applied excellence

Advanced techniques in routine use at The Radiochemical Centre.

Described below are just two examples of the many up-to-date techniques, which have been pioneered or applied for routine use at The Radiochemical Centre. These developments are part of our constant endeavour to maintain our position at the forefront of the specialised field of tracer methodology, so that we can continue our supply of radiochemicals of the highest quality and technical specifications.

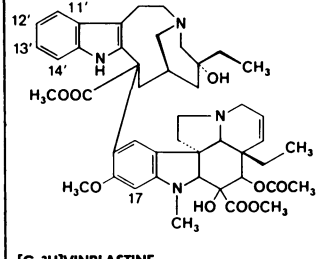
Distribution of labelling in tritium compounds

Modern techniques for the production of tritiated compounds are more sophisticated than those used in the early days of tritium labelling, and produce compounds labelled in specific positions rather than generally labelled. Nevertheless, it is necessary for many tracer applications of tritium compounds to know the *precise* position and configuration of the tritium labels. Traditional chemical methods of doing this are tedious and time consuming and subject to considerable error, and so the routine supply of such information has until recently not been possible.

The Radiochemical Centre, in collaboration with the University of Surrey, has developed over the past eight years the technique of tritium nuclear magnetic resonance (tnmr) spectroscopy for this purpose. This method is much quicker and more accurate than the traditional chemical or biochemical methods for determining distribution of tritium labelling.

It is now used routinely to establish the distribution of tritium labelling produced by the usual methods of tritiation employed at The Radiochemical Centre. We supply accurate details as to the position and configuration of the tritium labels for an increasing number of our labelled compounds.

A number of examples are given below:



[G-^{3}H]VINBLASTINE
Code TRK.507
17 ..... 44% 11' 8%
12,13' ..... 46% 14' 2%

[1β, 2β(n)-^{3}H]TESTOSTERONE
Code TRK.162
1α ..... 5.9% 2α 8.2%
1β ..... 46.0% 2β 39.9%

[6-^{3}H]BENZO[a]PYRENE
Code TRK.501
6 ..... >95% 1 ..... <5%

D-[2-^{3}H]GLUCOSE
Code TRK.361
2(α) ..... 40% 2(β) 60%

L-[3,4(n)-^{3}H]VALINE
Code TRA/K.533
2 ..... 8% 4 ..... 64%
3 ..... 28%

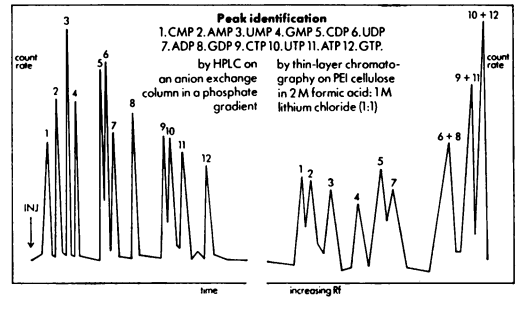
High performance liquid chromatography (HPLC)

This relatively new development of column chromatography is carried out using high efficiency microparticulate column packings of closely defined size.

Chromatography is carried out under pressure to ensure good flow rates and reduce diffusion of separated compounds. Dead volumes are kept to an absolute minimum. The result is that many separations can be carried out more quickly and with better resolution than with previously used chromatographic methods such as thin-layer chromatography or conventional column chromatography.

Work aimed at developing the applications of this method to radiolabelled compound separations is still in progress, but The Radiochemical Centre is already using the technique in many of its production processes, and in analytical applications. The result is purer compounds for the customer and greater efficiency of working.

The example illustrated below illustrates the clear superiority of HPLC when used as an analytical tool. The mixture used comprised the tritium labelled mono-, di- and triphosphates of adenosine, cytidine, guanosine and uridine, and all are clearly separated in the HPLC system.



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1465/11/77

The latest of our publications is as follows:
AL-RAWI, J.M.A., BLOXSIDE, J.P., ELVIDGE, J.A., JONES, J.R., CHAMBERS, V.E.M., CHAMBERS, V.M.A. and EVANS, E.A., *Steroids* vol. 28 (3), p.p. 359-375, 1976.

SYMPOSIA SERIES No. 44

Biochemistry of Genetic Engineering

Edited by **P. B. Garland** and **R. Williamson**

pp. 145 (ISBN 0 904498 08 5) £12.50 (US$27.50)

A Biochemical Society Symposium held in London in July 1978

The Biochemical Society's Forty-Fourth Symposium held at University College London in July 1978 reviewed in a two day meeting the exciting and rapidly expanding area of Genetic Engineering. Leaders in the field gave general introductions to the biochemical basis, practice and aims of many aspects of the subject, illustrated with accounts of current research. Subjects included ranged from the enzymology of restriction nucleases, ligases and polymerases, proceeded through vectors and hosts for recombinant DNA, considered in depth selected plant and animal systems, and concluded with industrial prospects and social perspectives. These excellent and well-received presentations form the basis of this publication, which will serve not only as a readable introduction to the biochemistry of genetic engineering but also as a valuable account of the activities of a number of leading laboratories as of summer 1978.

List of contents and authors:

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Restriction Nucleases, Ligases and Polymerases in Genetic Manipulation by **A. D. B. Malcolm.**

Safe and Useful Vector Systems by **W. J. Brammar.**

Plasmid Vectors for Genetic Manipulation in vitro by **D. J. Sherratt.**

Analysis of Restriction-Fragment Patterns from Complex Deoxyribonucleic Acid Species by **E. M. Southern.**

Application of Site-Directed Mutagenesis to Ribonucleic Acid and Deoxyribonucleic Acid Genomes by **C. Weissmann, H. Weber, T. Taniguchi, W. Müller & F. Meyer.**

Recombinant Deoxyribonucleic Acid and the Study of Human Genetic Disease: the Haemoglobinopathies by **P. F. R. Little, J. M. Kooter, E. De Boer, G. Annison & R. A. Flavell.**

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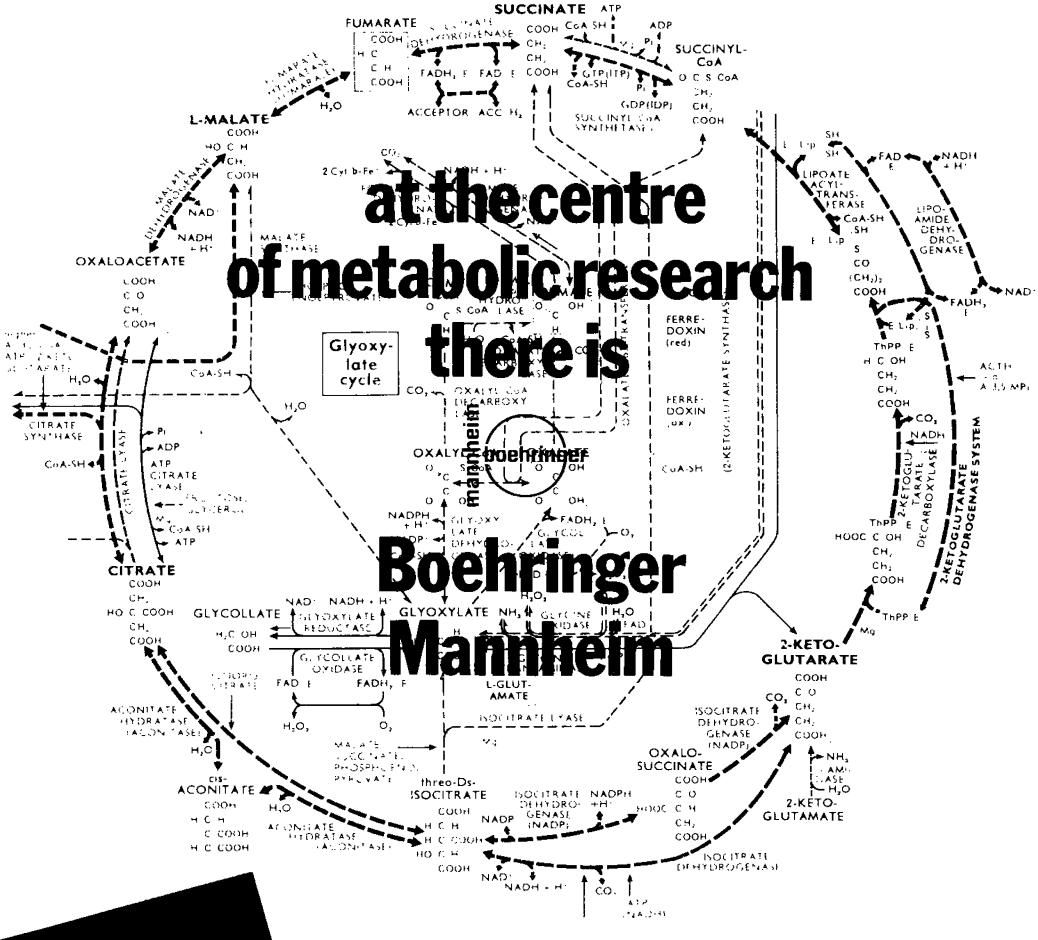

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