

Program: List of Speakers with titles

June 21 (Sunday)

14:00~ Registration

15:30~15:50 <Ocean Hall>

Opening

Opening Remarks: **F. Peter Guengerich** (Vanderbilt University School of Medicine)

15:50-16:45 Plenary Lecture <Ocean Hall>

Shigeaki Kato (University of Tokyo): *Nuclear vitamin D receptor-regulated expression of the human CYP27B1 gene mediates the DNA methylation/demethylation*

17:00~19:00 <Ocean Hall>

Session 1: Bioinformatics

Chairs: Osamu Gotoh, Daniele Werck-Reichhart

S1-L1:

17:00-17:30 **Osamu Gotoh** (Kyoto University): *Birth and death of P450 genes in metazoan lineage*

S1-L2:

17:30-18:00 **Daniele Werck-Reichhart** (CNRS-University, de Strasbourg): *P450 evolution and neofunctionalization in plants: emergence of a novel phenolic pathway in Brassicaceae*

S1-L3:

18:00-18:30 **Jongsun Park** (Seoul National University): *Integrated bioinformatics platforms for identifying and analyzing cytochrome P450s from diverse genomic resources*

S1-L4:

18:30-19:00 **Masanori Arita** (University of Tokyo): *Data management of cross-disciplinary information using wiki*

19:00~ < Summit Hall >

Welcome Reception

June 22 (Monday)

9:00~13:00 < Summit Hall >

Session 2 : P450s in metabolism and drug discovery

Chairs: Hiroshi Yamazaki, Steven J. Leeder

S2-L1:

9:00-9:30 **Steven J. Leeder** (Children's Mercy Hospital and Clinics): *Ontogeny and pediatric pharmacogenetics in drug development*

S2-L2:

9:30-10:00 **Caroline Lee** (Pfizer Global Research & Development): *Novel application of cytochrome P450 tools to potentially impact drug design and evaluate drug interactions*

S2-L3:

10:00-10:30 **Yasuhiro Yamada** (Mitsubishi Tanabe Pharma Corp.): *A strategic approach to positioning of cytochrome P450 studies and risk assessment for drug-drug interaction*

in drug discovery

10:30-11:00 (Coffee Break)

S2-L4:

11:00-11:30 **Hiroshi Yamazaki** (Showa Pharmaceutical University): *Remarkable properties of human cytochrome P450 1A2 and 3A5 in function and cooperativity for drug development*

P-2 (S2-S1):

11:30-11:45 Mariko Nakano (University of Washington): *Tissue distribution and metabolism of arachidonic acid by the orphan P450, CYP4V2*

P-3 (S2-S2):

11:45-12:00 Shinichi Ikushiro (Toyama Prefectural University): *Functional co-expression of xenobiotic metabolizing enzymes, human cytochromes P450 and UDP-glucuronosyltransferases, in yeast microsomes*

P-4 (S2-S3):

12:00-12:15 Takahiro Murai (University of Utah): *CYP3A5-specific mechanism-based inactivation by fluticasone propionate, an inhaled glucocorticoid*

P-5 (S2-S4):

12:15-12:30 Sasitorn Aueviriyavit (Chiba University): *Humanized P450 mouse: (2) Functional expression of human CYP3a isoforms in Cyp3a-Hac mice and their application in drug-drug interaction study via mechanism-based inactivation*

P-6 (S2-S5):

12:30-12:45 Xinxin Ding (Wadsworth Center, New York State Department of Health): *Role of mouse CYP2A5 in nicotine clearance and testosterone homeostasis*

P-7 (S2-S6):

12:45-13:00 Danielle Sevir (RMIT University): *Using the rapid N-in-one cocktail to screen commercially available herbal products for CYP inhibition*

9:00~13:00 <Ocean Hall>

Session 3 : Structure and function of P450s

Chairs: Andrew Munro, Eric F. Johnson

S3-L1:

9:00-9:30 **Eric F. Johnson** (The Scripps Research Institute): *Structural flexibility underlying the broad substrate specificity of human P450 2C9: Conformational changes upon substrate binding as determined by X-ray crystallography*

S3-L2:

9:30-10:00 **David Leys** (The University of Manchester): *Crystal structures of Mycobacterium tuberculosis P450s*

S3-L3:

10:00-10:30 **Emily E. Scott** (The University of Kansas): *Structures of human cytochrome P450 2E1*

10:30-11:00 (Coffee Break)

S3-L4:

11:00-11:30 **Shingo Nagano** (RIKEN SPring-8 Center): *Cytochrome P450 in biosynthesis of indolocarbazoles*

P-32 (S3-S1):

11:30-11:45 Stephen G. Bell (University of Oxford): *The CYP199A2 Class I P450 system from the metabolically diverse bacterium Rhodopseudomonas palustris*

P-33 (S3-S2):

11:45-12:00 Natallia Strushkevich (SGC, University of Toronto): *Crystal structure of human lanosterol 14 α -demethylase (CYP51) in complex with ketoconazole*

P-34 (S3-S3):

12:00- 12:15 Michael R. Wester (Pfizer Global Research & Development): *Crystal structures of CYP3A4 in complex with bromocriptine and clotrimazole: Evidence of structural plasticity in the active site*

P-35 (S3-S4):

12:15-12:30 Dmitri R. Davydov (University of California, San Diego): *Allosteric transitions in cytochrome P450 3A4: A multi-step substrate binding mechanism revealed with novel fluorescent ligands*

P-36 (S3-S5):

12:30-12:45 Lianhua Xu (University of Tokyo): *Crystal structures of filipin hydroxylases (CYP105P1 and CYP105D6) from Streptomyces avermitilis*

13:00~14:30 ~Lunch~

14:30~18:30 < Summit Hall >

Session 4 : Post-transcriptional, post-translational, and epigenetic events

Chairs: Tsuyoshi Yokoi, Daniel W. Nebert

S4-L1:

14:30-15:00 **Maria Almira Correia** (University of California, San Francisco): *Post-translational CYP3A phosphorylation/ubiquitination: Means to a degradative end*

S4-L2:

15:00-15:30 **Daniel W. Nebert** (University Cincinnati Medical Center): *Knock-in mouse lines expressing either mitochondrial or microsomal CYP1A1*

S4-L3:

15:30-16:00 **Alvaro Puga** (University of Cincinnati College of Medicine): *Epigenetic regulation of drug metabolism Genes*

S4-L4:

16:00-16:30 **Miki Nakajima** (Kanazawa University): *MicroRNA as a regulator of human cytochrome P450s and nuclear receptors*

16:30-17:00 (Coffee Break)

P-50 (S4-S1):

17:00-17:15 Takuya Mohri (Kanazawa University): *MicroRNA regulates the expression of human CYP2E1*

P-51 (S4-S2):

17:15-17:30 Tsuyoshi Yokoi (Kanazawa University): *miR-24 represses human HNF4 α expression*

P-52 (S4-S3):

17:30-17:45 Johan Lundqvist (Uppsala University): *Regulation of key steroidogenic CYP enzymes – a potential novel role for 1 α ,25-dihydroxyvitamin D₃*

P-53 (S4-S4):

17:45-18:00 Markus Storvik (University of Kuopio): *The effects of tobacco-smoke and dietary compounds on Phase I and Phase II xenobiotic metabolism enzyme genes through AH-receptor and tissue-specific transcription factors*

S4-L5:

18:00-18:30 **Negishi Masahiko** (NIEHS, NIH): *Signal-mediated mechanism of CAR activation*

14:30~18:00 <Ocean Hall>

Session 5 : New mechanisms of P450 reactions

Chair: F. Peter Guengerich

S5-L1:

14:30-15:00 **F. Peter Guengerich** (Vanderbilt University School of Medicine): *Kinetics of sequential reactions catalyzed by P450 enzymes*

S5-L2:

15:00-15:30 **Fumihiko Sato** (Kyoto University): *Novel P450s in isoquinoline alkaloid biosynthesis*

S5-L3:

15:30-16:00 **Andrew Munro** (University of Manchester): *Characterization of P450 redox systems in the human pathogen *Mycobacterium tuberculosis**

S5-L4:

16:00-16:30 **Paul Ortiz de Montellano** (University of California, San Francisco): *Cytochrome P450 conformation and catalysis probed by unnatural amino acid substitutions*

16:30-17:00 (Coffee Break)

P-54 (S5-S1):

17:00-17:15 Arti Singh (The University of Queensland): *Cytochrome P450-mediated fatty acid oxidation: Mechanistic investigations*

P-55 (S5-S2):

17:15-17:30 Tatyana Spolitak (University of Michigan): *Evidence for catalytic intermediates involved in generation of the chromopyrrolic acid scaffold of rebeccamycin by joint *RebO* and *RebD* action. The views on the role of P450s in oxidative coupling reactions*

18:30~21:00 *Poster Session I (Posters of Sessions 1 - 5)*

June 23 (Tuesday)

9:00~13:00 < Summit Hall >

Session 6 : Transcriptional regulation

Chairs: Masahiko Negishi, Frank J. Gonzalez

S6-L1:

9:00-9:30 **Frank J. Gonzalez** (National Cancer Institute): *Regulation of human P450s: Studies with humanized mice*

P-60 (S6-S1):

9:30-9:45 Nico Scheer (TaconicArtemis): *Use of humanized mouse models to study the transcriptional regulation of Cytochrome P450 genes*

P-61 (S6-S2):

9:45-10:00 Yoshihiro Konno (NIEHS, NIH): *Nuclear xenobiotic receptor PXR locks co-repressor SMRT onto the CYP24A1 promoter to attenuate vitamin D₃ activation*

P-62 (S6-S3):

10:00-10:15 Jin-ding Huang (National Cheng Kung University): *Transcriptional inhibition of CYP3A4 as novel mechanism of drug-drug interaction*

P-63 (S6-S4):

10:15-10:30 Kaoru Kobayashi (Chiba University): *A compound in fetal bovine serum modulates the activation of pregnane X receptor*

10:30-11:00 (Coffee Break)

S6-L2:

11:00-11:30 **Oliver Hankinson** (University of California, Los Angeles): *Transcriptional regulation of CYP1A1, CYP1B1, and CYP2S1*

S6-L3:

11:30-12:00 **Akinori Ohta** (University of Tokyo): *Control of cytochromes P450 production by an Opi1-family transcription factor in yeast Yarrowia lipolytica*

S6-L4:

12:00-12:30 **Graham Robertson** (The University of Sydney): *Transcriptional repression of hepatic drug clearance pathways by tumour-derived cytokines*

P-64 (S6-S5):

12:30-12:45 Jae-Gook Shin (Inje University College of Medicine): *Pharmacogenomics of transcription regulation in drug metabolism and pharmacokinetics*

P-65 (S6-S6):

12:45-13:00 Uli Zanger (Dr. Margarete Fischer-Bosch Institute of Clinical Pharmacology): *Pathway-oriented pharmacogenomics approach to probe transcriptional regulation of CYP3A4*

9:00~13:00 <Ocean Hall>

Session 7: Heme-thiolate proteins

Chair: Toru Shimizu, Huiying Li

S7-L1:

9:00-9:30 **Hofrichter Martin** (International Graduate School of Zittau): *Aromatic peroxygenases from mushrooms: extracellular heme-thiolate proteins of a new enzyme sub-subclass?*

S7-L2:

9:30-10:00 **Toru Shimizu** (Tohoku University): *The critical role of the thiolate-heme complex in the functioning of heme-sensor proteins*

S7-L3:

10:00-10:30 **Huiying Li** (University of California Irvine): *Engineering a P450BM3-like red FMN semiquinone into neuronal nitric oxide synthase*

10:30-11:00 (Coffee Break)

S7-L4:

11:00-11:30 **Shigetoshi Aono** (National Institutes of Natural Sciences): *Physiological role of thiolate coordination to the heme in CooA from R. rubrum*

P-72 (S7-S1):

11:30-11:45 Hirofumi Shoun (University of Tokyo): *NADH-peroxidase activity of*

multi-functional detoxifying enzyme, P450nor

P-73 (S7-S2):

11:45-12:00 Yasuhiro Mie (AIST): *Electrochemically-driven drug metabolism by human cytochrome P450 immobilized on hydrophobic electrode surface*

P-74 (S7-S3):

12:00-12:15 Kelath M. Manoj (Vellore Institute of Technology): *Kinetics of one-electron oxidations by chloroperoxidase: What is the analogous take-home lesson for CYPs?*

P-75 (S7-S4):

12:15-12:30 Jotaro Igarashi (Tohoku University): *The heme-binding site of the Heme-regulated Inhibitor (HRI), and the role of the heme regulatory motif in heme sensing*

13:00~ *Excursion*

19:00~ *Banquet (at KARIYUSHI BEACH HOTEL)*

June 24 (Wednesday)

9:00~13:00 < Summit Hall >

Session 8 : Biotechnology I

Chairs: Rita Bernhardt, Toshiyuki Sakaki

S8-L1:

9:00-9:30 **Rita Bernhardt** (Saarland University): *Engineering CYP106A2 for changed substrate specificity and characterization of new substrates*

S8-L2:

9:30-10:00 **James R. Halpert** (University of California, San Diego): *Engineering of mammalian cytochromes P450 2B and 3A by site-directed mutagenesis and directed evolution*

S8-L3:

10:00-10:30 **Toshiyuki Sakaki** (Toyama Prefectural University): *Construction of a highly active vitamin D hydroxylase based on crystal structure of CYP105A1 and its application to production of 1 α ,25-dihydroxyvitamin D₃*

10:30-11:00 (Coffee Break)

S8-L4:

11:00-11:30 **Akira Arisawa** (Mercian Corporation): *Actinomycete cytochrome P450 from *Pseudonocardia autotrophica* that catalyzes vitamin D₃ hydroxylation*

P-80 (S8-S1):

11:30-11:45 Hirofumi Ichinose (Kyushu University): *Functional characterization of cytochrome P450 from the white-rot fungus *Phanerochaete chrysosporium**

P-81 (S8-S2):

11:45-12:00 Sun-Ha Park (Chonnam National University): *Engineering of bacterial P450 BM3 for human P450 2A6 activity with indigo formation*

P-82 (S8-S3):

12:00-12:15 Shinya Fushinobu (University of Tokyo): *Altering the substrate specificity of P450foxy*

P-83 (S8-S4):

12:15-12:30 Hidehiko Hirakawa (University of Tokyo): *Chimeric self-sufficient P450 system with a branched structure*

P-84 (S8-S5):

12:30-12:45 Sjeff Cornelissen (TU Dortmund): *A cytochrome P450 based bioprocess for limonene hydroxylation to perillyl alcohol*

9:00~13:00 <Ocean Hall>

Session 9 : New aspects of P450 functions

Chairs: Hirofumi Shoun, John H. Dawson

S9-L1:

9:00-9:30 **John H. Dawson** (University of South Carolina): *Generation and reactivity of transient cytochrome P450 oxygen-containing intermediates*

S9-L2:

9:30-10:00 **Andreas Daiber** (Johannes Gutenberg University Mainz, School of Medicine): *Reaction mechanisms of P450nor*

S9-L3:

10:00-10:30 **Neil C. Bruce** (University of York): *Insight into the structure and function of XplA: a unique explosives degrading cytochrome P450*

10:30-11:00 (Coffee Break)

S9-L4:

11:00-11:30 **Debashis Ghosh** (Hauptman-Woodward Medical Research Institute): *Structure and function of aromatase, the estrogen factory*

P-94 (S9-S1):

11:30-11:45 Kenneth Jensen (University of Copenhagen): *Utilizing the power of light*

P-95 (S9-S2):

11:45-12:00 Hisakazu Yamane (University of Tokyo): *The presence of diterpenoid phytoalexin biosynthetic gene clusters containing cytochrome P450 monooxygenase genes in rice*

P-96 (S9-S3):

12:00-12:15 Naoki Takaya (University of Tsukuba): *Production of hydroxy-fatty acids and alkanediols by Escherichia coli cells producing fungal cytochrome P450foxy*

13:00~14:30 ~Lunch~

14:30~18:30 < Summit Hall >

Session 10: Biotechnology II

Chairs: Hideo Ohkawa, Frances H. Arnold

S10-L1:

14:30-15:15 **Frances H. Arnold** (California Institute of Technology): *In Darwin's honor: artificial selection of cytochrome P450s*

S10-L2:

15:15-15:45 **Birger Lindberg Meller** (University of Copenhagen): *The cytochrome P450s in cyanogenic glucoside synthesis*

S10-L3:

15:45-16:15 **Hideo Ohkawa** (Fukuyama University): *How are recombinant P450s and*

AhRs useful for phytomonitoring and phytoremediation of persistent organic pollutants of environmental chemicals?

P-100 (S10-S1):

16:15-16:30 Dong-Hyun Kim (Chonnam National University): *Generation of the human metabolite piceatannol from the anti-cancer preventive agent resveratrol by bacterial cytochrome P450 BM3*

16:30-17:00 (Coffee Break)

S10-L4:

17:00-17:30 **Yoshikazu Tanaka** (Suntory Holdings Ltd): *Flower colour modification by modulating expression of cytochrome P450 genes*

P-101 (S10-S2):

17:30-17:45 Kwon-Young Choi (Seoul National University): *Functional expression of Nocardia farcinica IFM10152 P450s in E. coli for A-ring specific monohydroxylation of daidzein*

P-102 (S10-S3):

17:45-18:00 Hyun-Jun Kim (Suntory Institute For Bioorganic Research): *Metabolic engineering of lignan biosynthesis in Forsythia cell suspension cultures by expression of a Sesamum CYP81Q1*

P-103 (S10-S4):

18:00-18:15 Satoshi Iwakami (Kyoto University): *Isolation of cytochrome P450 genes and their expression in the multiple-herbicide resistant biotype of late watergrass (Echinochloa phyllopogon)*

14:30~18:30 <Ocean Hall>

Session 11 : Biophysical methods & nanotechnology

Chairs: Alexander Archakov, William M. Atkins

S11-L1:

14:30-15:00 **Ilia G Denisov** (University of Illinois at Urbana-Champaign): *Common properties and specific features of cytochromes P450*

S11-L2:

15:00-15:30 **Paul M. Champion** (Northeastern University): *Vibrational coherence spectroscopy investigations of heme proteins with sulphur ligation*

S11-L3:

15:30-16:00 **Alexander Archakov** (Russian Academy of Medical Sciences): *Nanotechnology for visualization, counting and kinetic studies of cytochrome P450 complexes*

S11-L4:

16:00-16:30 **William M. Atkins** (University of Washington): *Ligand-based NMR and single molecule spectroscopy as probes of heterotropic effects in cytochrome P450s*

16:30-17:00 (Coffee Break)

P-105 (S11-S1):

17:00-17:15 Wang Yuqin (Swansea University): *Quantitative screening of cytochrome P450s by mass spectrometry: Specificity and sensitivity*

18:30~21:00 *Poster Session II (Posters of Sessions 6 - 13)*

June 25 (Thursday)

9:00~13:00 < Summit Hall >

Session 12 : Functional genomics

Chairs: Damjana Rozman, Shigehiro Ohdo

NOTE: The order of lectures changed!

S12-L4:

9:00-9:30 **Katrin Marcus** (Ruhr-University Bochum): *Mass spectrometry- based assay for absolute quantification of cytochrome P450s in human liver*

S12-L2:

9:30-10:00 **Shigehiro Ohdo** (Kyushu University): *Molecular clock mechanisms of drug metabolism*

S12-L3:

10:00-10:30 **William Griffiths** (Swansea University): *Discovering new products of CYP catalysed reactions in brain, CSF and plasma*

10:30-11:00 (Coffee Break)

S12-L1:

11:00-11:30 **Damjana Rozman** (University of Ljubljana, Faculty of Medicine): *The cross-talk of CYPs in cholesterol homeostasis and drug metabolism*

P-107 (S12-S1):

11:30-11:45 **Simon Horvat** (University of Ljubljana): *Generation of Cyp51 conditional knockout mice to study its function during embryo and male germ cell development*

P-108 (S12-S2):

11:45-12:00 **Hajime Takeuchi** (Tokushima Bunri University): *Cyp26b1 regulates the expression of the gut-homing receptor CCR9 in T cells*

P-109 (S12-S3):

12:00-12:15 **Bhagavatula Moorthy** (Baylor College of Medicine): *Mice deficient in the gene for cytochrome P450 (CYP)1A2 display increased levels of F2-isoprostanes, oxidative DNA adducts, and augmented susceptibility to oxygen-mediated lung injury in vivo*

9:00~13:00 <Ocean Hall>

Session 13 : Steroidogenesis

Chairs: Michael R. Waterman, Nobuhiro Harada

S13-L1:

9:00-9:30 **Kjell Wikvall** (Uppsala University): *Regulation of CYP enzymes in steroidogenesis with particular focus on cholesterol metabolism and vitamin D-related processes*

S13-L2:

9:30-10:00 **Marion Sewer** (Georgia Institute of Technology): *Protein kinase C regulates CYP17 transcription by mediating the phosphorylation of steroidogenic factor-1*

S13-L3:

10:00-10:30 **Michael R. Waterman** (Vanderbilt University School of Medicine): *Development of CYP51 inhibitors in protozoa*

10:30-11:00 (Coffee Break)

S13-L4:

11:00-10:30 **Nobuhiro Harada** (School of Medicine, Fujita Health University): *Multiple transcription factors regulate a brain-specific promoter activity of mouse aromatase (CYP19A1) gene*

S13-L5:

10:30-12:00 **Evan Simpson** (Prince Henry's Institute of Medical Research): *Obesity, aromatase and breast cancer*

P-112 (S13-S1):

12:00-12:15 Hiroshi Kataoka (University of Tokyo): *Cytochrome P450s involved in biosynthesis of ecdysteroids in insects; regulation of gene expression by neuropeptides*

P-113 (S13-S2):

12:15-12:30 Robert Tuckey (University of Western Australia): *Metabolism of substrates incorporated into phospholipid vesicles by 25-hydroxyvitamin D3 1 α -hydroxylase (CYP27B1)*

P-114 (S13-S3):

12:30-12:45 Tadashi Ogishima (Kyushu University): *Local steroidogenesis in pancreatic beta-cells*

~~P-115 (S13-S4):~~

~~12:45-13:00 Maamar Souidi (Institute for Radiological Protection and Nuclear Safety):
Testicular steroidogenesis in adult rats following chronic exposure to 137 Cesium since uterine life or birth **Oral presentation canceled**~~

13:00~14:30 ~Lunch~

14:30~15:30 ~Poster award and Closing~