Comprehensive Education of Pharmaceutical Sciences and Medical Sciences
&
International academic human exchange (Table)

MEDICAL CHEMISTRY

Education Field : ●Pharmaceutical Chemistry

Research Field : ●Heterocyclic Chemistry

Laboratory	Pharmaceutical Chemistry
	NONE

Education Field : ●Medicinal Chemistry ●Synthetic Organic Chemistry of Medicines

● Spectrometric Identification of Organic Compounds ●Organic Chemistry Experiment

Research Field : ●Organometallic Chemistry ●Synthetic Organic Chemistry ●Heterocyclic Chemistry

●Medicinal Chemistry

Laboratory	Medicinal Chemistry
	NONE

Education Field : ●Pharmacognosy

Research Field : ●Pharmacognosy ●Medicinal Plant Science ●Phytochemistry

Laboratory	Pharmacognosy
	NONE

BIOPHYSICAL SCIENCES

Education Field : ●Pharmaco-Physical Chemistry ●Chemical Calculation

Research Field : ●X-Ray Crystal Structure Analysis of Proteins

Laboratory	Pharmaco-Physical Chemistry
	Dr. Eiko Toyota : Department of Biochemistry University of Alberta 1999.4～10 2000.6～8 2002.5～8 X-Ray Crystallographic Analyses of Complexes of Trypsin with its Inhibitors. 1) X-Ray Crystallographic Analyses of Complexes Between Bovine b-Trypsin and Schiff Base Copper(II) or Iron(III) Chelates. Eiko Toyota, Kenneth K. S. Ng, Haruo Sekizaki, Kunihiko Itoh, Kazutaka Tanizawa and Michael N. G. James, *J. Mol. Biol.*, **305**, 471-479 (2001). 2) Crystal Structure and Nucleotide Sequence of an Anionic Trypsin from Chum Salmon (*Oncorhynchus keta*) in Comparison with Atlantic Salmon (*Salmo salar*) and Bovine Trypsin. Eiko Toyota, Kenneth K. S. Ng, Shiro Kuninaga, Haruo Sekizaki, Kunihiko Itoh, Kazutaka Tanizawa and Michael N. G. James, *J. Mol. Biol.*, **324**, 391-397 (2002). 3) A Structural Comparison of Three Isoforms of Anionic Trypsin from Chum Salmon (*Oncorhynchus keta*). Eiko Toyota, Daisuke Iyaguchi, Haruo Sekizaki, Midori Tateyama, and Kenneth K. S. Ng, *Acta Cryst.*, D65, 717-723 (2009). 4) Structural Basis for the Design of Novel Schiff Base Metal Chelate Inhibitors of Trypsin. Daisuke Iyaguchi, Susumu Kawano, Kazuki Takada, Eiko Toyota, *Bioorg. Med. Chem.*, **18**, 2076-2080 (2010).

Education Field : ●Pharmaco-Analytical Chemistry

Research Field : ●Analytical Chemistry I & II ●Instrumental Analysis ●Chemical Calculation ●Pharmaceutical Analysis ●Clinical Chemstry ●Analytical Chemistry Experiments

Laboratory	Pharmaco-Analytical Chemistry
	NONE

Education Field : ●Radiopharmaceutical Chemistry ●Inorganic Chemistry ●Radiopharmaceutical Chemistry Experiments

Research Field : ●Radiopharmaceutical Chemistry

Laboratory	Radiopharmaceutical Chemistry
	International exchange through HSU-UAlberta agreement. (1) Division of Radiopharmaceutical Chemistry, Faculty of Pharmaceutical Sciences, Health Sciences University of Hokkaido, Koh-ichi Seki (Professor)*1 (2)Admission of a doctoral student from Division of Radiopharmaceutical Chemistry, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Leonard Wiebe (Professor) *2 (3) October, 1997－March, 1998 (4) The design, synthesis and development of azomycin-based nucleosides for radio-diagnosis and therapy of focal hypoxia. (5) H. C. Lee, P. Kumar, L. I. Wiebe, J. R. Mercer, K. Ohkura, , K. Seki, Synthesis of iodoaminoimidazole arabinoside (IAIA): a potential reductive metabolite of the SPECT imaging agent, iodoazomicin arabinoside (IAZA), Nucleosides & Nucleotides,18, 1995-2016 (1999). (2) Dispatcher: Kaue Ohkura (associate professor) to Division of Radiopharmaceutical Chemistry, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Leonard Wiebe (Professor) (3) May, 1998－November, 1998 (4) The design, synthesis and development of azomycin-based nucleosides for radio-diagnosis and therapy of focal hypoxia. (5) P. Kumar, L.I. Wiebe, D. Beiki, K. Ohkura and K. Seki, Synthesis of β-azomycin nucleosides:1-(β-D-2-iodo-2-deoxyfuranoarabinosyl)-2-nitroimidazole (β-2-IAZA), a novel marker of tissue hypoxia, Tetrahedron Lett., 43, 4427-4429, (2002). P. Kumar, L.I. Wiebe, D. Beiki, K. Ohkura and K. Seki, Synthesis of 1-β-D-(5-Deoxy-5-iodoaribinofuranosyl)-2-nitro-imidazole) (β-2-IAZA): A Novel Marker of Tissue Hypoxia. Chem. Pharm. Bull., 51, 399-403 (2003). (2) Special invited speaker: Leonard Wiebe (Professor) from Division of Radiopharmaceutical Chemistry, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Leonard Wiebe (Professor) (3) October, 2003 (4) Nuclear techniques in biology and medicine (5) P. Kumar, K. Ohkura, J. Balzarini, E. De Clercq, K. Seki, L. I. Wiebe, Synthesis and Antiviral Activity of Novel Fluorinated 2',3'-Dideoxynucleosides. Nucleosides, Nucleotides & Nucleic Acids, 23, 7-29 (2004).

MOLECULAR BIOSCIENCES

Education Field : ●Introduction to Biochemistry ●Biochemistry ●Physiological Chemistry

● Biochemistry Experiments

Research Field : ●Biochemistry ●Molecular Biology ●Pharmacology ●Neurophysiology

Laboratory	Biochemistry
	(2) Takashi Aoki :Qingdao University (3) : November 2008～September 2009 (4) : Studies on proximal promoters of UGT1A genes (5) Xiao Z, Nunome K, Yahara T, Inoue E, Nabeshima M, Tsuchida S, Hamaue N, Aoki T. Comparative studies of human UDP-glucuronosyltransferase 1A8 and 1A9 proximal promoters using single base substitutions. Drug Metab. Pharmacokinet., 29, 90-93, 2014. Yahara T, Xiao Z, Nunome K, Tsuchida S, Hamaue N, Aoki T. Role of T region in UGT1A8 and 9 promoters. The 129th Annual Meeting of the Pharmaceutical Society of Japan, 2009. Tsuchida S, Yahara T, Xiao Z, Nunome K, Hamaue N, Aoki T. Analysis of substrate specificity for protease using HAFCOM. The 129th Annual Meeting of the Pharmaceutical Society of Japan, 2009.

Education Field : ●Microbiology ●Chemical Microbiology ●Immunology ●Physiological Chemistry

● Microbiology Experiments

Research Field : ●Virus Infection

Laboratory	Microbiology and Immunology
	(1) (2) Katsunori Okazakai, Qingdao University (3) November 2007 - August 2008 (4) Molecular epidemiology of influenza viruses (5) Inoue, E., Wang, X., Osawa, Y., Okazaki, K. (2010) Full genomic amplification and subtyping of influenza A virus using a single set of universal primers. Microbiol. Immunol. 54, 129-134.

PHARMACEUTICAL HEALTH SCIENCE & ENVIRONMENTAL TOXICOLOGY

Education Field : ●Food Hygiene ●Hygienic Chemistry

Research Field : ●Food and Chemical Toxicology ●Food Hygiene

Laboratory	Hygienic Chemistry (Food & Chemical Toxicology)
	Professor Keiji Wada. (2) Zhang Jinyu(Assistant Professor, Qingdao University, China) 2003.11-2004.8 Research title Determination of Ginkgotoxin in Ginkgo biloba seeds. Paper: Teruki Yoshimura, Nobuyoshi Udaka, Junsuke Morita, Zhang Jinyu, Keiko Sasaki, Daisuke Kobayashi, Keiji Wada, Yasushi Hori, High Performance Liquid Chromatographic Determination of Ginkgotoxin and Ginkgotoxin-5'-Glucoside in Ginkgo Biloba Seeds, Journal of Liquid Chromatography & Related Technologies, 29, (4), 605 - 616, 2006, Presentation Teruki Yoshimura, Satoko Maeda, Keiko Sasaki, Zhang Jinyu, Keiji Wada Studies on the Edible and Medicinal Plants (56). Characterization of 4'-O-methylpyridoxine metabolite in rat liver microsomes. (Annual meeting of the Pharmaceutical Society of Japan, Osaka 2004.3) Teruki Yoshimura, Junsuke Morita, Nobuyoshi Udaka, Keiko Sasaki, Keiji Wada Determination of 4'-O-methylpyridoxine (MPN) and its 5'-glucoside in Ginkgo biloba seeds. (The 28th Meeting of the Japanese Society of Pharmacognosy, Sapporo 2004.5) Teruki Yoshimura, Junsuke Morita, Nobuyoshi Udaka, Keiko Sasaki, Keiji Wada Studies on the Edible and Medicinal Plants (62). Determination of Ginkgotoxin in Ginkgo biloba seeds. (Annual meeting of the Pharmaceutical Society of Japan, Osaka 2005.3) International exchange program for students Department of Biochemistry University of Alberta Accept 2 students of School of Pharmacy, Taipei Medical University (for one month) 2013.8, and 2014.8 Send 3 students of School of Pharmaceutical Sciences, Health Science University of Hokkaido, (for 2 weeks) 2014.3 and 2015.3 Conference of International exchange program for students (TUM and HSUH) At Health Sciences University of Hokkaido 2013.5 visitor associate professor and clerk 2014.4 visitor dean, professor, and clerk 2013.12 Consultation of international exchange students, at School of Pharmacy, Taipei Medical University, Taiwan, 2013.1 Visiting professor : Dean and Manager of School affairs 2002.12 Keiji Wada Special Lecture Title: Ginkgo biloba, A Global Treasure School of Medicine, Qingdao University, China

Education Field : ●Public Health ●Environmental Health Sciences ●Toxicology ●Hygienic Sciences ● Social Pharmacy ●Environmental Health and Toxicology Experiments

Research Field : ●Preventive Pharmacology ●Molecular Epidemiology ●Nutrigenomics ●Aging and Cancer

Laboratory	Health and Environmental Sciences
	NONE

PHARMACOLOGICAL SCIENCES

Education Field : ●Pharmacology ●Pathophysiology

Research Field : ●Pharmacology ●Pathophysiology

Laboratory	Pharmacology
薬理学 その１	# Postdoctoral fellow from overseas: 1. Dr. Yue Wang: Department of Pharmacology, Medical College, Qingdao University, China Supervisor: Prof. Masaru Minami Project title: Research on mechanism of anticancer drug-induced emesis 1993.4~1994.3 Publications 1) Ju C, Hamaue N, Machida T, Liu Y, Iizuka K, Wang Y, Minami M, Hirafuji M, Anti-inflammatory drugs ameliorate opposite enzymatic changes in ileal 5-hydroxytryptamine metabolism in the delayed phase after cisplatin administration to rats. *Eur. J. Pharmacol.*, 2008, 589:281-287. 2) Minami M, Taguchi S, Kikuchi T, Endo T, Hamaue N, Hiroshige T, Liu Y, Yue W, Hirafuji M, Effects of Fluvoxamine, a selective serotonin re-uptake inhibitor, on serotonin release from the mouse isolated ileum. *Res. Commun. Mol. Phathol. Pharmacol.*, 2003, 113-114:115-131. 3) Yue W, Zhang F, Wang L, Fang X, Liu Y, Minami M, A new vomiting animal model - mink. *Acta Pharmaceutica Sinica*, 2003, 38(2):89-91. # Postgraduate students from overseas: 1. Liu Yanxia: Department of Pharmacology, Medical College, Qingdao University, China Supervisor: Prof. Masaru Minami Project title: Roles of biogenic amines in the mechanism of anticancer-induced delayed emesis 2002.4~2005.3 Publications 1) Ju C, Hamaue N, Machida T, Liu Y, Iizuka K, Wang Y, Minami M, Hirafuji M, Anti-inflammatory drugs ameliorate opposite enzymatic changes in ileal 5-hydroxytryptamine metabolism in the delayed phase after cisplatin administration to rats. *Eur. J. Pharmacol.*, 2008, 589:281-287. 2) Minami M, Taguchi S, Kikuchi T, Endo T, Hamaue N, Hiroshige T, Liu Y, Yue W, Hirafuji M, Effects of Fluvoxamine, a selective serotonin re-uptake inhibitor, on serotonin release from the mouse isolated ileum. *Res. Commun. Mol. Phathol. Pharmacol.*, 2003, 113-114:115-131. 3) Liu Y, Hamaue N, Endo T, Hirafuji M, Minami M, 5-Hydroxytryptamine (5-HT) concentrations in the hippocampus, the hypothalamus and the medulla oblongata related to cisplatin-induced pica of rats. *Res. Commun. Mol. Phathol. Pharmacol.*, 2003, 113-114:97-113. 4) Liu Y, Hamaue N, Endo T, Hirafuji M, Minami M, Urinary 5-hydroxyindoleacetic acid excretion and kaolin ingestion after a single administration of cisplatin in the delayed emesis rat model. *Biog. Amines*, 2003, 17(4-6):271-280. 5) Minami M, Endo T, Hirafuji M, Hamaue N, Liu Y, Hiroshige T, Nemoto M, Saito H, Yoshioka M, Pharmacological aspects of anticancer drug-induced emesis with emphasis on serotonin release and vagal nerve activity. *Pharmacol. Ther.*, 2003, 99(2):149-165. 6) Yue W, Zhang F, Wang L, Fang X, Liu Y, Minami M, A new vomiting animal model - mink. *Acta Pharmaceutica Sinica*, 2003, 38(2):89-91. 7) Endo T, Hamaue N, Ihira E, Teramoto Y, Liu Y, Hirafuji M, Minami M, Effects of granisetron, a 5-HT_3 receptor antagonist, on 5-hydroxytryptamine (5-HT) release from the isolated ileum in a delayed-emesis rat model. *Res. Commun. Mol. Phathol. Pharmacol.*, 2002, 111(1-4):55-68. 2. Ju Chuanxia: Department of Pharmacology, Medical College, Qingdao University, China Supervisor: Prof. Masahiko Hirafuji Project title: Role of serotonin in the mechanism of cisplatin-induced delayed emesis 2004.7~2005.5 Publication 1) Ju C, Hamaue N, Machida T, Liu Y, Iizuka K, Wang Y, Minami M, Hirafuji M, Anti-inflammatory drugs ameliorate opposite enzymatic changes in ileal 5-hydroxytryptamine metabolism in the delayed phase after cisplatin administration to rats. *Eur. J. Pharmacol.*, 2008, 589:281-287. # Postgraduate student studying abroad: Tomoko Endo: Department of Pharmacology, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Canada Supervisor: Dr. John Seubert Project title: Role of n-3 PUFA, notably DHA and its epoxy metabolites EDP, in regulating cardiovascular function 2015.6~2016.5 (as a schedule)

Education Field : ●Clinical Pharmacology ●Toxicology

Research Field : ●Smooth Muscle Physiology ●Neurophysiology ●Pharmacology ● Electrophysiology

Laboratory	Clinical Pharmacology
	（1） School of Pharmaceutical Sciencse Department of Pharmacological Sciences （2）Keiichi Shimamura :Medical College of Qingdao University （3） :2001 August 1 ～ 2002 July 31 （4）: Regulation of electrical activity and intracellular calcium concentration in smooth muscle tissue. （5） 1. Evidence for the involvement of the cyclooxygenase-metabolic pathway in diclofenac-induced inhibition of spontaneous contraction of rat portal vein smooth muscle cells. Shimamura K, Kimura S, Zhou M, Wang Y, Toba M, Ohashi A, Higuchi T, Kawaguchi H, Kitamura K. J Smooth Muscle Res. 2005 Aug;41(4):195-206. 2. Effects of L-arginine on spontaneous contraction of the rat portal vein. Shimamura K, Zhou M, Toba M, Kimura S, Higuchi T, Kawaguchi H, Sekiguchi F, Sunano S. Pflugers Arch. 2003 Apr;446(1):30-5. 3. Effects of flufenamic acid on smooth muscle of the carotid artery isolated from spontaneously hypertensive rats. Shimamura K, Zhou M, Ito Y, Kimura S, Zou LB, Sekiguchi F, Kitramura K, Sunano S. J Smooth Muscle Res. 2002 Apr;38(1-2):39-50.

Education Field : ●Pharmacotherapeutics ●Pharmacology ●Pathophysiology

Research Field : ●Pathophysiology ●Neuropsychopharmacology ●Immunology ● Neuroimmunology

Laboratory	Pathophysiology
	NONE

PHARMACEUTICS

Education Field : ●Pharmaceutics ●Biopharmacy ●Pharmacokinetics ●Molecular Pharmaceutics ● Clinical Pharmaceutics ●Pharmaceutics Exercises ●Pharmaceutics Experiments

Research Field : ●Pharmaceutics ●Pharmacokinetics ●Polymer Chemistry ●Medical Pharmacy

Laboratory	Pharmaceutics
薬剤学	NONE

Education Field : ●Pharmacokinetics ●Clinical Pharmacokinetics ●Pharmaceutical Experiments

Research Field : ●Pharmaceutics ●Pharmacokinetics ●Polymer Chemistry ●Medical Pharmacy

Laboratory	Clinical Pharmacy
	(2) Akie Takahashi (first year master's student) Faculty of Pharmacy & Pharmaceutical Sciences, University of Alberta (3) from 2001.Aug. to 2002. Aug. (4) Study of nanocapsules as a carrier for drugs (5) 1) A. Takahashi, S. Suzuki, N. Kawasaki, W. Kubo, S. Miyazaki, R. Loebenberg, J. Bachynsky, D. Attwood, Percutaneous absorption of non-steroidal anti-inflammatory drugs from in situ gelling xyloglucan formulations in rats, Int. J. Pharm., 246, 179-186 (2002) 2) Shozo Miyazaki, Akie Takahashi, Wataru Kubo, John Bachynsky, Raimar Löbenberg, Poly n-butylcyanoacrylate (PNBCA) nanocapsules as a carrier for NSAIDs: in vitro release and in vivo skin penetration, Poly n-butylcyanoacrylate (PNBCA) nanocapsules as a carrier for NSAIDs: in vitro release and in vivo skin penetration, J Pharm Pharmaceut Sci, 6(2), 240-245 (2003)

Education Field : ●Manufacturing Pharmaceutics ●Pharmacy Laws ●Social Pharmacy

Research Field : ●Manufacturing Pharmaceutics ●Pharmacy Laws ●Social Pharmacy

Laboratory	Biopharmaceuitics
	(2) Naomi Yagi, Taipei Medical University CHEN Wei-Ling , CHEN Ying-Yu (3) 2014. 8.18～8.19 (4) Production of tablets and their pharmaceutical tests (5) Report meeting (2014.8.28)

Practical Pharmacy

Education Field : ●Practical Pharmacy

Research Field : ●Clinical Pharmacy ●Pharmacotherapeutics ●Drug Information ● Pharmacoepidemiology ●Therapeutic Drug Monitoring

Laboratory	Practical Pharmacy & Hospital Pharmacy
	NONE