

IIS NEWS

The First Spring Meeting of the INTERNATIONAL ISOTOPE SOCIETY - UK GROUP was held at the University of Surrey on 20 April 1990. The highly successful meeting was attended by 114 participants and 11 Commercial Organisations exhibited their information and products.

The meeting was opened by a short introduction by Professor Tony Evans, the Immediate Past President of the IIS. He welcomed all the participants on behalf of the IIS and the University of Surrey as hosts, and commented that it was both "encouraging and gratifying that this first meeting is well attended". He thanked the Commercial Organisations, without whose financial support organisation of a successful programme would have been extremely difficult. He went on to say...

"Those of you who are members of the IIS and receive the IIS Newsletter will know that the Society was founded on November 24, 1986 and registered in the State of New Jersey, the principal aim of the Society being to encourage applications of isotopes.

Since that time the Society has gone from strength to strength with a major international symposium held in July 1988 at Innsbruck, Austria and the next planned for September 1991 in Toronto, Canada.

In between these major symposia, especially in the USA and recently Canada, there are a number of local groups in the East, Central and Western USA. Other groups in Europe are in the process of being formed but the UK is first!

I think we would all agree that isotopes are essential indispensable tools not only for applications in understanding the basic chemistry of life in plants, animals and humans, but also in clinical diagnosis, therapeutic medicine and industry.

There seems no doubt also that isotopes will continue in these roles with many applications to point the way of the future to the benefit of all and especially for generally enhancing the quality of life.

The splendid programme put together by the hardworking Organising Committee for this meeting today aims to reinforce the statements I have just made and covers developments in the fields of clinical research, basic biochemistry (protein studies and biological NMR) and diagnostic medicine (imaging).

What better topic "ISOTOPES - APPLICATIONS OF THE FUTURE" for the first IIS UK Group Meeting!"

The morning Scientific Session, chaired by Tony Evans, included talks by Dr Angus Bell (Glaxo Research Group) on "Use of Isotopes in Drug Metabolism and Pharmacokinetics", Dr Paul England (SmithKline Beecham, Welwyn) on "Protein Phosphorylation - The use of Phosphorus-32 to Investigate

Intracellular Control Mechanisms", and Dr Victor Pike (MRC Hammersmith) on "Application of Positron Emitting Radioisotopes to the Study of Drug Biodistribution in Man".

The afternoon Scientific Session, chaired by Professor John Jones, included talks by Professor David Crout (University of Warwick) on "Applications of Isotopic Methods in Biosynthetic Investigations" and Dr David Reid (SmithKline Beecham, Welwyn) on "Some Uses of Stable Isotopes in Biological NMR".

The technical talks focussed on current application and trends for the future, indicating that without any doubt isotopes will continue to play a major role in years to come, in a very broad spectrum of uses.

It was fully intended that this first scientific meeting of IIS Group should attract as wide a variety of isotope users as possible, and so spread cognizance of the aims and objectives of the IIS throughout the UK scientific community. Accordingly, a diverse range of topics were covered in the five lectures presented.

Dr Angus Bell gave an overview of the importance of drug metabolism and pharmacokinetic studies in the drug development process, emphasizing the essential role of isotopic tracer studies. He illustrated his paper with examples from Glaxo's H₂ and 5HT₃ antagonist programmes, and commented upon the current under-utilisation of stable isotope technology in drug metabolism studies.

Another area where isotopes have proven invaluable to the pharmaceutical industry was discussed by Dr Paul England who described the utility of ³²P in the investigation of intracellular control mechanisms, specifically protein phosphorylation. He discussed the wide range of biological processes controlled by protein phosphorylation, and the vital role ³²P studies play in elucidating the fundamental mechanisms of action. He also described an enzymatic assay for determining the specific activity of [γ -³²P]ATP

A classical tracer technique for directly studying biodistribution of drugs in animals is whole body autoradiography. Clearly this technique is not applicable to studies in man. Dr Victor Pike presented a paper which detailed PET (positron emission tomography) studies which allow direct measurement of the spatial and temporal distribution of compounds labelled with ¹¹C in vivo. The concentration of drug can be measured in tissue directly by this technique, and pharmacokinetic information can also be obtained. Radioligands for particular receptors (e.g. 5HT₂, opiate) are under development, which enable direct study of drug-receptor interactions in vivo. Whole body PET scanners were discussed as a future direction of this technique.

The use of isotope tracer technology for the study of biosynthetic pathways has long been established. Prof David Crout presented a review of highlights of recent developments in this area, both from the work of his own and other groups. The rapid development of spectroscopic techniques (e.g. FTNMR,

MS) has shifted the emphasis from radioactive isotopes to stable isotopes. This allows very detailed information to be

obtained, through the use, for example, of double labelled experiments where ^{13}C - ^{13}C , ^{13}C - ^{15}N etc coupling and nmr isotope shifts provide powerful analytical tools.

Dr David Reid discussed a number of applications of stable isotopes in biological nmr in particular i) spectral simplification and resolution of macromolecules, ii) as non-perturbing probes of molecular structure and dynamics - nmr gives a view of protein in motion, and iii) non-invasive monitoring of biochemistry in vivo - rat in an nmr tube.

Commercial sponsors and exhibitors provided some interesting information and demonstration of equipment. The organisations present were Amersham International plc, Berthold Ltd., UK, Cambrian Gases, Du Pont (UK) Ltd., ICI plc (Cambridge Research Biochemicals Ltd), ICN Biomedical Ltd., Raytech Scientific Ltd., Raytest Instruments Ltd., Saxon Mico, Shell UK (Sponsor only), Sigma Chemical Co Ltd and John Wiley and Sons (Publishers of the Official IIS Journal of Labelled Compounds and Radiopharmaceuticals).

The meeting was closed by Dr Derek Sutherland (Glaxo Group Research) Chairman of the IIS UK Group who thanked hisco-organisers of the meeting, Dr Ray Duffin (Amersham International plc), Mr David Saunders and Dr Ken Lawrie (SmithKline Beecham, Welwyn), Mr Martyn Gillam (Shell UK), Dr Don Morecombe (SmithKline Beecham, Welwyn) and Dr David Lester (ICI plc). Dr Sutherland thanked the two Chairmen (founder members of the IIS), and all the Lecturers and Participants for making this First IIS UK Group meeting so successful and the forerunner of an annual event.

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