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Genes and Proteins in Immunity

Traditionally, the multiplicity of the reactions involved in immune responses have been a source of excitement to some and yet frustration to many. However, with the advent of modern techniques in molecular biology, a considerable understanding of these complexities has begun to emerge. In recognition of the enormous contribution made to this field by Rodney Porter, the Biochemical Society held a special symposium in his honour in Oxford during July 1985. This volume contains the papers that were presented in tribute at the symposium.

EDITED BY **J. KAY, M. A. KERR, A. F. WILLIAMS AND
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BIOTECHNOLOGY

Edited by C. F. PHELPS
and P. H. CLARKE

The fourteen contributions forming this volume were presented at a London meeting of the Biochemical Society including the Society's Forty-Eighth Symposium 'Biotechnology', in December 1982. With today's increasing pressures to develop latest laboratory findings into practical industrial processes as quickly as possible the chosen theme of this Symposium was a timely one. The papers represent up-to-date reports from international biochemists whose work is of direct relevance to the wide areas of interests concerned with biotechnology, together with glimpses of the early development of its techniques and a look at its exciting future.

List of contents and authors:

Preface. How Biotechnology Developed at University College London by **E. M. Crook**. *The Future of Biotechnology* by **P. Dunnill**. *Carbohydrate Transformations by Immobilized Cells* by **C. Bucke**. *Biological Halogenation and Epoxidation* by **S. L. Neidleman & J. Geigert**. *High-Productivity Alcohol Fermentations using Zymomonas mobilis* by **M. L. Skotnicki, R. G. Warr, A. E. Goodman, K. J. Lee & P. L. Rogers**. *The Problem of Lignin Biodegradation* by **L. Wallace, A. Paterson, A. McCarthy, U. Raeder, L. Ramsey, M. MacDonald, R. Haylock & P. Broda**. *Special Bacterial Polysaccharides and Polysaccharases* by **T. Harada**. *A New Era of Exploitation of Microbial Metabolites* by **A. L. Demain**. *Industrial Prospects for Thermophiles and Thermophilic Enzymes* by **B. S. Hartley & M. A. Payton**. *Anaerobic Fermentations – Some New Possibilities* by **J. G. Morris**. *Xenobiotic Degradation in Industrial Sewage: Haloaromatics as Target Substrates* by **H. J. Knackmuss**. *Genetic Analysis and Manipulation of Catabolic Pathways in Pseudomonas* by **P. R. Lehrbach & K. N. Timmis**. *Plant Cell Cloning and Culture Products* by **L. H. Jones**. *A Hybrid Promoter and Portable Shine-Dalgarno Regions of Escherichia coli* by **H. A. De Boer, L. J. Comstock, A. Hui, E. Wong & M. Vasser**. *Subject Index*.

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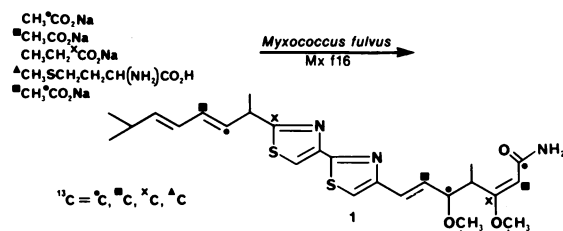
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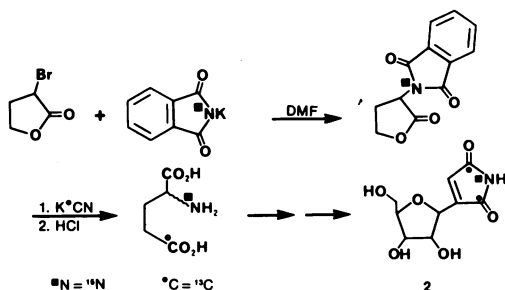
Stable Isotopes

Organics containing stable isotopes have had a long history at Aldrich starting with deuterated solvents over a decade ago. More recently, carbon-13-enriched compounds have been offered in expanding diversity, followed by carbon-13-depleted products and nitrogen-15-labeled organic and inorganic compounds. Below are the results of some recent studies employing isotopes to solve interesting biosynthetic, structural and mechanistic problems.

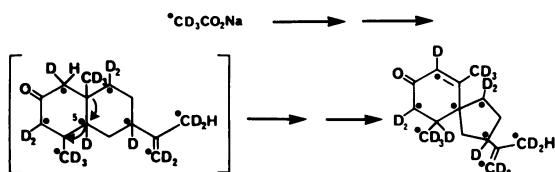
Studies on the biosynthesis of the nonaromatic moiety of Myxothiazol (1) in *Myxococcus fulvus* Mx f16 using labeled sodium carboxylates and methionine indicated that the precursors were incorporated into the backbone of the molecule.¹



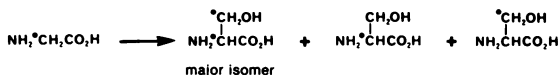
Studies with labeled L-glutamic acid have shown that it is a direct biosynthetic precursor of showdomycin (2).²



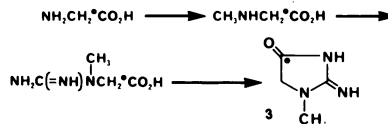
Sodium acetate-2-¹³C-2-*d*₃ has been used to study the proposed migration of hydrogen from C-5 to C-4 in the biosynthesis of potato phytoalexin shown below.³



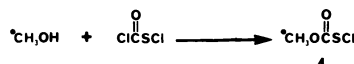
The metabolism of glycine-2-¹³C to labeled serine by a suspension of cultured tobacco cells has been followed *in vivo* using ¹³C-NMR.⁴ The kinetics of the intragastric utilization of D-glycose-1-¹³C in mice have also been followed *in vivo* by NMR.⁵



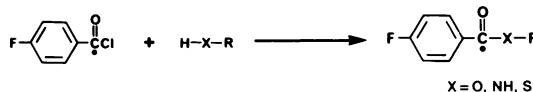
Glycine-1-¹³C has been used as a precursor in the synthesis of creatinine (3), an important end-product of nitrogen metabolism in vertebrates.⁶



Methyl-¹³C alcohol was used to synthesize ¹³C-labeled methoxycarbonylsulfonyl chloride (4), which was subsequently used to test for the presence of a disulfide linkage in digestion fragments of reduced hen egg-white lysozyme.⁷



4-Fluorobenzoyl-carbonyl-¹³C chloride is a versatile tagging reagent which gives rise to distinctive ¹⁹F- and ¹³C-NMR signals that can be correlated to specific functional groups.⁸



The mechanism of the elimination reactions of Os(CO)₂R₂ has been studied using stable isotopes.⁹



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