2004 INTERNATIONAL CONFERENCE ON POLYAMINES:

FUNCITONS AND CLINICAL APPLICATION

— PROGRAM —

November 28, Sunday		
15:00 – 19:00		**Registration**
17:30 – 19:00		**Opening lecture** **[Chairperson: Igarashi, K. (Japan)]**
17:30 – 18:15	[01]	Pegg, A. E. (Pennsylvania State University, USA) Synthesis and function of spermidine and spermine
18:15 – 19:00	[02]	Oshima, T. (Tokyo University of Pharmacy and Life Science, Japan) Polyamines in life at around the boiling temperature of water
19:00 – 21:00		**Reception**
November 29, Monday		
8:45 – 12:30		**Biosynthesis and its regulation** **[Chairperson: Phillips, M. A. (USA), Matsufuji, S. (Japan)]**
8:45 – 9:15	[03]	Phillips, M. A. (Univerisity of Texas, USA) Chlorella virus PBCV-1 encodes an unusual arginine decarboxylase that is a close homolog of eukaryotic ornithine decarboxylases
9:15 – 9:45	[04]	Persson, L. (Lund University, Sweden) Rapid turnover of *Crithidia fasciculata* ODC and AdoMetDC
9:45 – 10:15	[05]	Yamaguchi, Y. (Tohoku University, Japan) Existence of counterpart of mammalian ODC antizyme in prokaryote
10:15 – 10:45	[06]	Matsufuji, S. (Jikei University School of Medicine, Japan) Distribution of antizyme 1 and 2
10:45 – 11:00		[Coffee break]
11:00 – 11:30	[07]	Kahana, C. (Weizmann Institute of Science, Israel)

				Degradation of antizyme-inhibitor, an ornithine decarboxylase homologous protein, is ubiquitin-dependent and is inhibited by antizyme
	11:30 – 12:00		[08]	Coffino, P. (University of California, San Francisco, USA) Recognition and degradation of ornithine decarboxylase by the proteasome
	12:00 – 12:30		[09]	Hackert, M. (University of Texas, USA) Towards understanding the structures of antizyme and its complexes
15:00 – 17:00			**Oral presentation for posters (P01-P23)** <titles>	
19:00 – 21:30			**Polyamine contents and their regulation [Chairperson: Janne, J. (Finland), Kashiwagi, K. (Japan)]**	
	19:00 – 19:30		[10]	Casero, R. A. (Johns Hopkins University School of Medicine, USA) Polyamine catabolism: implications for drug response, cell death, and disease etiology
	19:30 – 20:00		[11]	Janne, J. (University of Kuopio, Finland) Alternative splicing-associated regulation of spermidine/spermine N1-acetyltransferase gene expression by polyamine analogues
	20:00 – 20:30		[12]	Kashiwagi, K. (Chiba University, Japan) Polyamine transport systems in *Saccharomyces cerevisiae*
	20:30 – 21:00		[13]	Belting, M. (Lund University, Sweden) Uptake of polyamines and polybasic peptides via proteoglycans: implications for tumor growth and gene delivery
	21:00 – 21:30		[14]	Mitchell, J. L. A. (Northern Illinois University, USA) Feedback regulation of polyamine transport and its implications in the use of polyamine analogs as chemotherapeutic agents
November 30, Tuesday				
8:45 – 12:30			**Functions of polyamines in cell growth and differentiation [Chairperson: Persson, L. (Sweden), Shirahata, A. (Japan)]**	
	8:45 – 9:15		[15]	Algranati, I. D. (University of Buenos Aires, Argentina)

				Regulation of foreign ODC and ADC genes expression in *Trypanosoma cruzi*
	9:15 – 9:45		[16]	Madhubala, R. (Jawaharlal Nehru University, India) Linking polyamine biosynthetic pathway and drug resistance in *Leishmania donovani*
	9:45 – 10:15		[17]	Igarashi, K. (Chiba University, Japan) A unifying model for the role of polyamines in bacterial cell growth: the polyamine modulon
	10:15 – 10:45		[18]	Atkins, J. F. (University of Utah, USA) Comparative analysis of newly found antizyme genes – identification of novel +1 frameshifting RNA sequences
	10:45 – 11:00			[Coffee break]
	11:00 – 11:30		[19]	Kusano, T. (Tohoku University, Japan) Spermine acts as a signaling molecule during defence reaction against tobacco mosaic virus in tobacco plants
	11:30 – 12:00		[20]	Ikeguchi, Y. (Josai University, Japan) Effect of polyamines on differentiation of murine chondrogenic cell line ATDC5
	12:00 – 12:30		[21]	Ohkido, M. (Jikei University School of Medicine, Japan) Heterozygous knockout of antizyme 1 enhances tumorigenesis in Min mice
	15:00 – 17:00			**Oral presentation for posters (P24–P46)** <titles>
	19:00 – 21:30			**Polyamine interaction with macromolecules** **[Chairperson: Park, M. H. (USA), Oshima, T. (Japan)]**
	19:00 – 19:30		[22]	Yokoyama, S. (University of Tokyo, Japan) Crystal structure of elongation factor P from *Thermus thermophilus* HB8
	19:30 – 20:00		[23]	Park, M. H. (National Institutes of Health, USA) The post-translational formation of hypusine in eukaryotic translation initiation factor 5A (eIF5A)
	20:00 – 20:30		[24]	Kawai, G. (Chiba Institute of Technology, Japan) NMR analyses of interaction between polyamines and RNA
	20:30 – 21:00		[25]	Michael, A. J. (Institute of Food Research, UK) Polyamines trigger a ribosomal switch between two overlapping upstream open reading frames in plants

21:00 – 21:30	[26]	Murata, M. (Osaka University, Japan) Rotational conformation of spermidine upon complexation with ATP investigated by solution and solid-state NMR
December 1, Wednesday		
8:45 – 12:00		**Biological actions of polyamines** **[Chairperson: Heby, O. (Sweden), Kawakita, M. (Japan)]**
8:45 – 9:15	[27]	Bagni, N. (University of Bologna, Italy) Polyamines: application in agriculture and biotechnology
9:15 – 9:45	[28]	Fujihara, S. (National Agricultural Research Center, Japan) Polyamine metabolism of cyclamen plant infected with *Fusarium oxysporum* f.sp. *cyclaminis*
9:45 – 10:15	[29]	Heby, O. (Umea University, Sweden) Embryonic stem (ES) cells and embryonal carcinoma (EC) cells trigger the DNA damage pathway in response to polyamine depletion
10:15 – 10:45	[30]	Kim, I. G. (Seoul National University, Korea) Modulation of protein function by polyamination: implication of protein polyamination in human diseases
10:45 – 11:00		[Coffee break]
11:00 – 11:30	[31]	Serafini-Fracassini, D. (University of Bologna, Italy) Polyamines conjugated to pollen proteins by a novel extracellular transglutaminase activity are involved in plant reproduction
11:30 – 12:00	[32]	Kojima, S. (RIKEN, Japan) Potential role of polyamines as regulators of blood vessel formation and hepatic apoptosis via controling activity of tissue transglutaminase
13:30 – 17:30		**Sightseeing**
19:00 – 21:30		**Banquet**
December 2, Thursday		
8:45 – 12:00		**Clinical aspects of polyamines** **[Chairperson: Gerner, E. W. (USA), Nagoshi, S. (Japan)]**
8:45 – 9:15	[33]	Alhonen, L. (University of Kuopio, Finland) Activated polyamine catabolism in acute

				pancreatitis: polyamine analogues as potential drugs to prevent mortality
	9:15 – 9:45		[34]	Kawakita, M. (Kogakuin University, Japan) N1,N12-Diacetylspermine in urine: clinical performance as a tumor marker
	9:45 – 10:15		[35]	Agostinelli, E. (University of Rome "La Sapienza", Italy) Spermine oxidation products cause cytotoxicity on cancer cells: anti-tumoral activities of native and immobilized serum amine oxidase after injection in mouse melanoma
	10:15 – 10:45		[36]	Nilsson, J. A. (St. Jude Children's Research Hospital, USA) Targeting ornithine decarboxylase in Myc-induced lymphomagenesis prevents tumor formation
	10:45 – 11:00			[Coffee break]
	11:00 – 11:30		[37]	Wallace, H. M. (University of Aberdeen, UK) Non-steroidal anti-inflammatory drugs, polyamines and cancer chemoprevention
	11:30 – 12:00		[38]	Gerner, E. W. (University of Arizona, USA) Targeting polyamine metabolism for chemoprevention of epithelial cancers
12:00 – 12:45			**Closing lecture** **[Chairperson: Ohsawa, N. (Japan)]**	
	12:00 – 12:45		[39]	Cohen, S. S. (USA) On the international evolution of polyamine studies

Posters

November 29, Monday, 14:30 – 17:30

November 30, Tuesday, 14:30 – 17:30

[P01]	Ohnuma, M. (Tokyo University of Pharmacy and Life Science, Japan) A new pathway for polyamine biosynthesis in an extreme thermophile, *Thermus thermophilus*
[P02]	Sanka, R. (Tokyo University of Pharmacy and Life Science, Japan) Analysis of *S*-adenosylmethionine decarboxylase of *Sulfolobus tokodaii*
[P03]	Chitose, A. (Tokyo University of Pharmacy and Life Science, Japan) Characterization of *speB* (agmatinase) homolog of *Thermus thermophilus*

[P04]	Hasunuma, S. (Tokyo University of Pharmacy and Life Science, Japan) Structure and function of polyamine spermidine synthase of *Aquifex aeolicus*
[P05]	Ganbe, T. (Tokyo Institute of Technology, Japan) Crystal structure of polyamine aminopropyltransferase from *Thermus thermophilus*
[P06]	Fukuchi, J. (University of Chicago, USA) Identification of TAF7 as a regulator of polyamine transport and MGBG-induced apoptosis by gene-trap analysis
[P07]	Uemura, T. (Chiba University, Japan) Putrescine and spermidine uptake in *Saccharomyces cerevisiae*
[P08]	Phanstiel IV, O. (University of Central Florida, USA) Investigations of cell-selective drug delivery using the polyamine transporter
[P09]	Murai, N. (Jikei University School of Medicine, Japan) Subcellular localization and phosphorylation of antizyme 2
[P10]	Murakami, Y. (Jikei University School of Medicine, Japan) Possible function of antizyme inhibitor as a positive regulator of polyamines in HTC cells
[P11]	Jarvinen, A. (University of Kuopio, Finland) Alpha-methylated polyamine analogs as substrates for the enzymes involved in the polyamine catabolism
[P12]	Cerrada-Gimenez, M. (University of Kuopio, Finland) Depletion of putrescine enhances spermine production in two transgenic mouse lines with activated polyamine catabolism
[P13]	Niiranen, K. (University of Kuopio, Finland) Characterization of spermidine/spermine N1-acetyltransferase gene-disrupted mice
[P14]	Elliott, K. A. (Institute of Food Research, UK) A genetic dissection of the roles of the ornithine and arginine routes to putrescine biosynthesis in the model plant Arabidopsis
[P15]	Ohe, M. (Dokkyo University School of Medicine, Japan) Analysis of polyamine metabolism in soybean seedlings using 15N-labelled putrescine
[P16]	Hyvonen, M. (University of Kuopio, Finland) Regulation of alternative splicing of SSAT by polyamine analogues
[P17]	Takao, K. (Josai University, Japan) Assay method for spermidine/spermine-N1-acetyltransferase with dansylnorspermine as substrate
[P18]	Suzuki, T. (Nagoya Univeristy, Japan) A sensitive colorimetric assay for polyamines in erythrocytes using oat seedling

	polyamine oxidase
[P19]	Shin, M. (Sojo University, Japan) Localization of polyamines in rat testis: immunocytochemical study using a specific monoclonal antibody
[P20]	Terakado, J. (National Agricultural Research Center, Japan) Involvement of polyamine in nodule regulation of soybean plant
[P21]	Hamana, K. (Gunma University, Japan) Widespread occurrence of homospermidine and canavalmine in mushrooms belonging to the phyla *Ascomycota* and *Bacidiomycota*
[P22]	Pan, Y.-H. (National Yang-Ming University, Republic of China) The critical roles of polyamines in regulating ColE7 production and restricting ColE7 uptake in the colicin producing *Escherichia coli*
[P23]	Hanfrey, C. (Institute of Food Research, UK) Translational state array analysis of Arabidopsis cell cultures: effect of growth stage and cellular polyamine levels
[P24]	Inomata, E. (Chiba Institute of Technology, Japan) Effects of the tetrakis(3-aminopropyl)ammonium on the conformation of tRNA
[P25]	Maruyoshi, K. (Osaka University, Japan) Dynamic conformational change of deuterated spermidine upon complexation with ATP
[P26]	Shinozaki, H. (Tokyo University of Pharmacy and Life Science, Japan) Effects of polyamines on protein synthesis of *Thermus thermophilus*
[P27]	Moriya, T. (Tokyo University of Pharmacy and Life Science, Japan) Effect of unusual branched polyamines for novel extreme thermophile, YMO81
[P28]	Terui, Y. (Tokyo University of Pharmacy and Life Science, Japan) Unusual branched polyamines produced by a novel extreme thermophile, YMO81
[P29]	Nishimura, K. (Chiba University, Japan) Independent roles of eIF5A and polyamines in cell proliferation
[P30]	Childs, A. (University of Arizona, USA) The role of the polyamines and eIF5A in RNA processing
[P31]	Ito, T. (Josai University, Japan) Formation of polyamine-incorporated peptide during protein digestion
[P32]	Lee, C. H. (Indiana University, USA) Polyamines induce apoptosis in alveolar macrophages during *Pneumocystis* pneumonia
[P33]	Shiokawa, K. (Teikyo University, Japan) Activation of caspase-9 and execution of the maternal program of apoptosis in *Xenopus* late blastulae microinjected with mRNA for *S*-adenosylmethionine decarboxylase

[P34]	Suzuki, T. (Chiba University Hospital, Japan) Role of antizyme in the differentiation of vascular smooth muscle cells
[P35]	Sugita, Y. (Josai University, Japan) Effect of luminal polyamines on epithelial permeability of rat small intestine
[P36]	Tomitori, H. (Fuence Co. Ltd., Japan) Spermine oxidase and acrolein: novel biochemical markers for diagnosis of stroke
[P37]	Dalla Vedova, L. (University of Rome "La Sapienza", Italy) Amine oxidase and spermine cause cytotoxicity on wild-type and multidrug resistant human cancer cells
[P38]	Qu, N. (University of Arizona, USA) Influence of a single nucleotide polymorphism (SNP) on E-box protein-dependent expression of human ornithine decarboxylase
[P39]	Basuroy, U. K. (University of Arizona, USA) Oncogenic K-ras and Src regulate polyamine uptake in colon cancer cell lines
[P40]	Nagoshi, S. (Saitama Medical School, Japan) Polyamine depletion may prevent hepatocyte apoptosis through inhibitor of apoptosis protein-1 (IAP-1) in mice
[P41]	Samejima, K. (Josai University, Japan) Control of spermidine and spermine levels in rat tissues by *trans*-4-methylcyclohexylamine
[P42]	Merentie, M. (University of Kuopio, Finland) The development of acute pancreatitis in transgenic rats with activated polyamine catabolism: the role of NF-kappaB and cytokines TNF-alpha, IL-1beta and IL-6
[P43]	Pirinen, E. (University of Kuopio, Finland) Reduced white adipose tissue mass, increased basal metabolic rate and insulin sensitivity are related to increased levels of putrescine and overexpression of PGC-1alpha in transgenic mice overexpressing spermidine/spermine N1-acetyltransferase
[P44]	Pietila, M. (University of Kuopio, Finland) Modulation of epidermal differentiation in transgenic mice overexpressing spermidine/spermine N1-acetyltransferase by alterations in putrescine level
[P45]	Tiwari, C. (Kalika Hospital and Research Centre (PVT.) Ltd., Nepal) Growth status significantly affects the response of human lung cancer cells to antitumor polyamine-analogue exposure
[P46]	Hirose, S. (Tokyo Institute of Technology, Japan) Stabilization of collagen columns in gill lamellae by transglutaminase-mediated crosslinking