

# ADVANCES IN POLYAMINE RESEARCH

Satellite Symposium

## "COST917: POLYAMINES IN TUMOUR GROWTH"

### PROGRAM



### ORAL SESSIONS

[COST917: POLYAMINES AND CANCER]

Chair persons: D. M. L. Morgan and A. Messina

1. E. Holttä (Helsinki, Finland)

Do polyamines regulate cell transformation?

2. H. C. Ha, P. M. Woster, R. A. Casero, Jr. (Baltimore and Detroit, USA)

Polyamines as poisons and protectors

3. J. L. Urdiales, M. A. Medina, J. Ramirez, J. Ruiz-Chica, I. Fajardo, F. Sanchez-Jimenez (Malaga, Spain)

Common biochemical roles of ornithine-derived polyamines and histamine

4. R. Schipper, A. Faber, A. Verhofstad (Niimegen, The Netherlands)

Role of polyamines in normal and malignant growth of prostatic cells

5. A. Perin, P. Tunici, E. Rabellotti, A. Sessa (Milano, Italy)

## Polyamines in *N*-ethyl-*N*-nitrosourea-induced gliomas

6. S. Bettuzzi, G. Guidetti, A. M. Verrone, P. Davalli, G. Ferrari, A. Corti (Modena, Italy)

Transcript coding for polyamine biosynthetic and degradative enzymes and ornithine decarboxylase antizyme in human prostate carcinoma

## [AMINE OXIDASES]

Chair persons: K. Wallace and B. Mondovi

1. P. Pietrangeli, S. Nocera, X. T. Wang, B. Mondovi, L. Morpurgo (Roma, Italy)

Inactivation of bovine serum amine oxidase by polyamines

2. C. Binda, R. Angelini, R. Federico, A. Mattevi (Pavia and Roma, Italy)

Three-dimensional structure of polyamine oxidase from *Zea mays L.*

3. P. Tavladoraki, M. E. Schinina', F. Cecconi, M. Laurenzi, S. Di Agostino, F. Manera, G. Rea, P. Mariottini, R. Federico, R. Angelini (Roma, Italy)

Maize polyamine oxidase: primary structure from protein and cDNA sequencing

4. M. Laurenzi, J. P. Knox, R. Federico, R. Angelini, M. J. McPherson (Roma, Italy and Leeds, UK)

Developmental regulation of copper amine oxidase in pea and lentil

5. G. Rea, R. D'Ovidio, S. Bonanni, P. Tavladoraki, R. Federico, R. Angelini, M. J. McPherson (Roma, Italy)

Spatial and temporal expression pattern of copper amine oxidase in *Cicer arietinum L.* and its role in wound-healing

[COST917: POLYAMINES AND INHIBITORS I.]

Chair persons: E. Holtta and A. Perin

1. L. Persson, E. Lovkvist Wallstrom, S. Nasizadeh, A. Jeppsson, A. Wendt, J. Holmgren, P. Andersson, C. Dartsch (Lund, Sweden)

Regulation of ornithine decarboxylase

2. H. M. Wallace, D. M. Evans, J. T. Affolter, S. Chopra, G. S. Lindsay, S. Lamond, J. Duthie (Aberdeen, UK)

Alternations in polyamine metabolism in response to anti-cancer therapy

3. F. A. J. Muskiet, B. Dorhout (Groningen, The Netherlands)

*In vitro* and *in vivo* manipulation of L1210 cell cycle kinetics with DFMO, CGP48664A and N1-actylspermine

4. C. Vargiu, S. Colombatto (Torino, Italy)

Antiproliferative effect of medroxyprogesterone acetate on MCF7 cells is associated with alterations in polyamine metabolism

5. A. Khomutov, T. Voinova, V. Djavakhia, R. Khomutov (Moscow, Russia)

Functional activity of hydroxylamine-containing inhibitors of ODC and SMADC

[POLYAMINES AND INHIBITORS II.]

Chair persons: S. Otani and B. Tadolini

1. V. Milovic, A. R. Khomutov, L. Turchanowa, R. M. Khomutov. W. F. Caspary, J. Stein (Frankfurt, Germany and Moscow, Russia)

Simultaneous inhibition of ODC and SAMDC activity: a promising therapeutic approach in colorectal cancer?

2. M. Caraglia, M. Marra, A. Leardi, S. Pepe, A. Fabbrocini, P. Tagliaferri, A. Abbruzzese (Napoli, Italy)

Desferioxamine increases iron depletion and apoptosis induced by ara-C on human myeloid leukaemic cells

3. F. Flamigni, C. Capanni, A. Facchini, C. Stefanelli, S. Marmiroli, C. M. Caldarera (Bologna, Italy)

Inhibitors of phosphatidylinositol 3-kinase prevent the induction of ornithine decarboxylase in leukaemia cells

4. M. Peska, M. Mateuffel-Cymborowska, W. Chmurzynska, B. Grzelakwska-Szabert (Warsaw, Poland)

Anticancer drugs influence ornithine decarboxylase (ODC) and spermidine/spermine *N*1-acetyltransferase (SSAT) gene expression in injured mouse kidney

5. C. Aubel, H. Chabanon, L. Persson, M. Ferrara, P. Brachet (Saint-Genes Champanelle, France and Lund, Sweden)

Effect of amino acid deprivation on polyamine transport and metabolism in human tumour cells

[POLYAMINE HOMEOSTASIS]

Chair persons: J. L. A. Mitchell and C. M. Caldarera

1. J. L. A. Mitchell, G. Judd (DeKalb, USA)

Polyamine homeostasis, antizyme modification and mitochondria

2. S. Matsufuji (Tokyo, Japan)

Signals for antizyme frameshifting and their involvement in polyamine stimulation

3. C. Zhu, P. Coffino (San Francisco, USA)

A second antizyme gene

4. I. Matsui-Yuasa, T. Nakatani, D. O. Kennedy, Y. Murakami, Y. Yano, S. Otani (Osaka, Japan)

Restricted Zn<sup>2+</sup> availability affects the antizyme-dependent ODC degradation pathway in isolated primary cultured rat hepatocytes

5. S. Bettuzzi, R. Tiozzo, S. Astancolle, R. Roncaglia, F. Boraldi, A. Corti (Modena, Italy)

Cell cycle dependent changes in the expression of the regulatory enzymes of polyamine metabolism and ornithine decarboxylase antizyme

6. G. Pintus, B. Tadolini, M. Maioli, A. M. Posadino, G. G. Pinna, S. Bettuzzi, S. Milia, C. Ventura (Sassari, Italy)

Inhibition of serum- and phorbol ester-induced ODC gene expression by heparin in HUVECs

[TRANSPORT OF POLYAMINES AND INTERACTION WITH MACROMOLECULES]

Chair persons: K. Igarashi and N. Bagni

1. K. Igarashi, H. Tomitori, K. Sakata, A. Kuraishi, K. Kashiwagi, D. G. Vassilyev, K. Morikawa (Chiba and Osaka, Japan)

Polyamine transport in *Escherichia coli* and animal cells

2. F. Antognoni, S. Del Duca, A. Kuraishi, E. Kawabe, T. Fukuchi-Shimogori, K. Kashiwagi, K. Igarashi (Chiba, Japan)

Transcriptional inhibition of the spermidine uptake operon by the substrate binding PotD protein

3. A. Bozac, A. Toninello (Pdova, Italy)

Effect of spermine on permeability transition in brain mitochondria induced by calcium plus phosphate

4. K. Kashiwagi, A. J. Pahk, T. Masuko, K. Igarashi, K. Williams (Chiba, Japan and Philadelphia USA)

Regulation of *N*-methyl-D-aspartate receptors by polyamines: identification of amino acid residues involved in the regulation

5. L. Nicolini, A. Lentini, S. Melino, R. Petruzzelli, A. Abbruzzese, S. Beninati (Roma, Chieti, Napoli, Italy)

Transglutaminase-catalyzed post-translational modification of calpain II and its substrates is involved in rabbit eye lens opacification

6. J. A. Creus, X. Feixa, J. Barcelo' (Bellaterra, Spain)

Free and bound polyamine levels in *Zea mays* cultivars differing in anminium tolerance

7. F. Monti, A. M. Bregoli, S. Biondi, S. Del Duca, D. Serafini-Fracassini (Bologna, Italy)

First evidence for a transglutaminase involvement in plant apoptosis

[COST917: DIETARY REGIMENS AND TUMOUR GROWTH]

Chair persons: S. Bardocz and C. Clo'

1. R. Penafiel, C. Ruzafa, F. Monserrat, A. Cremades (Murcia, Spain)

Effect of dietary arginine on polyamine metabolism and growth of murine melanoma; influence on renal size

2. S. Bardocz, G. Grant, A. Ralph, A. Pusztai, I. F. Pryme (Aberdeen, UK and Bergen Norway)

Dietary polyamiens in tumour growth

3. C. Loser, A. Eisel (Kiel, Germany)

Feeding of polyamine-deficient diets significantly inhibits DMH-induced colon carcinogenesis in rats

4. I. F. Pryme, A. Pusztai, S. Bardocz, S. W. B. Ewen (Bergen, Norway and Aberdeen , UK)

Dietary polyamines and growth of a murine non-Hodgkin lymphoma

[REGULATION OF ODC, SAMDC AND SSAT]

Chair persons: L. Persson and S. Beninati

1. S. Otani, T. Omura, Y. Yano, T. Hasuma, I. Matsui-Yuasa (Osaka, Japan)

Polyamine metabolism and retinoblastoma protein phosphorylation in hepatocyte proliferation

2. L. Manzella, E. Conte, C. Bonaiuto, G. Cocchiaro, E. Guarniera, A. Messina (Catania, Italy)

Role of IRF-1 in ODC gene expression during monocytic differentiation

3. C. Cabella, C. Vargiu, C. Cravanzola, S. Belliardo, M. A. Grillo, S. Colombatto (Torino, Italy)

Mofulation of polyamine content in hepatocytes by agmatine

4. M. Franceschetti, S. Scaramagli, C. Hanfrey, A. J. Michael (Bologna, Italy and Norwich, UK)

Characterisation of S-adenosylmethionine decarboxylase and spermidine synthase gene families of Arabidopsis

5. S. Scaramagli, S. Grillo, A. Leone, P. Torrigiani (Bologna, Italy)

Polyamine response to low water potential in potato cultured cells

6. L. Turchanowa, B. I. Feldkoren, V. A. Rogozkin, V. Milovic, J. Stein (Frankfurt, Germany and St. Petersburg, Russia)

Polyamine synthesis is up-regulated by physical loading in the skeletal muscle

#### [COST917: FUNCTIONS OF POLYAMINES]

Chair persons: R. A. Casero and A. Toninello

1. U. Bachrach (Jerusalem, Israel)

Polyamines regulate protein kinase activities and signal transduction processes

2. D. M. Morgan (London, UK)

Polyamine regulation of nitric oxide production in LMS-activated macrophages

3. F. Bonavita, I. Stanic, F. Flamigni, M. Mignani, C. Clo', B. Tantini, C. Pignatti, C. Stefanelli, C. M. Caldarella (Bologna and Parma, Italy)

Polyamines influence caspase activity

4. R. Ientile, G. Cannavo, I. Picerno, T. Ginoprelli, C. Fabiano, G. Piedimonte (Messina, Italy)



Increases in polyamine biosynthesis are required for cell cycle transition and HIV-induced cell death

5. R. Hochreiter, T. M. Weiger, S. Colombatto, T. Lagner, C. Cabella, W. Heidegger, M. A. Grillo, A. Hermann (Salzburg, Austria and Torino, Italy)

The effect of polyamines and diamine analogues on the proliferation of C6 glioma cells. An *in vitro* and molecular modelling study

6. N. Bagni, M. M. Altamura, R. Biasi, G. L. Calzoni, R. Crinelli, A. De Stradis, G. Falasca, M. Franceschetti, C. Neri, V. Scoccianti, A. Speranza, G. Teti (Bologna, Roma, Potenza and Urbino, Italy)

Polyamines and sexual reproduction in kiwifruit

7. M. L. van Buuren, S. Fornale', M. Franceschetti, L. Guidi, G. F. Soldatini, N. Bagni (Bologna and Pisa, Italy)

The role of polyamines in tobacco ozone resistance

8. M. de Agazio, M. Zacchini, A. Marotta, Z. El Gawhary (Roma, Italy)

Exogenous spermidine as a tool to investigate stress response in plants

#### [INTERACTION OF POLYAMINES WITH MACROMOLECULES]

Chair persons: R. Penafiel and D. Serafini-Fracassini

1. A. Tassoni, R. Napler, N. Bagni, M. A. Venis (Bologna, Italy and Warwick, UK)

Purification of a specific spermidine-binding protein from maize (*Zea mays L.*) coleoptiles

2. F. Galli, U. Buoncristiani, L. Nicolini, A. Lentini, S. Benedetti, F. Canestrari, S. Beninati (Roma and Urbino, Italy)

Polyamineated peptides in uremic blood

3. A. M. Bregoli, S. Del Duca, C. Neri, C. Bergamini, D. Serafini-Fracassini  
(Bologna and Ferrara, Italy)

Purification and characterization of pollen transglutaminase

4. S. Scaramagli, S. Biondi, F. Capitani, M. M. Altamura, P. Torrigiani  
(Bologna, Roma, Milano, Italy)

Inverse relationship between polyamine conjugate levels/ethylene biosynthesis and vegetative bud formation in tobacco

