

Conference Program

Wednesday, July 1, 2009

■ Opening address and Information 10:00 – 10:10

■ Oral Presentation

Chair: **Hans Brückner** and **Hiroshi Homma**

- O-1 10:10 – 10:30
Kenji Soda
SHORT RETROSPECT OF MY D-AMINO ACID RESERCH AND PERSPECTIVE
- O-2 10:30 – 11:00
George Fisher, Nathan Gonzalez, Maria T. Perez, Alice Holohean and John Hackman
D-ASPARTATE OCCURS IN THE FROG NERVOUS SYSTEM AND ACTIVATES EXCITATORY AMINO ACID RECEPTORS
- O-3 11:00 – 11:20
Toru Nishikawa, Naoki Yamamoto, Asami Umino, Sotaro Kanematsu, Takahisa Fujihira, Hisayuki Iwama, Dai Shimadu, Atsushi Hashimoto and Akeo Kurumaji
REGULATION OF EXTRACELLULAR D-SERINE CONTENTS IN THE RAT BRAIN
- O-4 11:20 – 11:40
Yasuhisa Asano, Kazuyuki Yasukawa, Satoko Maruyama, Ryuji Hasemi, Seiji Okazaki, Takashi Yamane, Shigenori Yamaguchi and Hidenobu Komeda
DYNAMIC KINETIC RESOLUTION OF α -AMINONITRILES AND AMINO ACID AMIDES
- O-5 11:40 – 12:00
Toshihisa Ohshima, Y. Tani, T. Yabutani, T. Satomura, H. Sakuraba and J. Motonaka
CHARACTERIZATION OF HYPERTHERMOPHILIC FAD-CONTAINING D-PROLINE DEHYDROGENASE AND ITS APPLICATION TO ELECTRO CHEMICAL BIOSENSOR

12:00 – 13:30 - LUNCH -

Chair: **Daniel Soyez** and **Haruhiko Masaki**

- O-6 13:30 – 14:00
Gyula Pályi, Nicola Florini, Gaëlle F. Arnaud and Claudia Zucchi
D-AMINO ACIDS: STOCHASTICS, ANALYTICAL AND SYNTHETIC APPROACHES

O-7 14:00 – 14:20
Ryuichi Konno, K. Hamase, R. Maruyama and K. Zaito
MUTANT MOUSE AND RAT LACKING D-AMINO-ACID OXIDASE, AND SERINE RACEMASE KNOCKOUT MOUSE

O-8 14:20 – 14:40
Katsunori Kuge, Keiko Kitamura, Koichi Nakaoji, Kazuhiko Hamada, Norihiko Fujii, Takeshi Saito and Noriko Fujii
OXIDATIVE STRESS INDUCES THE FORMATION OF D-ASPARTYL RESIDUES IN THE ELASTIN MIMIC PEPTIDES

14:40 – 15:00 - coffee break -

Chair: **George H. Fisher and Yoshio Kera**

O-9 15:00 – 15:20
Motohiro Shizuma, H. Sato, D. Ono, M. Nakamura, Y. Takai and M. Sawada
EVALUATION OF ENANTIOMERIC EXCESS OF AMINO ACID DERIVATIVES USING FAST ATOM BOMBARDMENT MASS SPECTROMETRY COUPLED WITH THE ENANTIOMER-LABELED HOST METHOD

O-10 15:20 – 15:40
Haruhiko Masaki, Tetsuya Miyamoto, Masahiro Hamaguchi, Masae Sekine, Tetsuhiro Ogawa, Makoto Hidaka and Hiroshi Homma
REEXAMINATION OF THE POSSIBILITY OF D-AMINO ACIDS IN USUAL PROTEINS PRODUCED BY BACTERIA

O-11 15:40 – 16:00
Masaaki Sugiyama, Norihiko Fujii, Yukio Morimoto, Kazuhiro Mori, Keiji Ito, Toshiharu Fukunaga and Noriko Fujii
STRUCTURAL STUDY OF ALPHA-CRYSTALLIN UNDER EXTERNAL STRESS

O-12 16:00 – 16:20
Lei Yang, Qiao Liu, Honglan Ren and Yuhong Han
STRUCTURAL CHARACTERIZATION AND PURIFICATION OF A D-AMINO ACID FROM CONUS MARMOREUS

16:30 – 17:40

■ **Poster Presentation** P-1 ~ P-16, 18

P-1 **Akifumi Oda, Kana Kobayashi and Ohgi Takahashi**
MOLECULAR SIMULATIONS OF AMYLOID BETA PEPTIDES INCLUDING D-ASPARTIC ACID RESIDUES BY USING IMPLICIT SOLVENT MODEL

P-2 **Toratane Munegumi**
HYDROPHOBICITY OF PEPTIDES CONTAINING D-AMINO ACIDS

- P-3 **Yoshihiro Matsuya, Ohgi Takahashi and Akifumi Oda**
DOES THE SUCCINIMIDE INTERMEDIATE NEED TO BE FORMED FOR STEREOINVERSION OF ASPARTIC ACID RESIDUES TO OCCUR?
- P-4 **Kana Kobayashi, Ohgi Takahashi and Akifumi Oda**
WHY ARE SERINE RESIDUES RACEMIZATION-PRONE?
A COMPUTATIONAL STUDY
- P-5 **Nobuyuki Takahashi, Maki Maeda Masayuki Yamasaki, and Bunzo Mikami**
PROTEIN ENGINEERING STUDY FOR CONTRIBUTION OF CONCEIVABLE D-SERINE RESIDUES TO THE THERMOSTABILIZATION OF OVALBUMIN UNDER ALKALINE CONDITIONS
- P-6 **Yuhei Mori, Kenzo Aki, Tadatoshi Kinouchi, Takehiro Kawaguchi, Masashi Kida, Hiroaki Sakaue and Noriko Fujii**
SIMULTANEOUS RACEMIZATION AND GLYCATION OF AMINO ACID RESIDUES IN PROTEINS OF UVB IRRADIATED SKIN
- P-7 **Yuichi Kaji, Yutaka Takazawa, Masashi Fukayama and Noriko Fujii**
ACCUMULATION OF D- β -ASP-CONTAINING PROTEINS IN AGE-RELATED AND HEREDITARY OCULAR DISEASES
- P-8 **Ryuichiro Tanaka and Masashi Oda**
ORNITHINIC DIPEPTIDE OF DOBSONFLY
- P-9 **Hans Brückner, Jochen Kirschbaum, Christoph Theis, and Ralf Pätzold**
ENANTIOMERIZATION OF AMINO ACIDS ON HEATING WITH CARBOHYDRATES AND ALDEHYDES
- P-10 **Hans Brückner and Thomas Degenkolb**
ABIOTIC AND BIOTIC ORIGIN OF ISOVALINE ENANTIOMERS
- P-11 **Noriko Higashi, Yoshitaka Gogami, Daisuke Matsui and Tadao Oikawa**
D-AMINO ACIDS IN SAKE: QUANTITATIVE ANALYSIS AND RELATION TO TASTE
- P-12 **Takehisa Matsukawa, Hiroshi Hasegawa, Yoshihiko Shinohara, Jun Kobayashi, Atsuko Shinohara, Momoko Chiba, Yutaka Inaba, Kimiyoshi Ichida, and Kazuhito Yokoyama**
SIMULTANEOUS DETERMINATION OF ENANTIOMERS OF SELENOMETHIONINE AND [$^2\text{H}_3, ^{82}\text{Se}$]SELENOMETHIONINE IN BIOLOGICAL FLUID BY CAPILLARY GAS CHROMATOGRAPHY MASS SPECTROMETRY
- P-13 **Kyoko Ueno, K. Hamase, Y. Miyoshi, M. Mita, W. Lindner and K. Zaitso**
TWO-DIMENSIONAL HPLC SEPARATION OF NON-PROTEINOGENIC AMINO ACID ENANTIOMERS

- P-14 **Hai Han, K. Hamase, Y. Tojo and K. Zaitso**
DISTRIBUTION ANALYSIS OF D-ASPARTIC ACID AND D-GLUTAMIC ACID IN RAT TISSUES AND PHYSIOLOGICAL FLUIDS USING A MULTI-LOOP 2D-HPLC SYSTEM
- P-15 **Makiko Kimura, Yurie Tokuyama, Mami Nakakoji, Takao Horikawa, Tatsuo Yajima and Tadashi Shiraiwa**
PROPERTIES FOR MIXTURES OF *N*-ACETYLATED L-ISOLEUCINE AND D-ALLOISOLEUCINE. A SIMPLE PREPARATION OF D-ALLOISOLEUCINE
- P-16 **Tomoko Naka, Tomokazu Ito, Hisashi Hemmi and Tohru Yoshimura**
DEVELOPMENT OF ENZYMATIC ASSAY OF D-SER FOR PATHOLOGIC ANALYSIS
- P-17 **Hiroshi Hasegawa, Yoshihiko Shinohara, Kenji Akahane, Takehisa Matsukawa, Makiko Nakamura, Takao Hashimoto and Kimiyoshi Ichida**
A STRATEGY FOR EVALUATION OF METABOLIC CHIRAL INVERSION OF D-AMINO ACIDS BY STABLE ISOTOPE METHODOLOGY
- P-18 **Yurika Miyoshi, K. Hamase, T. Okamura, R. Konno and K. Zaitso**
SIMULTANEOUS DETERMINATION OF D-SERINE AND D-ALANINE IN THE MUTANT RAT DEFICIENT IN D-AMINO-ACID OXIDASE

Thursday, July 2, 2009

■ Oral Presentation

Chair: **Antimo D'Aniello and Hiroki Abe**

- O-13 9:30 – 10:00
Dana W. Aswad
D-ASPARTATE ACCUMULATION IN VIVO IS LINKED TO THE FORMATION AND ENZYMATIC REPAIR OF L-ISOASPARTYL SITES
- O-14 10:00 – 10:30
Daniel Soyez, Ollivaux Céline, Gallois Dominique, Sachon Emmanuelle, Bolbach Gérard
NEUROPEPTIDES OF THE CRUSTACEAN HYPERGLYCEMIC HORMONE (CHH) FAMILY AS MODELS FOR IDENTIFICATION AND CELLULAR STUDIES OF D-AMINOACID CONTAINING PEPTIDES
- O-15 10:30 – 10:50
Takemitsu Furuchi, Sakurako Kosugi, Satoru Harada, Masumi Katane, Masae Sekine and Hiroshi Homma
ANALYSIS OF MECHANISMS OF EGF-TRIGGERED HYPERACTIVATION OF ERK IN L-ISOASPARTYL/D-ASPARTYL *O*-METHYLTRANSFERASE (PIMT)-KNOCKDOWN CELLS

O-16 10:50 – 11:10

Ohgi Takahashi, Kana Kobayashi and Akifumi Oda

MODELLING THE ENOLIZATION OF SUCCINIMIDE DERIVATIVES, A KEY STEP OF RACEMIZATION/STEREOINVERSION OF ASPARTIC ACID RESIDUES. IMPORTANCE OF A TWO-WATER MECHANISM

11:10 – 11:20 - coffee break -

Chair: **Gyula Pályi** and **Yutaka Sadakane**

O-17 11:20 – 11:40

Hiroshi Moriuchi, Akiko Kasai and Naoko Utsunomiya-Tate

INFLUENCE OF AMINO ACID ISOMERIZATION ON PROTEINS, WHICH CAUSE SENESCENCE-RELATED DISEASES

O-18 11:40 – 12:00

Noriko Fujii, Ryota Motoie, Yuhei Mori, Yuichi Kaji, Norihiko Fujii, Tadatoshi Kinouchi and Shingo Tajima

STEREOINVERSION OF ASPARTYL RESIDUES IN PROTEINS OCCUR WIDELY IN THE LIVING BODY

12:30 – 17:40 Excursion –Himeji Castle –

18:00 - Tea Ceremony (Japanese way of Tea)

Friday, July 3, 2009

■ Oral Presentation

Chair: **Chung Park** and **Toratane Munegumi**

O-19 9:30 – 10:00

Antimo D'Aniello and Enza Topo

ROLE OF D-ASPARTIC ACID IN THE ENDOCRINE SYSTEM AS A MODULATOR OF HORMONE SYNTHESIS AND IN THE NERVOUS SYSTEM AS NOVEL NEUROTRANSMITTER

O-20 10:00 – 10:30

Jean-Pierre Mothet, Fossat P, Turpin F, Dulong J, Rivet J-M, Sacchi S, Pollegioni L, Millan MJ and Olier SHR

GLIA-DERIVED D-SERINE GOVERNS NMDA RECEPTOR-DEPENDENT SYNAPTIC ACTIVITY IN THE PREFRONTAL CORTEX

O-21 10:30 – 11:00

Yong X. Wang and Wenjuan Zhao

SPINAL D-AMINO ACID OXIDASE CONTRIBUTES TO NEUROPATHIC PAIN IN RATS

11:00 – 11:20 - coffee break -

Chair: **Mirella Pilone** and **Kenji Hamase**

O-22 11:20 – 11:40
Jumpei Sasabe, Yurika Miyoshi, Kenji Hamase, Tomohiro Chiba, Masataka Suzuki, Masaaki Matsuoka, Kiyoshi Zaitu and Sadakazu Aiso
QUANTITATIVE ANALYSIS OF D-/L-SERINE IN MICE MODEL FOR AMYOTROPHIC LATERAL SCLEROSIS

O-23 11:40 – 12:00
Naoki Yamamoto, Go Taniguchi, Masakazu Umino, Asami Umino and Toru Nishikawa
EXPRESSION AND CHARACTERIZATION OF D-SERINE-REGULATED GENES IN THE RAT CEREBRAL COTREX

12:00 – 13:30 - Lunch -

Chair: **Dana W. Aswad** and **Kiyoshi Zaitu**

O-24 13:30– 14:00
Hans Brückner
D-AMINO ACIDS IN FOOD SCIENCE AND MICROBIOLOGY

O-25 14:00 – 14:30
Chung Park, Hiroshi Uyama, Kenji Soda, and Moon-Hee Sung
NEW TRENDS OF APPLICATIONS OF HIGH MOLECULAR WEIGHT POLY- γ -GLUTAMIC ACID

O-26 14:30 – 14:50
Kenji Hamase, Y. Miyoshi, K. Ueno, Y. Tojo, J. Hirano, T. Tanaka, A. Morikawa, S. Etoh, M. Mita, T. Kaneko, Y. Kadota, W. Lindner and K. Zaitu
INTEGRATED 2D-HPLC ANALYSIS OF ALL PROTEINOGENIC D-AMINO ACIDS CONTROLLING ELUTION ORDERS OF THE ENANTIOMERS

14:50 – 15:00 - coffee break -

Chair: **Yong X. Wang** and **Tadao Oikawa**

O-27 15:00 – 15:20
Shiro Kato, Tatsuya Ishihara, Noriko Sumisaki, Hisashi Hemmi and Tohru Yoshimura
D-AMINO ACIDS CONTENTS AND MICROBIAL COMMUNITY STRUCTURE DURING THE FERMENTATION OF WHITE AND RED WINE

O-28 15:20 – 15:40
Mamoru Wakayama, Shigekazu Yano, Hiroyuki Haruta, Takuya Ikeda, Takeshi Kikuchi, Mitsuaki Moriguchi, and Takashi Tachiki
ENGINEERING THE SUBSTRATE SPECIFICITY OF D-AMINOACYLASE FROM *ALCALIGENES XYLOSOXYDANS* SUBSP. *XYLOSOXYDANS A-6* BY STRUCTURE-BASED MUTATION

- O-29 15:40 – 16:00
Yutaka Sadakane, Keiko Konoha, Masahiro Kawahara and Kazuya Nakagomi
 ANALYSIS OF ALTERNATION OF L-ASP AND L-ASN RESIDUES IN PEPTIDES RELATED TO CONFORMATIONAL DISEASE
- O-30 16:00 – 16:20
Kimiyasu Isobe, Shouko Nagasawa and Nahoko Fukuda
 ENZYMES FOR CONVERSION OF N^α-BENZYLOXYCARBONYL-D-LYSINE INTO N^α-BENZYLOXYCARBONYL-D-AMINOADIPIC ACID BY *RHODOCOCCUS* SP. AIU Z-35-1

16:30 – 17:40

■ **Poster Presentation P-17, 19 ~ P-37**

- P-19 **Tetsuya Miyamoto, Masae Sekine, Tetsuhiko Ogawa, Makoto Hidaka, Hirosihi Homma and Haruhiko Masaki**
 EVALUATION OF D-AMINO ACID CONTENTS IN PURIFIED PROTEINS PRODUCED BY *ESCHERICHIA COLI*
- P-20 **Masae Sekine, Miya Funakoshi, Masumi Katane, Takemitsu Furuchi, Takafumi Yoshikawa and Hiroshi Homma**
 D-AMINO ACIDS IN *ARABIDOPSIS THALIANA*
- P-21 **Tadahiro Ogaya, Takeshi Fukushima, Shogo Mitsuhashi, Yukiko Sone, Masayuki Tomiya and Toshimasa Toyo'oka**
IN VIVO METABOLISM OF D-KYNURENINE TO KYNURENIC ACID IN RATS
- P-22 **Kazuya Kobayashi, Manabu Aoki, Takanobu Maezawa, Mizuki Ono, Motonori Hoshi and Midori Matsumoto**
 INDUCTION OF DIFFERENTIATION OF FEMALE GERM CELLS BY D-TRYPTOPHAN IN PLANARIAN *DUGESIA RYUKYUENSIS*
- P-23 **Haruka Ozaki and Akihiko Shimada**
 DIAMMONIUM HYDROGEN PHOSPHATE EFFICACY OF TRYPTOPHANASE-CATALYZED TRYPTOPHAN SYNTHESIS
- P-24 **Keiko Isobe, Taisuke Hagi, Naoya Morohashi, Hisashi Hemmi and Tohru Yoshimura**
 ENZYMATIC PROPERTIES AND PHYSIOLOGICAL ROLE OF D-AMINO ACID-METABOLIZING ENZYMES OF CELLULAR SLIME MOLD, *DICTYOSTELIUM DISCOIDEUM*
- P-25 **Yasuaki Saitoh, Masumi Katane, Yousuke Seida, Masae Sekine, Takemitsu Furuchi, Hiroyuki Kobuna, Taro Sakamoto, Takao Inoue, Hiroyuki Arai, Yasuhito Nakagawa and Hiroshi Homma**
 MOLECULAR CHARACTERIZATION AND TISSUE LOCALIZATION OF NEMATODE D-AMINO ACID DEGRADATIVE ENZYMES

- P-26 **Hiroyuki Tanaka, Atsushi Yamamoto, Tetsuo Ishida, and Kihachiro Horiike**
VERTEBRATES EXCEPT MAMMALS DEGRADE D-SERINE USING
PRIMARILY D-SERINE DEHYDRATASE AND ADDITIONALLY D-AMINO
ACID OXIDASE
- P-27 **Masaru Wada, Tomoko Murakami, Takayuki Maeda and Atsushi Yokota**
TWO BACTERIAL 3-HYDROXYASPARTATE DEHYDRATASES -
HOMOLOGS OF EUKARYOTIC SERINE RACEMASE AND D-SERINE
DEHYDRATASE
- P-28 **Masumi Katane, Toshihiko Hanai, Masae Sekine, Takemitsu Furuchi and Hiroshi Homma**
SITE-DIRECTED MUTAGENESIS STUDY ON THE ACTIVE SITE RESIDUES
OF MOUSE D-ASPARTATE OXIDASE
- P-29 **Atsushi Yamamoto, Hiroyuki Tanaka, Tetsuo Ishida and Kihachiro Horiike**
REDOX-DEPENDENT CATALYTIC PROPERTIES OF PORCINE
D-ASPARTATE OXIDASE GIVE RISE TO SUBSTRATE ACTIVATION
- P-30 **Shouji Takahashi, Katsumasa Abe, Ryo-hei Yamada and Yoshio Kera**
MULLUSK ASPARTATE RACEMASE AND YEAST D-ASPARTATE OXIDASE:
ENZYME CHARACTERISTICS AND PHYSIOLOGICAL FUNCTIONS
- P-31 **Motoki Maekawa, Tomokazu Ito, Hirotaka Murase, Hisashi Hemmi and Tohru Yoshimura**
CATALYTIC MECHANISMS OF SERINE RACEMASE FROM
DICTYOSTELIUM DISCOIDEUM
- P-32 **Yoshitaka Gogami, Ai Kobayashi, and Tadao Oikawa**
SERINE RACEMASE FROM PLANT: ENZYMOLOGICAL AND
STRUCTURAL CHARACTERIZATION
- P-33 **Daisuke Matsui and Tadao Oikawa**
ARGININE RACEMASE OF PSEUDOMONAS TAETROLENS: DETECTION
OF THE DISULFIDE BOND BY MALDI-TOF MS AND ANALYSIS OF ITS
FUNCTION
- P-34 **Masahiro Hamaguchi, Tetsuhiro Ogawa, Makoto Hidaka, Norikazu Nishino and Haruhiko Masaki**
INTRACELLULAR D-STEREOSPECIFIC ENDOPEPTIDASES OF BACILLUS
SUBTILIS AND BACILLUS MEGATERIUM
- P-35 **Yukari Shimizu, Takemitsu Furuchi, Sakurako Kosugi, Masumi Katane, Masae Sekine, and Hiroshi Homma**
CHARACTERIZATION OF THE PROMOTER REGION OF THE PROTEIN
L-ISOASPARTYL/D-ASPARTYL O-METHYLTRANSFERASE (PIMT) GENE

- P-36 **Satoru Nirasawa and Saori Takahashi**
PRIMARY STRUCTURE AND FUNCTIONAL EXPRESSION IN
ESCHERICHIA COLI OF NOVEL D-ASPARTYL ENDOPEPTIDASE,
PAENIDASE, FROM PROKARYOTE
- P-37 **Tadatoshi Kinouchi, Takeshi Saito and Noriko Fujii**
SUBSTRATE SPECIFICITY AND PROPERTIES OF MAMMALIAN
D-ASPARTYL ENDOPEPTIDASE
- P-38 **Nathan Gonzalez, Maria T. Perez, George Fisher, Alice Holohean and
John Hackman**
D-ASPARTATE HAS BEEN FOUND IN THE FROG NERVOUS SYSTEM AND
ACTIVATES EXCITATORY AMINO ACID RECEPTORS

Saturday, July 4, 2009

■ Oral Presentation

Chair: **Jean-Pierre Mothet and Kiyoshi Fukui**

- O-31 9:30 – 10:00
Herman Wolosker
NOVEL MECHANISMS REGULATING D-SERINE SYNTHESIS AND
RELEASE BY NEURONS
- O-32 10:00 – 10:30
Mirella S. Pilone
D-AMINO ACID OXIDASE: CURRENT LIFE OF A BRISK PROTEIN
- O-33 10:30 – 11:00
**Philip W. Kuchel, Jennifer M. S. Koh, Allan M. Torres, Paramjit Bansal,
Camilla Whittington and Katherine Below**
PLATYPUS VENOM L-TO-D-PEPTIDE ISOMERASE: WIDER
DISTRIBUTION

11:00 – 11:20 - coffee break -

Chair: **Philip W. Kuchel and Tohru Yoshimura**

- O-34 11:20 – 11:40
**Tetsuo Ishida, Hiroyuki Tanaka, Atsushi Yamamoto and Kihachiro
Horiike**
DABSYL L- AND D-ASPARTATES INTERACT DIFFERENTIALLY WITH
SERUM ALBUMIN

O-35 11:40 – 12:00

Makoto Ashiuchi and Daisuke Yamashiro

MOONLIGHTING FUNCTION OF THE PGSE-GENE PRODUCT, A NOVEL MEMBER OF THE MEMBRANOUS ENZYME COMPLEX RESPONSIBLE FOR THE SYNTHESIS OF D-GLUTAMATE-CONTAINING POLY-GAMMA-GLUTAMATE

12:00 – 13:30 - Lunch -

Chair: **Herman Wolosker and Kihachiro Horiike**

O-36 13:30 – 13:50

Tohru Yoshimura, Tomokazu Ito , and Hisashi Hemmi

EUKARYOTIC D-SERINE DEHYDRATASE FROM SACCHAROMYCES CEREVISIAE

O-37 13:50 – 14:10

Hisashi Mori

GENERATION AND ANALYSES OF SERINE RACEMASE KNOCKOUT MICE

O-38 14:10 – 14:30

Kiyoshi Fukui, Sanae Iwana, Rabab M. Abou El-Magd, Tomoya Kawazoe, Koji Ono, Seong Pil Chung, Yuji Shishido, Kazuko Yorita and Takashi Sakai

MODULATION OF D-AMINO ACID OXIDASE ACTIVITY AS A NOVEL STRATEGY FOR THE TREATMENT OF SCHIZOPHRENIA