
Contents

Volume 2, Part 1, 1974

MORTON LECTURE 1973	PAGE
Synthesis and biogenesis of steroidal <i>Solanum</i> alkaloids. <i>By</i> K. Schreiber	1
543RD MEETING, BRISTOL	
Colloquium: Phosphorylation Reactions in Cell Metabolism	
Phosphorylation mechanisms in adenosine triphosphate formation and utilization. <i>By</i> P. D. Boyer, R. G. Wolcott, Y. Yuthavong & C. Degani	27
The stoichiometry and molecular mechanism of adenosine diphosphate phosphorylation catalysed by the proton-translocating adenosine triphosphatase systems of mitochondria, chloroplasts and bacteria. <i>By</i> P. Mitchell	31
The regulation of muscle metabolism and function by protein phosphorylation. <i>By</i> E. G. Krebs	34
Post-synthetic modification of basic chromosomal proteins in developing trout testis cells. <i>By</i> G. H. Dixon, A. J. Louie, A. R. McLeod & M. T. Sung	36
Colloquium: Special Techniques in Lipid Enzymology	
The synthesis of unsaturated fatty acids for use as substrates. <i>By</i> F. D. Gunstone	36
Structural and stereochemical purity of glycerophospholipids. <i>By</i> R. Aneja	38
Rapid assay techniques in lipid enzymology. <i>By</i> M. I. Gurr	41
Difficulties encountered in interpreting the kinetics of enzyme reactions involving lipid substrates. <i>By</i> D. N. Brindley & D. A. White	44
Clearing-factor lipase: a complex lipolytic assay system. <i>By</i> J. L. Harwood	46
Colloquium: Molecular Mechanisms of Phosphorylation	
Thioanalogues of phosphate esters and phosphorylation mechanisms. <i>By</i> F. Eckstein & R. S. Goody	48
Paramagnetic probes of kinase mechanisms. <i>By</i> M. Cohn	49
Structures and function of yeast pyruvate kinase. <i>By</i> B. Hess	49
Structure of cat muscle pyruvate kinase at 0.6 nm (6Å) resolution. <i>By</i> H. Muirhead & D. K. Stammers	49
The structure of porcine muscle adenylate kinase. <i>By</i> R. H. Schirmer & G. E. Schulz	52
The structure of yeast phosphoglycerate kinase at 0.35 nm resolution. <i>By</i> P. L. Wendell, T. N. Bryant & H. C. Watson	52

	PAGE
The high-resolution structure of horse phosphoglycerate kinase. <i>By</i> C. C. F. Blake & P. R. Evans	52
The structure of yeast hexokinase and complexes with substrates. <i>By</i> T. A. Steitz, R. J. Fletterick, W. F. Anderson & D. J. Bates	52
Colloquium: Chromatography of Amino Acids and Sugars	
Methodology and instrumentation in the chromatography of carbohydrates on ion-exchange resins. <i>By</i> J. F. Kennedy	54
Gas-liquid chromatography of sugars. <i>By</i> J. R. Clamp	64
Ion-exchange chromatography of sugar phosphates, with observations on gradient programming and on-line data handling. <i>By</i> A. J. Thomas & K. C. Blanshard	66
Ion-exchange chromatography of amino acids, with observations on off-line data handling. <i>By</i> J. M. Wilkinson	70
Gas-liquid chromatography of amino acids. <i>By</i> A. Darbre	70
High-pressure liquid chromatography of urinary constituents, particularly tryptophan metabolites. <i>By</i> R. W. A. Oliver	74
Communications	
Changes in histone phosphorylation and adenosine 3':5'-cyclic monophosphate during the initiation of deoxyribonucleic acid synthesis and mitosis in rat kidney. <i>By</i> H. J. Comber & D. M. Taylor	74
Specific tryptic cleavage of <i>Escherichia coli</i> ribonucleic acid polymerase and the establishment of β, β' and σ subunit contacts. <i>By</i> A. M. Q. King, P. A. Lowe & B. H. Nicholson	76
Modulation of nuclear protein phosphorylation by soluble nuclear and cytoplasmic fractions. <i>By</i> R. H. Burdon, J. T. Douglas & I. Thomson	78
The active site of phosphoglycerate kinase studied by nuclear magnetic resonance. <i>By</i> P. Tanswell, E. W. Westhead & R. J. P. Williams	79
Isolation of a unique phosphopeptide from skeletal-muscle phosphorylase kinase, labelled during activation by adenosine 3':5'-cyclic monophosphate-dependent protein kinase. <i>By</i> P. Cohen	82
Reduced nicotinamide-adenine dinucleotide dehydrogenase in relation to the acquisition and loss of piericidin sensitivity and of coupling site 1. <i>By</i> J. G. Cobley, S. Grossman & T. P. Singer	83
Interaction of ox heart mitochondrial adenosine triphosphatase with nucleotides. <i>By</i> D. A. Harris, J. Rosing & E. C. Slater	86
Ion-exchange chromatography of a water-soluble sodium-plus-potassium-ion-stimulated adenosine triphosphatase. <i>By</i> W. E. Lewis & A. G. Lowe	87
Phosphorylation of troponin and the effects of interactions between the components of the complex. <i>By</i> S. V. Perry & H. A. Cole	89
Interchain disulphide bonding in procollagen from embryonic chick tendon cells and the formation of the triple-helical structure. <i>By</i> J. D. Schofield, J. J. Uitto & D. J. Prockop	90
Triple-helix formation and disulphide bonding during the biosynthesis of lens basement-membrane collagen. <i>By</i> M. E. Grant, J. D. Schofield, N. A. Kefalides & D. J. Prockop	93
Chemical and metabolic properties of adenosine diphosphate ribose derivatives of nuclear proteins. <i>By</i> J. A. Smith & L. A. Stocken	95

	PAGE
Changes in brain γ -aminobutyric acid metabolism after administration of pyridoxine to vitamin B ₆ -deficient suckling rats. <i>By</i> R. A. Bayoumi, B. Ackroyd & W. R. D. Smith	96
Polyamine oxidation by enzymes from barley and pea. <i>By</i> T. A. Smith, D. Brown, R. W. Cavender & C. Sarginson	99
The probable role of <i>S</i> -methylcysteine sulphoxide in kale poisoning in ruminants. <i>By</i> R. H. Smith, C. R. Earl & N. A. Matheson	101
Simulation of phenylketonuria in rats by extended <i>p</i> -chlorophenylalanine treatment. <i>By</i> K. N. Antonas, W. F. Coulson & J. B. Jepson	105
The metabolism of dexamethasone in the rat. <i>By</i> M. J. Rice, J. M. Tredger, J. Chakraborty & D. V. Parke	107
Inhibition of rat hepatic microsomal mixed-function oxidases by ethoxyquin. <i>By</i> D. V. Parke, A. Rahim & R. Walker	109
The relationship between development of tolerance to amphetamine and its effect on liver microsomal protein synthesis. <i>By</i> S. Magour, W. Christ, H. Coper & C. Fährndrich	112
Use of fluorescent probes to investigate hepatic microsomal 'drug'-binding sites. <i>By</i> K. A. S. Al-Gailany, A. G. E. Wilson & J. W. Bridges	113
Drug entrapment in liposomes: possibilities for chemotherapy. <i>By</i> G. Gragoriadis	117
Physiological and pharmacological factors affecting the 6 β -hydroxylation and 17-epimerization of methandrostenolone. <i>By</i> R. A. Harkness, R. D. M. Scott & J. A. Strong	119
Fraction I protein in wheat leaves infected with stem rust. <i>By</i> J. Bennett & K. J. Scott	121
Metabolites of <i>Venturia inaequalis</i> . <i>By</i> R. C. Hignett	123
Protein-bound hydroxyproline and root extension growth. <i>By</i> D. Vaughan & E. Cusens	124
Uptake by beetroot tissue and biological activity of ¹⁴ C-labelled fractions of soil organic matter. <i>By</i> D. Vaughan, M. V. Cheshire & C. M. Mundie	126
Light-induced changes in the incorporation of [¹⁴ C]orotic acid and uridine into the ribonucleic acid and uridine nucleotides of rat brain. <i>By</i> A. J. Dewar & A. K. Winterburn	129
The effects of 3,3-tetramethyleneglutarate on fructose formed from [¹⁴ C]glucose by healthy and diseased human skeletal-muscle preparations. <i>By</i> D. A. Ellis & J. M. Strickland	131
Phosphorylation of ethanolamine in catabolism: biodegradative adenosine triphosphate-ethanolamine phosphotransferase and related enzymes in bacteria. <i>By</i> A. Faulkner & J. M. Turner	133
A method for differential colour staining of lysine-rich and arginine-rich histones in polyacrylamide gel. <i>By</i> I. D. Barrett & E. W. Johns	136
The immobilization of lactoperoxidase and β -fructofuranosidase on glass and on sand, by the metal-link method. <i>By</i> D. Thornton, A. Francis, D. B. Johnson & P. D. Ryan	137
The reaction between trypsin and glutamate dehydrogenase. <i>By</i> A. D. B. Malcolm & J. Sommerville	140
Biosynthesis of lipids in freshly secreted milk from goats. <i>By</i> W. W. Christie	141

	PAGE
Effect of linoleic acid on adipose-tissue metabolism in the developing lamb. <i>By</i> R. G. Vernon	142
The response of serum and pancreas tryptophan to starving and re-feeding in the rat. <i>By</i> D. A. Bender	144
Nitrite oxidation rate and the energized state in <i>Nitrobacter winogradskyi</i> . <i>By</i> J. G. Cobley & J. B. Chappell	146
Cytochromes of the <i>Nitrobacter</i> respiratory chain. <i>By</i> W. J. Ingledew, J. G. Cobley & J. B. Chappell	149
Respiration-driven proton translocation in <i>Hydrogenomonas eutropha</i> H-16. <i>By</i> M. C. Beatrice & J. B. Chappell	151
The effect of cations on membrane surface properties of rat liver mitochondria as determined by microelectrophoresis. <i>By</i> G. Moiescu & J. B. Chappell	153
Abnormal proton dissociation characteristics of erythrocyte membrane cationic groups in hereditary spherocytosis. <i>By</i> C. Hallam & J. M. Wrigglesworth	156
Delayed fluorescence, the carotenoid shift and the light-induced membrane potential. <i>By</i> E. H. Evans & A. R. Crofts	159
Light-induced proton uptake by bacterial photochemical reaction centres. <i>By</i> R. C. Prince, R. J. Cogdell & A. R. Crofts	162
BOOK REVIEWS	165