

INA Newsletter

International Neurotoxicology Association

August 1995

volume 16(2)

President's Message:

Dear INA-members:

When preparing for INA-5 in Port Ludlow I was certainly not expecting to become the 2nd president of INA following Lucio Costa. Now that this has happened I would like, first of all, to thank Lucio and his team for their successful effort in keeping INA going as a specialised international research society over the past years. These were years of "infancy" of INA witnessing considerable "imprinting" to influence the behaviour of our society in the years to come.

In praising the former EC and the organizing committee headed by Steven Gilbert, none of us will ever forget the important contributions of the founders of INA, first and above all of Jacob Hooisma, whose tragic loss is still deeply felt by all of us. Rick Letz, his close friend, gave an impressive and moving picture of the scientist and person in his memorial speech in Port Ludlow. It was a good move of the former EC to establish the "Jacob Hooisma Memorial Lecture" as an institution, and I am grateful having been chosen as the first recipient.

Having participated in all of the previous INA-meetings, starting with rainy and spartan Lunteren in 1987, I have noted a steady increase in the quality of the scientific program - and hope that I am not the only one with this impression. It is the prime objective of any presidency of our society to help keep up high scientific standards in INA and its meetings. Lucio and his team have been successful in this respect. I will try to continue contributing to this objective and I am glad to be able to support Illes Desi and his team in shaping the scientific program for INA-6 in Szeged (Hungary). But, of course, active participation of members in the form of collective international brainstorming is a prerequisite for successful program planning. Give me your ideas concerning

names and topics as soon as possible. My fax: is +49-211-338-9331; and my E-mail is: Gerhard.Winneke@uni-duesseldorf.de

Another objective to be pursued as a presidential responsibility is to keep interdisciplinarity of INA in mind. Having been and being involved in neurophysiological and neurobehavioral work as well as in animal and human neurotoxicology, this objective is certainly close to my heart. Being involved in the scientific planning for INA-6 I will keep a keen eye on interdisciplinarity (not necessarily multidisciplinary) in nervous system toxicology, although all of us will certainly agree that some degree of local colouring will play a role and is, of course, welcome. We saw that in Port Ludlow also.

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1. Lucio Costa as President gave the results of the last postal ballot for the INA Executive. Of the 22 persons standing for

Director and Supervisor. Dr. Dongshang Yang (now working in the U.S.A.), is interested in neurochemistry: Dr. Shujin Gao, in pathology; and Dr. Lei Zhang likes receptor research. Dr. Baoqui Li works primarily in electrophysiology; and I, Dr. Keqin Xie, in nerve cell culture and nerve cell toxicology.

Besides teaching graduate students in the Department of Public Health, we also have postgraduate students who join us for research work each year. The focus of our research programme is neurotoxicology, especially in peripheral nerve diseases induced by organic chemicals. More than 10 years ago, we began studying the toxicology of two widely used industrial chemicals, allyl chloride and butadiene. We found that allyl chloride and butadiene exposure could induce toxic effects in the human peripheral nervous system following investigations of workers in a chemical factory.

Because of our evidence that allyl chloride is a human neurotoxicant, we began studying its toxic mechanism of action in a step by step manner. First, electron microscope studies were carried out which demonstrated that axonal microtubules and neurofilaments decreased in number in rat sciatic nerve following allyl chloride exposure. The using the methods of electrophysiology, biochemistry, electron probe X-ray microanalysis, and molecular probes, we carried out studies which revealed that peripheral nerve disease induced by allyl chloride is associated with the deregulation of calcium homeostasis inside the cell.

Recently, our results showed that allyl chloride produces increased levels of Ca^{2+} and Na^+ , and decreased levels of K^+ in nerve axons, and that these changes are paralleled by decreases in nerve excitation and conduction velocity. Further, studies using Fura-2/AM and SBFI/AM to determine levels of free calcium and sodium in brain cells gave the same results as electron probe X-ray microanalysis. Increased $[\text{Ca}^{2+}]$ caused Ca^{2+} /CaM-dependent protein kinase (Ca^{2+} /CaM-PK) activity increases. Increased Ca^{2+} /CaM-PK activity induced de-polymerisation of the microtubules leading to increases in tubulin in cytoplasm and inhibition of mRNA translation and tubulin synthesis. In electron and light microscope studies, we saw changes of cytoskeleton morphology, with the cytoskeleton becoming thinner, then broken into segments. Our future plans include electrophysiological studies and examination of changes in energy metabolism.

Keqin Xie

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INA-6

Dear colleagues,

May I most cordially invite you all to the INA-6 meeting to be held in the last week of June 1997 in Szeged, Hungary. Szeged is a little university town in South-East Hungary, about 180 km from the Hungarian capital, Budapest. You can reach Budapest by air, car or rail. From Budapest you can travel by rail or car to Szeged in about 2-2½ hours. Europeans do not need a visa, Americans do. Visas can be obtained at Budapest airport.

Expenses would be about \$900-1,000 including participation fee, hotel room, breakfast, lunch, dinner, and one excursion to the Hungarian "desert" (the puszta) with horse show. We will try to make this cheaper for students and young researchers by offering student dormitory accommodation.

We should like to gather experts from Eastern Europe to organise great discussions. We would like to have symposia on electrophysiological and electroneurotoxicological methods and results. Naturally all relevant topics are welcomed. Please send your ideas to me. We will organise an international organising committee chaired by Gerhard Winneke to meet about Spring 1996 at Szeged and discuss the details. My telephone is (36 62) 455 119 and fax (3662) 455 120. Email is "des@puhe.szote.u-szeged.hu".

Prof. Illés Dési.

Sports At INA-5

Apart from its science, Port Ludlow with its superb outdoor opportunities also witnessed considerable sporting activities of participants ranging from solitary jogging to teamwork sports, such as volleyball, basketball and soccer. The most memorable event, from my point of view, was a spontaneous soccer game *Italy vs Rest of the World*. The final score, 5 : 3 for the *Squadra Azzura*, does in no way describe the dramatic ups and downs of this event, which even featured a goal by our past president. The losing team insisted on having a return match in 1997 in Szeged and our Italian opponents accepted the challenge. Interested members are strongly advised to prepare in time for this event, both in terms of fitness and skills.

Gerhard Winneke

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Other highlights of INA-5

The Port Ludlow meeting was a scientific success, as will be seen from the publications in *Neurotoxicology* **16(3)**, and equally importantly a social success as well. From the moment of arriving at the accurately, if optimistically, named Jefferson County International Airport (largest 'plane 6 seats) it was obvious that the meeting would be small and friendly. Few of us were however prepared for the large scale of the hospitality, typified by the enormous salmon prepared for our meals. One member tells me that she suffered severe salmon withdrawal signs after the meeting! The organisers managed the difficult combination of informality and efficiency, and many scientific friendships were started or renewed at the lunch time and evening discussion sessions.

It was interesting to see both mechanistic scientists, toxicity testers, regulators and clinicians all discussing their various viewpoints. This gave rise to two amusing and possibly Freudian slips which I noted during presentations: "no absurd effect level" (from a risk assessor) and "companies and shareholders want a return on their mother" (from an industrial toxicologist). Perhaps other participants would like to share their impressions of the meeting in the newsletter?

David Ray.

Next Newsletter: copy in by **1st November** please for the November issue. You are invited to send personal news, events, details of meetings, titles of new theses, reviews, comments, jokes and anything of interest to INA members direct to the editor.