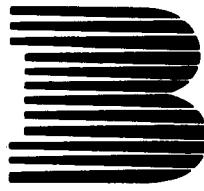


BIOCHEMICAL SOCIETY TRANSACTIONS



London: The Biochemical Society © 1987

Managing Editor D. C. WATTS

Book Reviews Editor B. MORELAND

Contents Volume 15, Part 4, August 1987

621st MEETING, LONDON

Colloquium: The Molecular Biology of Drug-Metabolizing Enzymes

Structure and expression of genes coding components of the cytochrome <i>P</i> -450-mediated mono-oxygenase	E. A. SHEPHARD, I. R. PHILLIPS, A. ASHWORTH, J. S. FERRIE, L. A. FORREST, D. R. BELL, S. THOMPSON & C. A. AUSTIN	573
Pretranslational hormonal control of male-specific cytochrome <i>P</i> -450 _{16α} in rat liver	A. STRÖM, A. MODE, E. MORGAN & J.-A. GUSTAFSSON	575
Cytochrome <i>P</i> -450 enzymes involved in genetic polymorphism of drug oxidation in humans	F. P. GUENGERICH, P. H. BEAUNE, D. R. UMBENHAUER, P. F. CHURCHILL, R. W. BORK, G. A. DANNAN, R. G. KNOPELL, R. S. LLOYD & M. V. MARTIN	576
Molecular biology of glutathione transferases	J. B. TAYLOR, S. E. PEMBLE, I. G. COWELL, K. H. DIXON & B. KETTERER	578
The molecular biology of UDP-glucuronyltransferases	B. BURCHELL, M. R. JACKSON, R. B. COARSER, M. W. H. COUGHTRIE, D. HARDING, S. H. SHEPHERD & S. M. WILSON	581
Metallothionein gene regulation	P. F. SEARLE	584
Human <i>P</i> -450 genes: evolution, regulation and possible role in carcinogenesis	D. W. NEBERT, A. K. JAISWAL, U. A. MEYER & F. J. GONZALEZ	586

Colloquium: The Genetics of Glycoconjugate Biosynthesis in Mammalian Cells

A tribute to Winifred M. Watkins	W. T. J. MORGAN	591
A new series of blood group A and H antigens expressed in human erythrocytes and the incompatible A antigens expressed in tumours of blood group O and B individuals	S.-I. HAKOMORI, H. CLAUSEN & S. B. LEVERY	593
ABH and related tissue antigens	R. ORIOL	596
Subcellular distribution of the products of the blood group A gene	J. ROTH, P. GREENWELL & W. M. WATKINS	599
Approaches to cloning the genes at the human blood group <i>ABO</i> locus	P. GREENWELL, Y. H. EDWARDS, J. WILLIAMS & W. M. WATKINS	601
Activities of fucosyltransferases in sera of leukaemic patients: platelet origin of serum α -6-L-fucosyltransferase	J. KÓSCIELAK, T. PACUSZKA, H. MILLER-PODRAZA & H. ZDZIECHOWSKA	603
Structure, biosynthesis and genetics of the Sd ^a antigen	A. S. R. DONALD, C. P. C. SOH, A. D. YATES, J. FEENEY, W. J. T. MORGAN & W. M. WATKINS	606
Biochemistry and genetics of the blood group Gerbich antigens	C. LE VAN KIM, Y. COLIN, D. BLANCHARD, W. DAHR, J. LONDON & J.-P. CARTRON	609
Biology of galactosyltransferase: recent developments	E. G. BERGER, U. MÜLLER, E. E. AEGERTER & G. J. STROUS	610

Blood group genetic markers on human milk galactosyl-transferase: relevance to the immunohistochemical approach to enzyme localization	T. FEIZI, S. J. THORPE & R. A. CHILDS	614
The membrane-binding domain of a rat liver Golgi sialyl-transferase	J. C. PAULSON, J. WEINSTEIN, E. L. UJITA, K. J. RIGGS & P.-H. LAI	618
Biochemical genetics of blood group antigens: retrospect and prospect	W. M. WATKINS	620
620th MEETING, DUBLIN		
Colloquium: Roles and Functions of Glutathione		
The enzymes of glutathione metabolism: an overview	B. MANNERVIK	717
The role of glutathione in oxidative stress	S. ORRENIUS	719
Membrane-bound glutathione transferase	R. MORGENSTERN & J. W. DEPIERRE	719
Glutathione S-transferases in man: the relationship between rat and human enzymes	J. D. HAYES, L. I. MCLELLAN, P. K. STOCKMAN, J. CHALMERS & G. J. BECKETT	721
Expression of genes encoding glutathione S-transferases in normal and preneoplastic liver	C. B. PICKETT, C. A. TELAKOWSKI-HOPKINS, G. J.-F. DING, V. D.-H. DING & R. G. KING	725
The role of glutathione in determining the response of normal and tumour cells to anticancer drugs	C. R. WOLF, A. D. LEWIS, J. CARMICHAEL, D. J. ADAMS, S. G. ALLAN & D. J. ANSELL	728
Glutathione reductase from <i>Escherichia coli</i> : mutation, cloning and sequence analysis of the gene	R. N. PERHAM	730
Nucleotide sequence of the human liver glutathione S-transferase subunit 1 cDNA	C. -P. D. TU & B. QIAN	734
619th MEETING, CAMBRIDGE		
Colloquium: From Lysozyme Structure to Enzyme Engineering		
From lysozyme to α -lactalbumin: protein engineering and evolution	D. C. PHILLIPS, K. R. ACHARYA, H. H. G. HANDOLL & D. I. STUART	737
Structural and functional studies on ferritins	P. M. HARRISON, G. C. FORD, D. W. RICE, J. M. A. SMITH, A. TREFFRY & J. L. WHITE	744
Recent progress on the structure and function of glutamate dehydrogenase	P. J. BAKER, G. W. FARRANTS, D. W. RICE & T. J. STILLMAN	748
Inhibitors of aspartic proteinases and their relevance to the design of antihypertensive agents	J. B. COOPER, S. I. FOUNDLING, A. HEMMINGS, F. E. WATSON, B. L. SIBANDA, T. L. BLUNDELL, D. M. JONES, A. HALLETT, B. ATRASH & M. SZELKE	751
The anatomy of a multifunctional enzyme	J. R. COGGINS, K. DUNCAN, I. A. ANTON, M. R. BOOCOCK, S. CHAUDHURI, J. M. LAMBERT, A. LEWENDON, G. MILLAR, D. M. MOUSDALE & D. D. S. SMITH	754
Towards a synthesis of a cytochrome <i>P</i> -540 from a cytochrome <i>c</i>	S. ARMSTRONG, D. CONCAR, W. TANG & R. J. P. WILLIAMS	759
Dihydrofolate reductase: specificity and conformational change	G. C. K. ROBERTS	762
Investigation of the function of plastocyanin by electrochemistry and nuclear-magnetic-resonance spectroscopy	F. A. ARMSTRONG, P. C. DRISCOLL, H. A. O. HILL & C. REDFIELD	767
From allostery to mutagenesis: 20 years with aspartate transcarbamoylase	H. K. SCHACHMAN	772
COMMUNICATIONS		
BOOK REVIEWS		

COMMUNICATIONS

Expression of cytochrome <i>P-450</i> genes in rat hepatoma cells	A. SHEELS, E. SHEPHERD & I. PHILLIPS	625
Tissue-specific expression of cytochrome <i>P-450</i> genes	L. A. FORREST, D. R. BELL, I. R. PHILLIPS & E. R. SHEPHERD	626
Structure and expression of human cytochrome <i>P-450</i> genes	E. A. SHEPHERD, S. THOMPSON, A. HUTTER, A. ASHWORTH & I. R. PHILLIPS	627
Detoxication of peroxidized DNA by glutathione transferases	K. HONG TAN, D. J. MEYER, B. COLES, N. GILLIES & B. KETTERER	628
Correlation between restriction fragment length polymorphisms of apolipoprotein B and serum lipid levels in patients with peripheral and coronary arterial diseases	M. V. MONSALVE, P. J. TALMUD, A. KAY, S. WISEMAN, J. POWELL, R. GREENHALGH & S. E. HUMPHRIES	629
Alterations in leucocyte prostaglandin production in ulcerative procto-colitis	N. A. PUNCHARD, R. B. HUBBARD, J. CASON, A. T. GREEN, R. A. WOLSTENCROFT & R. P. H. THOMPSON	631
Effects of methyl sterculate on acyl lipid metabolism in <i>Rhodotorula gracilis</i> (CBS 3043)	C. E. ROLPH, R. S. MORETON, & J. L. HARWOOD	632
Studies of [3 H] α -palmitate metabolism by rat skeletal muscle mitochondria: identification of the products by radio-high-performance liquid chromatography	N. J. WATMOUGH, A. K. M. J. BHUIYAN, K. BARTLETT, H. S. A. SHERRATT & D. M. TURNBULL	633
Kainate potentiates excitatory amino acid release in striatum	A. M. J. YOUNG, J. M. CROWDER & H. F. BRADFORD	635
Developmental changes of <i>N-myc</i> , <i>c-Ha-ras-1</i> and POMC mRNA in the human foetal brain	D. Y. BECKLEY & S. A. WHATLEY	636
Chloride ions influence the equilibrium of choline acetyltransferase between the membrane-bound integral form and the soluble form	M. DOCHERTY & H. F. BRADFORD	637
Isolation of highly purified cholinergic and GABAergic synaptosomes from mammalian brain using an immuno-magnetophoretic technique	M. DOCHERTY, H. F. BRADFORD & J.-Y. WU	638
DNA-associated proteins from extremely thermophilic archaeabacteria	D. COWAN	640
Characteristics of a thermostable protease from <i>Desulfurococcus</i> , an extreme thermophile growing at 88°C	D. A. COWAN, K. A. SMOLENSKI & R. M. DANIEL	641
Ontogenesis of acid proteases in human foetal brain regions	G. MAHAJAN, S. MANDAL, N. J. PATEL & A. K. SINHA	642
Aqueous soluble proteins in human brain ontogeny	A. K. SINHA, N. J. PATEL, S. MANDAL & G. MAHAJAN	643
A short peptide sequence is conserved between three tick-borne <i>Borrelia</i>	L. HAYES, L. C. ARCHARD & D. J. M. WRIGHT	644
The binding of C4-A and C4-B to erythrocytes and nucleated cells from Mg ²⁺ -depleted serum	A. W. DODDS & R. R. PORTER	644
Interactions of Gram-negative bacteria and reconstituted liposomes incorporating C5b-9 complement complexes	S. TOMLINSON, J. P. LUZIO & P. W. TAYLOR	646
Molecular cloning of human complement component Cls	C. M. MACKINNON, B. DUNBAR & J. E. FOTHERGILL	647
A familial deficiency of complement factor H	C. LOPEZ-LARREA, M. A. DIEGUEZ, A. ENGUIX, O. DOMINGUEZ, B. MARÍN & E. GOMEZ	648
The structure and function of complement component C8 investigated with monoclonal antibodies	A. ABRAHA, C. A. SEWRY, A. K. CAMPBELL & J. P. LUZIO	649
Biosynthesis of complement proteins by the U937 cell line	D. GOUNDIS & K. B. M. REID	650
mRNA coding for a truncated form of human complement factor H	J. RIPOCHE, A. J. DAY, B. MOFFATT & R. B. SIM	651
Monoclonal antibodies against complement component C3	J. M. CORTON, D. DOBBIE, B. GARDNER, A. H. MERRY & R. B. SIM	653
<i>Sau3A1</i> polymorphisms of human complement component C4 at the C4d region	C. Y. YU & R. D. CAMPBELL	654
Studies on the expression of the human factor B gene by long-term transfection into mouse fibroblast Ltk ⁻ cells	L.-C. WU & R. D. CAMPBELL	655
Structure of the HLA-linked steroid 21-hydroxylase genes	N. RODRIGUES, I. DUNHAM, C. Y. YU, M. C. CARROLL, R. R. PORTER & R. D. CAMPBELL	656
A kinetic study of the inhibition of Cls by peptides bearing C-terminal arginyl chloromethane	B. WALKER	657
C1-inhibitor synthesis by monocytes of patients with C1-inhibitor deficiency	L. JONES, P.-L. YAP, A. C. Y. LAIWEH & K. WHALEY	658

The ring-like classical complement lesion is not the functional pore of membrane attack complex	B. P. MORGAN, A. K. PATEL & A. K. CAMPBELL	659
A monoclonal antibody against human complement component C2	C. M. ANDERSON & E. SIM	660
Repetitive DNA sequences of <i>Trypanosoma cruzi</i>	F. ASHALL & M. A. MILES	661
Human tRNA gene families: copies of the gene for tRNA ^{Glu}	E. GONOS & J. P. GODDARD	661
Characterization of the xenobiotic-metabolizing capacity of non-parenchymal cells	K. J. RICH & A. LODOLA	662
Liver-specific pattern of the basal synthesis of histone variants	Z. A. MEDVEDEV & M. N. MEDVEDEVA	664
Separation of viable hepatocytes based on their mixed-function oxidase activities using fluorescent-activated flow cytometry	I. N. H. WHITE, M. L. GREEN & R. F. LEGG	665
Heterogeneity of methotrexate binding in mammalian liver	M. P. IQBAL & M. A. WAQAR	666
Expression of hepatocyte carbonic anhydrase isoenzymes <i>in vitro</i> and <i>in vivo</i>	N. CARTER, S. JEFFERY, R. LEGG, P. WISTRAND & G. LÖNNERHOLM	667
Receptor-mediated amplification control of oxidative phosphorylation by tri-iodothyronine	W. E. THOMAS & J. MOWBRAY	669
The specific enzymic cleavage of phosphoglyceroyl-ATP	J. BASRA & J. MOWBRAY	670
The secretory response of hepatocytes to interleukin-1	Y. S. TAKTAK & A. M. GRANT	671
Pitfalls in the determination of <i>N</i> -acetylglutamate in liver extracts	D. WIGGINS & P. LUND	671
Zoned hepatic glycogen formation during refeeding	M. A. JEPSON, G. M. LAWRENCE & D. G. WALKER	672
Histochemical and immunocytochemical studies on the selective hepatocellular damage caused by allyl alcohol and thioacetamide	G. M. LAWRENCE, A. C. H. BEESLEY, M. A. JEPSON & J. B. MATTHEWS	673
α -D-Mannosidase distribution in murine liver	D. ABRAHAM, G. BOU-GHARIOS, I. SHELTON, I. OLSEN & B. WINCHESTER	674
Free nucleotides as indices of carbon tetrachloride-induced liver injury	M. P. DONOVAN, R. P. NEWTON & E. G. BROWN	676
The localization of cytochrome <i>P</i> -450 in normal and pathological human liver by monoclonal antibodies to human cytochrome <i>P</i> -450	G. I. MURRAY, T. S. BARNES, S. W. B. EWEN, H. F. SEWELL, W. T. MELVIN & M. D. BURKE	677
Hepatic glycogen synthesis and glucose output on carbohydrate re-feeding after starvation	M. J. HOLNESS & M. C. SUGDEN	678
The effects of some chemotherapeutic and immuno-suppressive agents on 5-aminolaevulinate synthase	M. R. MOORE, G. G. THOMPSON & K. E. L. MCCOLL	679
A method for the determination of glycosaminoglycans in serum	H. WLAD	680
Developmental changes in enterocyte iron binding proteins in the guinea pig	S. K. S. SRAI, E. DEBNAM & O. EPSTEIN	681
An evaluation of urinary protein content and distribution in pregnancy-induced hypertension	T. MARSHALL, D. R. McBRIDE & K. M. WILLIAMS	682
The relative molecular mass, heterogeneity and subunit composition of the 12S globulin from oil seed rape	S. E. HARDING, P. KYLES, G. WEST & G. NORTON	684
Phosphorylation protects membrane-bound phospholamban from the effects of proteases	J. P. HUGGINS & P. J. ENGLAND	685
Production of a panel of monoclonal antibodies of phospholamban	J. P. HUGGINS & Z. JONAK	686
Possible role of free fatty acids in brush-border membrane iron transport	R. J. SIMPSON & T. J. PETERS	687
Iron species in iron ascorbate solutions at physiological pH	C. DOREY, D. P. E. DICKSON, T. G. ST. PIERRE, R. K. POLLARD, J. F. GIBSON, R. J. SIMPSON & T. J. PETERS	688
The effect of haloperidol on protein synthesis in human cells	S. A. WHATLEY, V. L. NIMGAONKAR & M. Y. RAJENDRAN	688
Collagen metabolism in mice with ²³⁹ PuO ₂ -induced pulmonary fibrosis	R. J. MCANULTY, S. R. MOORES, B. J. TALBOT & G. J. LAURENT	690
Glycosaminoglycan distribution in individual normal and balloon-catheter injured rabbit aortae (intima-media)	R. VAN DER HEIDEN, M. W. C. HATTON & S. MOORE	691
Protein phosphorylation in electrically permeabilized islets of Langerhans	D. M. W. SALMON, P. M. JONES & S. L. HOWELL	692
Ionophore stimulation of (H ⁺ + K ⁺)-ATPase activity in intact gastric vesicles	S. M. LAING, D. J. KEELING & A. H. UNDERWOOD	693

SCH 28080, a reversible ($H^+ + K^+$)-ATPase inhibitor, is preferentially active in the protonated form	D. J. KEELING, S. M. LAING, J. SENN-BILFINGER & A. H. UNDERWOOD	694
Protein synthesis and amino acid uptake by dorsal root ganglia from diabetic rats	N. J. PATEL, J. G. LLEWELYN, D. W. WRIGHT & P. K. THOMAS	695
The application of the Tecan 530 liquid-handling system to the automation of the Lowry protein assay	A. C. LANE & A. G. LYNN	696
Determination of the molar abundance and stoichiometry of phosphorylation of spinach light-harvesting complex polypeptides by quantitative sodium dodecyl sulphate/polyacrylamide-gel electrophoresis	K. ISLAM	697
On the assembly of tubulin in microtubule formation	K. E. FOSTER & M. A. ROSEMEYER	698
A quantitative assay for <i>Clostridium difficile</i> cytotoxin	C. EDMONDS	699
Studies on the translocation of protein kinase C in RBL-2H ₁ cells stimulated by phorbol ester or antigen	K. N. WHITE & H. METZGER	700
Investigation of the possible involvement of cyclic GMP in the transportation of bacteriophage Mu and other transposons	G. M. WILKINS & B. E. P. SWOBODA	701
Development of two bacterial constructs to assess the effects of carcinogens/transposogens on the frequency of gene transposition	G. M. WILKINS & B. E. P. SWOBODA	702
Subpopulations of abnormal platelets in diabetes in relation to spontaneous platelet aggregation and plasma lipid peroxide levels	R. E. A. DAVIS, C.-K. LAU, K. SHINTON, A. J. STOTT, B. E. P. SWOBODA, F. P. VINCE & G. M. WILKINS	704
Rapid purification of a major allergen from the pollen of cocksfoot grass (<i>Dactylis glomerata</i>)	J. A. MATTHEWS & D. J. WALSH	705
Sub-lethal γ -irradiation delays the initiation of liver growth after partial hepatectomy	G. G. SKOUTERIS, M. G. ORD & L. A. STOCKEN	706
Reduction of <i>Streptococcus mutans</i> lactate production by arginine	R. DUGUID	707
Glucose uptake by <i>Streptococcus mutans</i> cultures in the presence of arginine	R. DUGUID	708
Partial nucleotide sequence of a cloned cDNA for human liver microsomal epoxide hydrolase	J. A. CRAFT, M. R. JACKSON & B. BURCHELL	708
Is ADP the primary regulator of respiration in the heart? Ehrlich chromogens, probably cross-links, in elastin and collagen	A.-M. L. SEYMOUR, E. HARMSEN & G. K. RADDA P. D. KEMP & J. E. SCOTT	710 711
Keratan sulphate and the ultrastructure of the cornea: a comparison of rabbit, rat and mouse	M. HAIGH, S. GIBSON & J. E. SCOTT	711
Preliminary characterization of a long interspersed element family in <i>Allium sativum</i> (garlic)	J. F. DALLAS & S. R. BARNES	712
Tetrahydrobiopterin metabolism in senile dementia of Alzheimer type	S. A. JONES, R. A. ARMSTRONG, J. A. BLAIR, R. J. LEEMING, S. CHAUDHRY, C. SWADE & A. COPPEN S. M. FOORD & R. K. CRAIG	713 714
Characterization of the human calcitonin-gene-related peptide receptor		