

# 2010 INTERNATIONAL POLYAMINE CONFERENCE

## Progress in Medicine and Life Sciences

June 14 (Mon) -18 (Fri), 2010

Gotemba Kogen Hotel BU at Gotemba Kogen Resort

“Toki-no-sumika”

### TIME TABLE

Monday June 14	Tuesday June 15	Wednesday June 16	Thursday June 17	Friday June 18
	6:30–8:45 Breakfast	6:30–8:45 Breakfast	6:30–8:30 Breakfast	6:30–8:30 Breakfast
	<b>Session 1</b> 8:45–9:15 S1-1 9:15–9:45 S1-2 9:45–10:15 S1-3 Coffee break 10:30–11:00 S1-4 11:00–11:30 S1-5 11:30–12:00 S1-6	<b>Session 3</b> 8:45–9:15 S3-1 9:15–9:45 S3-2 9:45–10:15 S3-3 Coffee break 10:30–11:00 S3-4 11:00–11:30 S3-5 11:30–12:00 S3-6	<b>Session 5</b> 8:30–9:00 S5-1 9:00–9:30 S5-2 9:30–10:00 S5-3 Coffee break 10:15–10:45 S5-4 10:45–11:15 S5-5 11:15–11:45 S5-6	<b>Session 6</b> 8:30–9:00 S6-1 9:00–9:30 S6-2 9:30–10:00 S6-3 Coffee break 10:15–10:45 S6-4 10:45–11:15 S6-5
	12:00–13:30 Lunch	12:00–13:30 Lunch	11:45–12:15 Poster presentations	<b>Closing session</b> 11:15–12:00 C1
			12:15–13:30	

			Lunch	
	<b>Session 2</b> 13:30–14:00 S2-1 14:00–14:30 S2-2 14:30–15:00 S2-3 15:00–15:30 S2-4	<b>Session 4</b> 13:30–14:00 S4-1 14:00–14:30 S4-2 14:30–15:00 S4-3 15:00–15:30 S4-4	13:30– Excursion	
15:00– Registration				
<b>Opening session</b> 17:30–18:15 O1 18:15–19:00 O2	15:30– Free time  18:00–19:30 Dinner at “CHAME”	15:30– Free time  18:00–19:30 Dinner at “Lemon Grass”		
19:00–21:00 Welcome reception	19:30– <b>Poster session</b>	19:30– <b>Poster session</b>	19:00–21:00 Banquet	
21:00– Happy hours at “Sky Lounge”	21:00– Happy hours at “Sky Lounge”	21:00– Happy hours at “Sky Lounge”	21:00– Happy hours at “Sky Lounge”	

## PROGRAM

## ORAL SESSIONS

**June 14<sup>th</sup>**

**Opening session (17:30-19:00)**

*Session leader: Senya Matsufuji (The Jikei University School of Medicine, Japan)*

17:30-18:15

**01. Polyamines support mammalian cell growth predominantly through their requirement for the process of translation initiation**

Chaim Kahana (Weizmann Institute of Science, Israel)

18:15-19:00

**02. Surveys of possible biological functions of polyamines in *Xenopus* embryos, with special reference to their effects on secondary head formation induced by microinjected beta-catenin mRNA**

Koichiro Shiokawa (Teikyo University, Japan)

**< Reception >**

***June 15<sup>th</sup>***

**Session 1. Regulation of Cellular Polyamine Contents (8:45-12:00)**

*Session leader: Kazuei Igarashi (Amine Pharma Research Institute,  
Japan)*

8:45-9:15

**S1-1. Functional aspects and expression of mouse antizyme  
inhibitor 2 in brain and testis**

Rafael Peñafiel (University of Murcia, Spain)

9:15-9:45

**S1-2. Involvement of the polyamine metabolism in actin dynamics**

**and vesicle transport**

Leif C. Andersson (University of Helsinki, Finland)

9:45-10:15

**S1-3. Polyamine regulation of antizyme frameshifting in yeast**

Heather M. Wallace (University of Aberdeen, UK)

**<Coffee break >**

10:30-11:00

**S1-4. Differential synthesis of 29 kDa and 24.5 kDa antizymes in  
vascular smooth muscle cells**

Itsuko Ishii (Chiba University, Japan)

11:00-11:30

**S1-5. Analyses of antizyme 2- interacting proteins**

Senya Matsufuji (The Jikei University School of Medicine, Japan)

11:30-12:00

**S1-6. GSTp regulates caveolin-1 dependent polyamine uptake via actin remodeling**

Takeshi Uemura (The University of Arizona, USA)

< *Lunch* >

**Session 2. Molecular Evolution and Structure (13:30-15:30)**

*Session leader: Akira Shirahata (Josai University, Japan)*

13:30-14:00

**S2-1. Ubiquitous polyamine-responsive translational regulation in eukaryotes employs different mechanisms**

Ivaylo P. Ivanov (University College Cork, Ireland)

14:00-14:30

**S2-2. The evolution and diversification of polyamine biosynthesis**

Anthony J. Michael (University of Texas Southwestern Medical School, USA)

14:30-15:00

**S2-3. Crystal structure of spermidine acetyltransferase from *Escherichia coli***

Hiroyoshi Matsumura (Osaka University, Japan)

15:00-15:30

**S2-4. Agmatidine, an agmatine-conjugated cytidine found at the anticodon wobble position of archaeal tRNA<sup>Ile</sup> essential for AUA decoding**

Tsutomu Suzuki (University of Tokyo, Japan)

**< Poster Session 1 >**

**< Dinner >**

**June 16<sup>th</sup>**

**Session 3. Function of Polyamine (8:45-12:00)**

*Session leader: Takami Oka (Wakunaga Pharmaceutical Co., Ltd.,  
Japan)*

8:45-9:15

**S3-1. The spermidine/spermine  $N^1$  -acetyltransferase**

**overexpressing mouse ? beauty or beast as an animal model**

Anne Uimari (University of Eastern Finland, Finland)

9:15-9:45

**S3-2. An inducible transgenic mouse model to examine the role of polyamines in mammary gland development and HER2/*neu*-induced tumorigenesis**

David J. Feith (Pennsylvania State University College of Medicine, USA)

9:45-10:15

**S3-3. Spermine synthase interacts with Glyceraldehyde-3-phosphate dehydrogenase and regulates its activity**

Yoshihiko Ikeguchi (Josai University, Japan)

**< *Coffee break* >**

10:30-11:00

**S3-4. The story of hypusine and eIF5A: an essential posttranslational modification involving a polyamine**

Myung Hee Park (National Institute of Health, USA)

11:00-11:30

**S3-5. Characterization of the hypusine pathway from *Leishmania donovani***

Rentala Madhubala (Jawaharlal Nehru University, India)

11:30-12:00

**S3-6. Promotion of longevity of mice through improvement in the intestinal environment by probiotic-induced upregulation of polyamines**

Mitsuharu Matsumoto (Kyodo Milk Industry Co. Ltd., Japan)

< **Lunch** >

**Session 4. Polyamines in Plants and Microorganisms (13:30-15:30)**

*Session leader: Lo Persson (Lund University, Sweden)*

13:30-14:00

**S4-1. Thermospermine enhances translation of *SAC51* which is involved in stem elongation in *Arabidopsis thaliana***

Taku Takahashi (Okayama University, Japan)

14:00-14:30

**S4-2. High-throughput analysis of plant polyamines including thermospermine during growth and salinity stress**

Tomonobu Kusano (Tohoku University, Japan)

14:30-15:00

**S4-3. A novel polyamine importer, YeeF, required for swarming induced by extracellular polyamines in *Escherichia coli* K-12**

Shin Kurihara (Kyoto Institute of Technology, Japan)

15:00-15:30

**S4-4. Enigmas of biosyntheses of unusual polyamines in an extreme thermophile, *Thermus thermophilus***

Tairo Oshima (Kyowa-kako Co., Japan)

**< Poster Session 2 >**

**< Dinner >**

***June 17<sup>th</sup>***

**Session 5. Polyamine in Medicine (8:30-11:45)**

*Session leader: Nakaaki Ohsawa (Aino Institute for Aging Research, Japan)*

8:30-9:00

**S5-1. Correlation between images of silent brain infarction, carotid atherosclerosis and white matter hyperintensity, and plasma levels of acrolein, IL-6 and CRP**

Keiko Kashiwagi (Chiba Institute of Science, Japan)

9:00-9:30

**S5-2. N<sup>1</sup>,N<sup>12</sup>-diacetylspermine in colon cancer tissues**

Masao Kawakita (Tokyo Metropolitan Institute of Medical Science, Japan)

9:30-10:00

**S5-3. Effects of spermine, arginine and glutamine supplementation on lipopolysaccharide-induced bacterial**

## **translocation and Peyer's patch morphology**

Phan Nguyen Thanh Binh (HCMC Nutrition Center, Vietnam)

**<Coffee break >**

10:15-10:45

### **S5-4. Polyamination of hyphae-specific surface proteins by transglutaminase 4 inhibits adhesion of *Candida albicans* to epithelial cells**

In-Gyu Kim (Seoul National University College of Medicine, Korea)

10:45-11:15

### **S5-5. Polyamine transport in *Trypanosoma cruzi***

Marie-Pierre Hasne (Oregon Health & Science University, USA)

11:15-11:45

**S5-6. Characterization of putrescine and spermidine uptake by the human malaria parasite, *Plasmodium falciparum***

Jandeli Niemand (University of Pretoria, South Africa)

**Selected Poster Presentations (11:45-12:15)**

*Session leaders: Ann Uimari (University of Eastern Finland, Finland) and Yoshihiko Ikeguchi (Josai University, Japan)*

**< Lunch >**

**< Excursion >**

**< Banquet Party >**

***June 18<sup>th</sup>***

**Session 6. Polyamines as Target of Drug Discovery (8:30-11:15)**

*Session leader: Olle Heby (Umeå University, Sweden)*

8:30-9:00

**S6-1. ODC in pediatric neuroblastoma: Advancement of  
DFMO/etoposide into a FDA-approved Phase I clinical trial**

André S. Bachmann (University of Hawaii at Manoa, USA)

9:00-9:30

**S6-2. Targeting polyamine metabolism to treat cancer risk factors**

Eugene W. Gerner (The University of Arizona, USA)

9:30-10:00

**S6-3. Polyamine enzymatic oxidation products in cancer therapy:  
Chloroquine and docetaxel potentiate their cytotoxicity**

Enzo Agostinelli (SAPIENZA University of Rome, Italy)

**<Coffee break >**

10:15-10:45

**S6-4. Novel absorption improving system using polyamine for oral  
and pulmonary administration**

Masateru Miyake (Otsuka Pharmaceutical Co., Ltd., Japan)

10:45-11:15

**S6-5. Small molecule inhibitors of lysine-specific demethylase 1**

## **(LSD1) as epigenetic modulators for the treatment of cancer**

Patrick M. Woster (Wayne State University, USA)

### **Closing session (11:15-12:00)**

*Session leader: Tairo Oshima (Kyowa-kako Co., Japan)*

11:15-12:00

### **C1. Polyamine analogues targeting epigenetics in cancer therapy**

Robert A. Casero, Jr. (Johns Hopkins University School of Medicine, USA)

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## **POSTERS**

**June 15<sup>th</sup> 19:30-21:00 June 16<sup>th</sup> 19:30-21:00**

**P1. Assay of N<sup>1</sup>-acetylpolyamine oxidase activity with N<sup>1</sup>,N<sup>11</sup>-didansyl- norspermine as the substrate by ion-pair reversed phase high performance liquid chromatography**

Koichi Takao (Josai University, Japan)

**P2. Antizyme 2 accelerates c-Myc degradation in the cells**

Noriyuki Murai (The Jikei University School of Medicine, Japan)

**P3. Differentiation of multipotent progenitors into common myeloid progenitors is impaired in the liver of antizyme-1 knockout embryo**

Makiko Ohkido (The Jikei University School of Medicine, Japan)

**P4. Enhancement of translational frameshifting by hnRNP A1-like protein**

Satoru Horiya (The Jikei University School of Medicine, Japan)

**P5. Crystallization and preliminary X-ray analysis of the *Escherichia coli* spermidine acetyltransferase in complex with spermidine and coenzyme A**

Shigeru Sugiyama (Osaka University, Japan)

**P6. Putrescine-induced conformational changes in rat S-adenosylmethionine decarboxylase**

Makiko Wada (Josai University, Japan)

**P7. Docking simulation of polyamines on the HIV-1 dimerization initiation site in the kissing-loop dimer conformation**

Gota Kawai (Chiba Institute of Technology, Japan)

**P8. The influence of chemical polyamines analogs, decarboxylated ornithine and S-(adenosyl)-methionine on the polyamine synthesis velocity in test-systems from tissues with high**

## **proliferation**

Syatkin S.P. (Russian Peoples' Friendship University, Russia)

### **P9. The influence of chemical analogs of decarboxylated ornithine and S-(adenosyl)-methionine on the growth of L-cell tissue culture**

Fedoronchuk T.V. (Russian Peoples' Friendship University, Russia)

### **P10. Effects of polyamine on early embryogenesis of *Xenopus laevis***

Takeshi Kondo (Teikyo University, Japan)

### **P11. Polyamine inhibits growth defect in hyperglycemic silkworm**

Yasuhiko Matsumoto (University of Tokyo, Japan)

### **P12. Ribosome modulation factor, an important protein for cell viability encoded by the polyamine modulon**

Yusuke Terui (Chiba Institute of Science, Japan)

**P13. Generation of eukaryotic translation initiation factor 5A and its post-translational modification enzyme disrupted mice**

Kazuhiro Nishimura (Chiba University, Japan)

**P14. Effect of intestinal absorption of macromolecules by polyamine derivatives in rats**

Yoshiaki Sugita (Josai University, Japan)

**P15. Spermidine plays an important role in the regulation of insulin synthesis and cytoplasmic Ca<sup>2+</sup> in mouse Beta-TC6 insulin-secreting cells**

Ikuko Hisanaga (Mizuno) (Wakunaga Pharmaceutical Co., Ltd, Japan)

**P16. Establishment of a novel assay system for transglutaminase using highly reactive substrate peptide and polyamine**

Kiyotaka Hitomi (Nagoya University, Japan)

**P17. Cadaverine covalently linked to the peptidoglycan of *Selenomonas ruminantium* interacts with the major outer membrane protein Mep45 through the N-terminal SLH domain in**

**the periplasmic space**

Seiji Kojima (Tohoku University, Japan)

**P18. Molecular biological and biochemical characterization of five polyamine oxidase isoforms in *Arabidopsis thaliana***

Yoshihiro Takahashi (Tohoku University, Japan)

**P19. The dwarf phenotype of thermospermine-deficient mutant, *ac15-1* is suppressed by mutations in ribosomal proteins**

Jun-ichi Kakehi (Okayama University, Japan)

**P20. Thermospermine and norspermine suppress xylem differentiation in vascular plants**

Hiroyasu Motose (Okayama University, Japan)

**P21. Oxidation and degradation of gamma-glutamylputrescine synthetase (PuuA) in *Escherichia coli* K-12**

Ayaka Kambe (Kyoto Institute of Technology, Japan)

**P22. Synthesis of glutathionylspermidine using glutathionylspermidine synthetase/amidase (Gsp)**

**from *Escherichia coli* K-12**

Kanoko Hayashida (Kyoto Institute of Technology, Japan)

**P23. Analysis of polyamine composition of a novel extreme thermophile *Calditerricola satsumensis* YM081**

Toshiyuki Moriya (Kyowa Kako Co., Ltd, Japan)

**P24. Deoxyhypusine synthase-like (DSL) protein is involved in *sym*-homospermidine biosynthesis in *Thermus thermophilus***

Yumiko Takeda (Tokyo University of Pharmacy and Life Sciences, Japan)

**P25. Dual biosynthesis pathway for longer chain polyamines in hyperthermophilic archaeon *Thermococcus kodakarensis***

Shinsuke Fujiwara (Kwansei-Gakuin University, Japan)

**P26. Identification of potential biomarkers for antimony susceptibility / resistance in *Leishmania donovani***

Swati Mandal (Jawaharlal Nehru University, India)

**P27. More intensive correlation between brain infarction and acrolein threactive oxygen species**

Ryotaro Saiki (Chiba University, Japan)

**P28. Increased polyamine intake prolongs murine longevity**

Yoh Dobashi (Jichi Medical University, Japan)

**P29. Polyamine intake and Mediterranean diet**

Kuniyasu Soda (Jichi Medical University, Japan)

**P30. Change in the methylation status of the *ITGAL* promoter by spermine possibly regulates LFA-1 expression**

Yoshihiko Kano (Jichi Medical University, Japan)

**P31. Effect of polyamine on factors involved in the initiation of cancer metastasis and invasion**

Shingo Tsujinaka (Jichi Medical University, Japan)

**P32. No increased incidence of inflammation-associated neoplasms after and during increased polyamine intake**

Fumihiro Chiba (Jichi Medical University, Japan)

**P33. Selection and characterization of RNA aptamers against spermine to develop the new sensing probe of polyamine**

Akihiro Oguro (The Jikei University School of Medicine, Japan)

**P34. Occurrence of polyamine bodies in parallel with anticancer drug-induced apoptosis**

Masashi Shin (Sojo University, Japan)

**P35. Anthracene polyamine conjugates induce cell death in human leukaemic cells**

Radiah A. Ghani (University of Aberdeen, UK)

**P36. PG11047 induces mesenchymal to epithelial transition in the trastuzumab resistant JIMT-1 cell line**

Helena Cirenajwis (Lund University, Sweden)

**P37. Vibrational and cytotoxic studies on a modified spermidine and its Pd(II) complex**

Tânia Silva (University of Coimbra, Portugal)

