

# 4<sup>th</sup> International Conference on Polyamines: Biochemical, Physiological and Clinical Perspectives

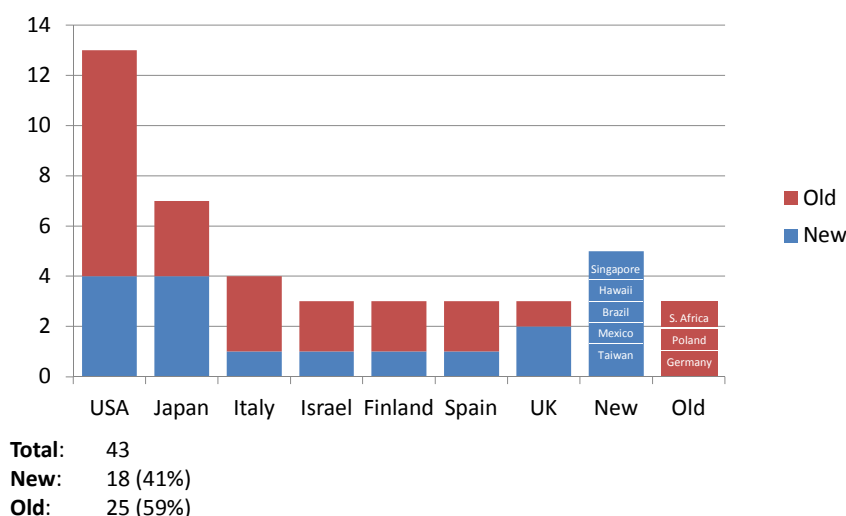
Organized by Enzo Agostinelli and Kazuei Igarashi

## CONCLUDING REMARKS

by Uriel Bachrach and Enzo Agostinelli

Figure 1 shows the origin of the speakers. Many speakers came from United States and Japan. It is also evident that 18 of the speakers are new polyaminers while 25 participated in previous polyamine conferences. The addition of new speakers is very encouraging, mainly if some of them come from remote countries like Mexico, Singapore and Taiwan. Many speakers came from the United States

### Oral Presentation by Speakers From Different Countries



and Japan.

In previous polyamine conferences, considerable attention was focused on the biological properties of ornithine decarboxylase and the functions of antizymes and their inhibitors. In the present conference these subjects were mentioned only briefly (two lectures).

The Conference started with two Plenary lectures(Igarashi and Wilson). The first presentation entitled: *Effects of polyamines and their metabolite, acrolein on cell functions* was presented by Professor Igarashi. He studied the role of polyamines and acrolein during brain infarction. This is an interesting new approach to explain the role of polyamines in brain damage. It is noteworthy, that in other cases the polyamine oxidation products are beneficial. Here according to Igarashi, they cause damage.

The oxidation of polyamines and the biological significance of the oxidation products were also extensively studied by Agostinelli. He found that when polyamines are oxidized by bovine serum amine oxidases; hydrogen peroxide and iminoaldehydes are produced. The later, exhibited anti-cancer activity and even drug-resistant cancer cells are inactivated.

The second Plenary lecture was presented by Wilson " New Insight into Effects of ODC and DFMO in *Helicobacter pylori* induced carcinogenesis" . This is an interesting paper dealing with bacteria and polyamines. Only a few cases are known that bacteria induce cancer and *Helicobacter pylori* is one of them. Wilson suggested that DFMO can prevent and cure gastric cancer. One has to keep in

mind that inhibition of polyamine biosynthesis can be abolished by polyamine uptake.

This important subject was reviewed by Wallace , who discussed the mechanisms of uptake and excretion of polyamines from different cells.

As in previous polyamine conferences, the **therapeutic agents** of polyamine analogs were discussed in 6 presentations (Fig. 2). The roles of polyamines or their derivatives in curing malaria and leishmania parasite infections is outlined by Birkholtz, Woster and Roberts. Most of these studies were conducted *in vitro* and their cytotoxicities were not discussed .

## Therapeutic agents

Name	Results
L24 – Roberts	<b>Leishmania</b> – Gene Deletion
L25 – Birkholtz, Woster	<b>Anti-Malaria</b>
L33 – Woster	Oligamintes – <b>Anti-Bacterial</b>
L35 – Wallace	Polyamine Transport
L36 – Han Jia Lin	Spermidine-Capped Fluorescent Carbon
L37 – Keinanen, Khomutov	C-Metyl Analogue

There were interesting lectures dealing with thermophiles led by Oshima . I am running out of time, therefore I cannot discuss presentations concerning cancer and lectures given by Fogel , Kahana and Sanches-Jimenez.

I would like to discuss some lectures, which may have some practical implications:

**Wound Healing** is one of them:

Fig. 3 shows that polyamines promote wound healing, both in humans and in animals. These findings may have practical implications and should be transferred from bench to the hospital. It is very likely that polyamine impregnated bandages may support the healing of wounds after surgery as well as treatments of burns. Is the wound is infected by bacteria, dressings impregnated with polyamine analogs





### From Bench to Hospital

Wound Healing	Bench 	Hospital
L04 Vardi – Wound Healing L36 Yu – Jia Li – Dressing Material	Bandage 	Surgery Burns 
L16 Gilmour – Animal Wound Healing	Infection 	Modified Polyamines Oxidized Polyamines

could be used.

Fig. 4 shows that **plant research** was covered by 5 lecturers. It has been concluded that polyamines restore aging tomato plants (Mattoo),inhibit plant pathogens (Minocha) and improve fruit quality (Handa).

## From Bench to Fields

Plants	Bench	Fields
L14 Pottosin – Regulates Cateon transport L27 Matto – Tomato, restoring aging plants L28 Minocha – Inhibits plants patogenes L29 Handa – Tomato fruit quality L38 Minanisawa - Antioxidat	Flower Bed 	Polyamine Fertilizer 
	Tomato 	Implantation 

Here again, the results of research should be transferred from the bench to fields.

Thus, flower beds could be irrigated with a fertilizer containing di-or polyamines.

This may promote growth and inhibit the growth of plant pathogens. If possible, plants (like tomatoes) should be transfected with polyamine producing genes.

Plants thus obtained, should give rise to food products of higher quality.

We all know that in the seventies, industry became interested in polyamines and Dow Chemicals, opened a center -Merrell in Strasbourg. This led to the production of DFMO.

## The End



**Today**



**Tomorrow**

I am coming to the end of my Concluding Remarks (Fig. 5). It is a real pleasure to meet the new speakers who came from different countries. I hope that they will continue their research and will contribute to the development of polyamine studies. I wish that they will be a seed upon a big polyamine-rich tree will grow.

It is time to say good bye to you and to thank you all for coming here and to strengthen the Polyamine group. Many thanks!!







