination constraints.	PLoS Pathogens	2021;17(7):e1009744.	7.464
18	Endo-Umeda K, Nakashima H, Uno S, Toyoshima S, Umeda N, Komine-Aizawa S, Seki S, Makishima M.	Liver X receptors regulate natural killer T cell population and antitumor activity in the liver of mice	Scientific Report	2021;11(1):22595.	4.997
19	Hayakawa S, Komine-Aizawa S, Takada K, Kimura T, Yamada H.	Anti-SARS-CoV-2 vaccination strategy for pregnant women in Japan	Journal of Obstetrics and Gynaecology Research	2021;47(6):1958-1964.	1.697
20	Takano C, Ishige M, Ogawa E, Nagano N, Morohashi T, Okahashi A, Kawakami K, Komatsu A, Kawana K, Urakami T, Morioka I.	Nutrient management in the intrapartum period in maternal maple syrup urine disease	Molecular Genetics and Metabolism Reports	2021;26:100711.	2.082
21	Takano C, Grubbs BH, Ishige M, Ogawa E, Morioka I, Hayakawa S, Miki T.	Clinical perspective on the use of human amniotic epithelial cells to treat congenital metabolic diseases with a focus on maple syrup urine disease.	Stem Cells Translational Medicine	2021;10(6):829-835.	7.655
22	Kyo K, Takano C, Kasuga Y, Ogawa E, Ishige M, Pham NTK, Okitsu S, Ushijima H, Urakami T, Fuchigami T, Hayakawa S, Morioka I.	Severe rotavirus gastroenteritis in children older than 5 years after vaccine introduction.	Journal of Infection and Chemotherapy	2021;27(4):598-603.	2.065
23	Abe Y, Kusano C, Takano C, Morioka I, Gotoda T.	Association between Helicobacter pylori antibody-positive status and extragastric diseases in Japanese junior high school students.	Pediatrics International	2021;63(9):1087-1094.	1.617
24	Lee J, Yoon Y, Kim EJ, Lee D, Baek Y, Takano C, Chang B, Iijima T, Kilgore PE, Hayakawa S, Hoshino T, Kim DW, Seki M.	23-valent polysaccharide vaccine (PPSV23)-targeted serotype-specific identification of Streptococcus pneumoniae using the loop-mediated isothermal amplification (LAMP) method.	PLoS One	2021;16(2):e0246699.	3.752

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 environment 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 recently 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 or without 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, arterial blood pressure, and electrocardiography to estimate cerebral autoregulation, intracranial pressure, and arterial-cardiac baroreflex function noninvasively.

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).

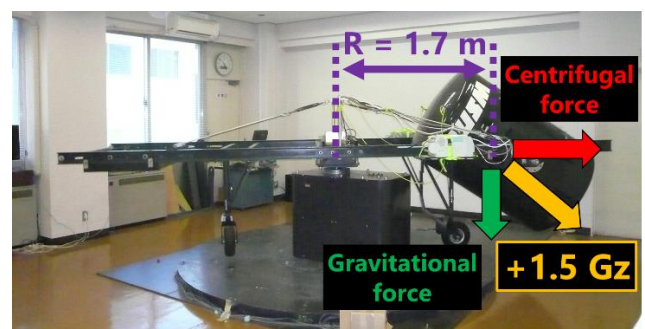


Fig. 1 Short-arm human centrifuge in Nihon University

PUBLICATION LIST 2021

Division of Hygiene

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Iwasaki KI, Ogawa Y, Kurazumi T, Imaduddin SM, Mukai C, Furukawa S, Yanagida R, Kato K, Konishi T, Shinojima A, Levine BD, Heldt T.	Long-duration spaceflight alters estimated intracranial pressure and cerebral blood velocity	Journal of Physiology	2021;599(4):1067-1081.	6.228

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 2021
Division of Public Health

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Itani O, Kaneita Y, Harano S, Tokiya M, Otsuka Y, Matsumoto Y, Nakagome S, Kinoshita Y.	Psychometric Properties of a New Simplified Scale to Assess the Quality of Workers' Rest and Recreation on Their Days Off.	YONAGO ACTA MEDICA	2021;64(1):67-79.	1.371
2	Otsuka Y, Kaneita Y, Spira AP, Mojtabai R, Itani O, Jike M, Higuchi S, Kanda H, Kuwabara Y, Kinjo A, Osaki Y.	Trends in sleep problems and patterns among Japanese adolescents: 2004 to 2017.	Lancet Regional Health-Western Pacific	2021;9:100107.	8.559
3	Kinoshita Y, Itani O, Otsuka Y, Matsumoto Y, Nakagome S, Kaneita Y.	A Nationwide Cohort Study of Parasomnias Among Adolescents.	JOURNAL OF CLINICAL PSYCHIATRY	2021;82(4):20m13648.	5.906
4	Matsumoto Y, Kaneita Y, Jike M, Osaki Y, Kanda H, Higuchi S, Itani O, Otsuka Y.	Clarifying the factors affecting the implementation of the "early to bed, early to rise, and don't forget your breakfast" campaign aimed at adolescents in Japan	Sleep and Biological Rhythms	2021;19(3):325-336	1.390
5	Fujii M, Kuwabara Y, Kinjo A, Iwamoto A, Jike M, Otsuka Y, Itani O, Kaneita Y, Minobe R, Maesato H, Higuchi S, Yoshimoto H, Kanda H, Osaki Y.	Trends in the co-use of alcohol and tobacco among Japanese adolescents: Periodical nationwide cross-sectional surveys 1996-2017.	BMJ Open	2021;11(8):e045063.	3.007
6	Kinoshita Y, Itani O, Otsuka Y, Matsumoto Y, Nakagome S, Osaki Y, Higuchi S, Maki J, Kanda H, Kaneita Y.	A nationwide cross-sectional study of difficulty waking up for school among adolescents.	SLEEP	2021;44(11):zsab157.	6.313
7	Kuwabara Y, Kinjo A, Fujii M, Minobe R, Maesato H, Higuchi S, Yoshimoto H, Jike M, Otsuka Y, Itani O, Kaneita Y, Kanda H, Osaki Y	Effectiveness of Screening and Brief Alcohol Intervention at the Workplace: A Study Protocol for a Randomized Controlled Trial at Five Japan-Based Companies.	YONAGO ACTA MEDICA	2021;64(4):330-338.	1.371
8	Otsuka Y, Kaneita Y, Itani O, Matsumoto Y, Jike M, Higuchi S, Kanda H, Kuwabara Y, Kinjo A, Osaki Y	The association between Internet usage and sleep problems among Japanese adolescents: three repeated cross-sectional studies.	SLEEP	2021;44(12):zsab175.	6.313

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 K_m of ethanol among all ADH isozymes¹. 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 hemothorax². 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 imaging³. 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 2021
Division of Legal Medicine

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Tie J, Uchigasaki S, Isobe E.	Evaluation and SNP typing of DNA from ultraviolet-irradiated human bloodstains using TaqMan assay	Scientific Reports	2021;11(1):8029.	4.997
2	Naruo M, Negishi Y, Okuda T, Katsuyama M, Okazaki K, Morita R.	Alcohol consumption induces murine osteoporosis by downregulation of natural killer T-like cell activity	Immunity Inflammation and Disease	2021;9(4):1370-1382.	2.493
3	Igarashi T, Nakamoto K, Kobayashi M, Suzuki H, Arima T, Tobita Y, Takao K, Igarashi T, Okuda T, Okada T, Takahashi H.	Brain-derived Neurotrophic Factor in the Aqueous Humor of Glaucoma Patients.	Journal of Nippon Medical School	2021;88(2):128-132.	1.115
4	Igarashi T, Takahashi H, Kobayashi M, Kunishige T, Arima T, Fujimoto C, Suzuki H, Okuda T, Takahashi H.	Changes in Tear Osmolarity after Cataract Surgery	Journal of Nippon Medical School	2021;88(3):204-208.	1.115

Division of Health Care Service Management

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



The Exploration of Socio-medical Design

1. Basic concept

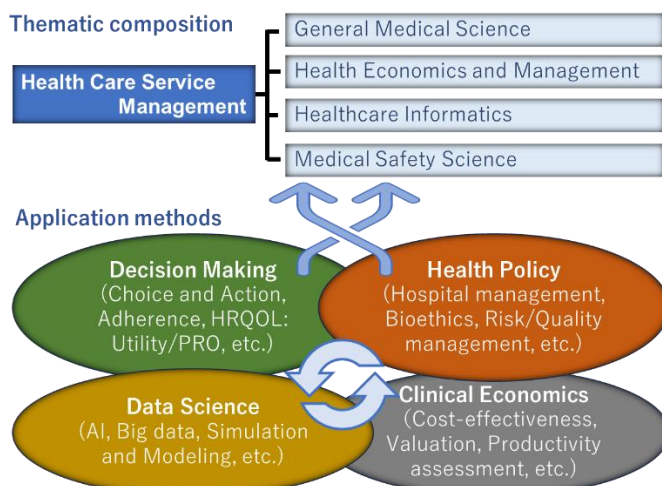
The field of Health Care Service Management is characterized by a wide range of themes and by many points of contact with not only the clinical field but also administrative activities and social trends. The significance of this discipline is growing in light of recent developments in the healthcare 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 2021

Division of Health Care Service Management

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

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 2021

Division of Medical Education/Medical Education Center

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Abe Y, Kusano C, Takano C, Morioka I, Gotoda T.	Association between Helicobacter pylori antibody-positive status and extragastric diseases in Japanese junior high school students	Pediatrics International	2021;63(9):1087-1094	1.617
2	Tonouchi R, Okada T, Abe Y, Kazama M, Kuromori Y, Yoshino Y, Iwata F, Hara M, Saito E, Morioka I.	Subclass distribution of low-density lipoprotein triglyceride and the clustering of metabolic syndrome components in Japanese children	Pediatrics International	2021;63(6):664-670	1.617
3	Takasato Y, Kurashima Y, Kiuchi M, Hirahara K, Murasaki S, Arai F, Izawa K, Kaitani A, Shimada K, Saito Y, Toyoshima S, Nakamura M, Fujisawa K, Okayama Y, Kunisawa J, Kubo M, Takemura N, Uematsu S, Akira S, Kitaura J, Takahashi T, Nakayama T, Kiyono H.	Orally desensitized mast cells form a regulatory network with Treg cells for the control of food allergy.	Mucosal Immunology	2021;14(3):640-651.	9.020
4	Toyoshima S, Sakamoto-Sasaki T, Kurosawa Y, Hayama K, Matsuda A, Watanabe Y, Terui T, Gon Y, Matsumoto K, Okayama Y.	miR103a-3p in extracellular vesicles from FcεRI-aggreated human mast cells enhances IL-5 production by group 2 innate lymphoid cells.	Journal of Allergy and Clinical Immunology	2021;147(5):1878-1891.	14.290
5	Fukuda T, Toyoshima S, Yamada S, Kurosawa Y, Okayama Y, Maruoka S, Gon Y.	Enzymatic activity of ACE2 regulates type 2 airway inflammation in mice	Allergy	2021;76(6):1913-1917.	14.710
6	Mishima S, Kashiwakura J, Toyoshima S, Sasaki-Sakamoto T, Sano Y, Nakanishi K, Matsumoto K, Okayama Y.	Higher PGD2 production by synovial mast cells from rheumatoid arthritis patients compared with osteoarthritis patients via miR-199a-3p/ prostaglandin synthetase 2 axis	Sci Rep	2021;11(1): 5738.	4.997
7	Nishimori N, Toyoshima S, Sasaki-Sakamoto T, Hayama K, Terui T, Okayama Y.	Serum level of hemokinin-1 is significantly lower in patients with chronic spontaneous urticaria than in healthy subjects.	Allergology International	2021;70(4):480-488.	7.478
8	Kitano H, Masaoka Y, Mamiya A, Fujiwara Y, Miki T, Hidai C.	Combination Cancer Therapy of a Del1 Fragment and Cisplatin Enhanced Therapeutic Efficiency In Vivo.	In Vivo	2021;35(2):779-791.	2.406
9	Fujiwara Y, Kitano H, Yamamoto T, Kokubun S, Hidai C.	Activation peptide of coagulation factor IX improves the prognosis after traumatic brain injury.	Biochemical and Biophysical Research Communications	2021;569:35-40.	3.322

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 für Mathematik 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 $\theta = 2\arcsin(k\operatorname{sn}(x - t))$, 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 $\hat{\theta}_{j+1} - \hat{\theta}_j = \tilde{\alpha} \sin\left(\frac{\theta_{j+1} + \theta_j}{2}\right)$, 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 $\theta_j = 2\arcsin(k\operatorname{sn}(4K\xi_j))$, 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

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

where $\xi_{m,n} = m\Omega + nP + \xi_0$ 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-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.

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.

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

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

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 neurosurgical 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)

Division of Natural Sciences (Chemistry Section)

Chair and Professor, Tokutaro Komatsu, Ph. D.

Material Designers



Two M.D.s (Material Designers) belong to the Division of Chemistry. Associate Professor Tokutaro Komatsu works on the 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 of the metallic 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). The other member, Assistant Professor Atsushi Okazawa, studies on molecular magnetic materials based on transition-metal complexes and organic-inorganic hybrid compounds. He has developed photoresponsive organic-inorganic hybrid systems, transition-metal complexes with giant magnetic coupling or giant magnetic anisotropy, and 4f-3d heterospin single-molecule magnets. Ongoing research and prospects are listed below.

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 superconductors with comparable T_c .

2. Design of Metal-Organic Framework

MOFs are porous materials with highly controllable size, shape, hydrophobicity/hydrophilicity 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. Design of a Conducting Metal-Organic Framework: Orbital-Level Matching in MIL-140A Derivatives. **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).

3. Multichelating Multiradical Ligands toward Magnets

Stable organic radicals have been combined with transition-metal ions to realize such as conductive materials and organic-based radical batteries. We have recently developed biradicals showing strong intramolecular ferromagnetic couplings toward room-temperature molecule-based magnets (Okazawa A, et al., A triplet biradical with double bidentate sites based on *tert*-butyl pyridyl nitroxide as a candidate for strong ferromagnetic couplers, **New Journal of Chemistry** 2018;42:17874-8).

4. ^{57}Fe Mössbauer Spectroscopy for Spin Dynamics

Fe(II) and Fe(III) complexes often show spin-crossover phenomena, where spin configurations switch between high- and low-spin states accompanied by reversible change of varied physical properties such as magnetism, conductivity, and color. ^{57}Fe Mössbauer spectroscopy is one of the powerful tools to reveal electronic and spin states on Fe ions in detail. We have demonstrated spin dynamics for a nanosized tetradeca-iron(II, III) cluster (Huang W, Okazawa A, Sato O, et al., Temperature dependence of spherical electron transfer in a nanosized $[\text{Fe}_{14}]$ complex, **Nature Communications** 2019;10:5510) and unique proton transfer coupled spin transition (Nakanishi T, Okazawa A, Sato O, et al., Observation of Proton Transfer Coupled Spin Transition and Trapping of Photoinduced Metastable Proton Transfer State in an Fe(II) Complex, **Journal of the American Chemical Society** 2019;141:19669).

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 two courses of elective subject (Physics and Engineering in Biology & Medicine) and a laboratory course (Natural Science lab physics). We also have a course for graduate students. We believe that we can provide beneficial knowledge for medical students based on 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 [1] the important information about the amorphous state of polymers.

PUBLICATION LIST 2021
Division of Natural Sciences

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Sadhukhan P, Wu S-Q, Long JI, Nakanishi T, Kanegawa S, Gao K, Yamamoto K, Okajima H, Sakamoto A, Baker ML, Kroll T, Sokaras D, Okazawa A, Kojima N, Shiota Y, Yoshizawa K, Sato O.	Manipulating electron redistribution to achieve electronic pyroelectricity in molecular [FeCo] crystals	Nature Communications	2021;12(1);4836	17.694
2	Kamebuchi H, Tamaki S, Okazawa A, Kojima N.	Transparent Ion-Exchange Membrane Exhibiting Intense Emission under a Specific pH Condition Based on Polypyridyl Ruthenium(II) Complex with Two Imidazophenanthroline Groups	Membranes	2021;11(6);400	4.562
3	Maurin I, Itoi M, Cain JM, Talham DR, Gacoin T, Boukhedden K, Itié J.	High-pressure behavior of heteroepitaxial core-shell particles made of Prussian blue analogs	Journal of Applied Physics	2021;129:235106	2.877
4	Noguchi Y, Inoue R, Matsuo H	Domain-wall photovoltaic effect in Fe-doped BaTiO ₃ single crystals	Journal of Applied Physics	2021;129:084101	2.877
5	Mannan A, Inoue R, Murakami F, Serita K, Murakami H, Tonouchi M.	A better understanding of terahertz emission from semiconductor surfaces with a phased-array effect	AIP Advances	2021;11:125021.	1.697
6	Nishiyama E, Yokota M, Tsukushi I.	Estimation of the configurational heat capacity of polyisobutylene, isobutane and 2,2,4-isomethylpentane above the glass transition temperature	Polymer Journal	2021;53:1031-1036	3.135

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 2021

Division of Liberal Arts

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

Division of Medical Research Planning and Development

Chair and Professor, Ichiro Morioka, 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 objectives 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.

PUBLICATION LIST 2021

Division of Medical Research Planning and Development

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Sano M, Takahashi R, Ijichi H, Ishigaki K, Yamada T, Miyabayashi K, Kimura G, Mizuno S, Kato H, Fujiwara H, Nakatsuka T, Tanaka Y, Kim J, Masugi Y, Morishita Y, Tanaka M, Ushiku T, Nakai Y, Tateishi K, Ishii Y, Isayama H, Moses HL, Koike K.	Blocking VCAM-1 inhibits pancreatic tumour progression and cancer-associated thrombosis/thromboembolism	Gut	2021;70(9):1713-1723.	31.795
2	Ikeda J, Matsuda H, Ogasawara M, Ishii Y, Yamaguchi K, Takahashi S, Fukuda N, Masuhiro Y, Endo M, Soma M, Hamet P, Tremblay J.	COMMD5 Inhibits Malignant Behavior of Renal Cancer Cells.	Anticancer Research	2021;41:2805-2815.	2.435
3	Ishii M, Ishii Y, Asai S.	Changes in gastrointestinal hormones during a pancreatic exocrine function breath test using N-Benzoyl-L-Tyrosyl-[1-13C] alanine sodium	International Journal of Clinical and Experimental Medicine	2021;14(11):2539-2548	Not available

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

› 医療関係者の方へ

› 採用希望の方へ

📍 交通アクセス



ホーム

来院のご案内

入院・面会のご案内

診療科・部門

健診センター

› 健診・人間ドックのご案内



PUBLICATION LIST 2021
Division of Health Planning Center

List No.	Author	Paper	Journal	Publication year ; volume : page	Impact Factor
1	Tani S, Matsuo R, Imatake K, Suzuki Y, Yagi T, Takahashi A, Matsumoto N, Okumura Y.	Gender differences in the associations among fish intake, lifestyle, and non-HDL-C level in Japanese subjects over the age of 50 years: Anti-atherosclerotic effect of fish consumption.	Nutrition metabolism, and cardiovascular diseases	2021;31(5):1434-1444.	4.666
2	Tani S, Kawauchi K, Atsumi W, Matsuo R, Ashida T, Imatake K, Suzuki Y, Yagi T, Takahashi A, Matsumoto N, Okumura Y.	Association among daily fish intake, white blood cell count, and healthy lifestyle behaviors in an apparently healthy Japanese population: implication for the anti-atherosclerotic effect of fish consumption.	Heart and vessels	2021;36(7):924-933.	1.814
3	Tani S, Matsuo R, Atsumi W, Kawauchi K, Ashida T, Yagi T, Imatake K, Suzuki Y, Takahashi A, Matsumoto N, Okumura Y.	Higher Frequency of Fish Intake May Be Associated with a Lower Neutrophil/Lymphocyte Ratio: Anti-Atherosclerotic Effects of Fish Consumption.	Annals of nutrition and metabolism	2021;77(3):146-153.	5.923