

BIOCHEMICAL SOCIETY TRANSACTIONS

London: The Biochemical Society © 1988

Managing Editor D. C. WATTS

Book Reviews Editor B. MORELAND

Contents Volume 16, Part 2, April 1988

623rd MEETING, CANTERBURY

Colloquium: Enzymes with Active-Site Redox-Active Disulphide Bonds

- | | | |
|--|---|----|
| High resolution structure and catalytic action of human glutathione reductase | G. E. SCHULZ & P. A. KARPLUS | 81 |
| Flavoprotein disulphide oxidoreductases: protein engineering of glutathione reductase from <i>Escherichia coli</i> | R. N. PERHAM, A. M. BERRY & N. S. SCRUTTON | 84 |
| Dihydrolipoamide dehydrogenase: a 'new' function for an old enzyme? | M. J. DANSON | 87 |
| Mutagenesis of paired cysteine residues in the disulphide-containing flavoprotein mercuric ion reductase from mercury-resistant bacteria | C. WALSH, M. DISTEFANO & M. MOORE | 90 |
| Structure-function studies of the large subunit of ribonucleotide reductase from <i>Escherichia coli</i> | O. NILSSON, T. LUNDOVIST, S. HAHNE & B-M. SJÖBERG | 91 |
| Thioredoxin and glutaredoxin: small multi-functional redox proteins with active-site disulphide bonds | A. HOLMGREN | 95 |
| Protein disulphide-isomerase: a homologue of thioredoxin implicated in the biosynthesis of secretory proteins | R. B. FREEDMAN, H. C. HAWKINS, S. J. MURANT & L. REID | 96 |

Colloquium: Recovery and Reactivation of Recombinant Proteins

- | | | |
|---|--|-----|
| Properties of inclusion bodies from recombinant <i>Escherichia coli</i> | D. L. HARTLEY & J. F. KANE | 101 |
| Recovery of protein inclusion bodies | N. M. FISH & M. HOARE | 102 |
| Aggregate formation from thermolabile intermediates in the maturation of the thermostable P22 tailspike | J. KING & C. HAASE-PETTINGELL | 105 |
| Refolding and crystallographic studies of eukaryotic proteins produced in <i>Escherichia coli</i> | K. NAGAI, H-C. THØGERSEN & B. F. LUISI | 108 |
| Protein engineering to optimize recombinant protein purification | M. UHLÉN, T. MOKS & L. ABRAHMSÉN | 111 |
| Scale-up of the recovery and reactivation of recombinant proteins | F. A. O. MARSTON, S. ANGAL, P. A. LOWE, M. CHAN & C. R. HILL | 112 |

624th MEETING, DUBLIN

Colloquium: Postgraduate Education

- | | | |
|---|----------------------|-----|
| A Science and Engineering Research Council perspective on the supervision of research students and on completion rates for Ph.D. theses | A. C. WARDLAW | 117 |
| Monitoring and assessment of a research student's project | J. J. A. HEFFRON | 118 |
| Postgraduate education in the biomedical sciences: a New Zealand perspective | P. MCN. HILL | 120 |
| A European perspective on postgraduate education | W. A. J. A. ROMBAUTS | 122 |
| A student's view of postgraduate education | G. W. MOORE | 125 |

Development of the neutrophil degranulation response	L. MEAGHER	128
Career opportunity for postgraduate students	R. M. SIDDALL	128
A public sector viewpoint of research	K. C. SHORT	128
Colloquium: New Developments in Immunoblotting and Associated Detection Systems		
Immunoblotting — an update	H. TOWBIN	131
Assessment of immunoblotting in the investigation of specific immune responses during infection	D. J. REEN	132
Affinity purification of antibodies using antigens immobilized on solid supports	P. A. FISHER & D. E. SMITH	134
Protein-blot analysis of receptor–ligand interactions	J. M. GERSHONI	138
Non-radioactive probes in Southern blots	A. D. B. MALCOLM & H. FIGUEIREDO	139
Amino acid analysis and sequencing of blotted proteins	J. VANDERKERCKHOVE	140
Plasma protein analysis by immunoblotting	M. DALY, A. O'MEARA, G. MURPHY & F. HALLINAN	140
Immunoblotting and the immune response to leprosy	D. B. YOUNG	143
Blotting analysis of adhesive proteins: an evaluation of the technique using B16F10 malignant melanoma cells	V. FERRO, C. D'ARRIGO, D. OGDEN & C. W. EVANS	144
COMMUNICATIONS		147
BOOK REVIEWS		219

COMMUNICATIONS

Analysis of the autoimmune response to DNA in tolerant mice by isoelectric focusing and reverse immunoblotting. 1: Clonal restriction and time course	D. I. STOTT, J. MERINO, S. SCHURMANS & P-H. LAMBERT	147
Analysis of the autoimmune response to DNA in tolerant mice by isoelectric focusing and reverse immunoblotting. 2: The role of helper T-cells and major histocompatibility complex antigens	D. I. STOTT, J. MERINO, S. SCHURMANS & P-H. LAMBERT	148
Distinguishing antigenic and non-antigenic peptides by generating two different stains on the same immunoblot	J. CHELLIAH & H. BAUM	149
Immunoblot peptide mapping — a novel application to explore the relationship between mitochondrial antigens	J. CHELLIAH & H. BAUM	151
Quantitative immunoblotting in the study of bacterial evolution	R. M. CHALMERS & C. A. FEWSON	153
Native protein blotting after isoelectric focusing in fabric-reinforced polyacrylamide gels	N. P. PATESTOS & B. J. RADOLA	154
Human platelets bind the apolipoprotein E (apoE)-rich subclass of plasma high-density lipoproteins, HDL-E	K. DESAI & J. S. OWEN	154
Secretion of lecithin:cholesterol acyltransferase (LCAT) by the human hepatoma cell line, HepG-2	V. L. M. LIMA, N. MCINTYRE & J. S. OWEN	155
Molecular probes for human UDP-glucuronosyltransferases	M. COUGHTRIE, M. JACKSON, D. HARDING, R. CORSER, R. HUME & B. BURCHELL	157
The determination of antibody clonality using biotinylated antigen	G. B. WISDOM	158
Detection of galactosyltransferase isoenzymes by immunoblotting	P. C. WINTER & G. B. WISDOM	158
Rapid identification of biotinylated proteoglycans from human aorta by enzymic digestion and Western blots	G. STÖCKER, H. GREILING & C. WAGENER	159
Analysis of complement activation products in biological fluids using polyacrylamide gel electrophoresis	M. DORAN & D. J. REEN	160
Anti- <i>Borrelia</i> antibody in human Lyme disease	D. G. WILLIAMS, M. F. MUHLEMANN & D. J. M. WRIGHT	161
The immunoblot in autoimmune connective tissue disease	D. G. WILLIAMS	162
Initial characterization of an anti-actin monoclonal antibody (NH3)	I. DRANSFIELD, A. J. G. MOIR, B. SHETH, D. R. BURTON & L. J. PARTRIDGE	163
Lipid distribution in the media of the human thoracic aorta	L. T. MCGRATH & R. J. ELLIOTT	164
Sodium dodecyl sulphate/polyacrylamide gel electrophoresis of milk proteins: application to cheese	T. MARSHALL, D. GILLILAND & K. M. WILLIAMS	165
Electrophoresis and silver staining of the proteins of unconcentrated beer	T. MARSHALL, S. J. S. GASTON & K. M. WILLIAMS	167
Effect of dihydroxy-bile salts on the interaction of trypsin and trypsin inhibitors	B. H. MORELAND & T. M. ILLIDGE	168
Effects of heating on the extracellular matrix in muscle	J. M. MANNING & J. FRAHER	169
Oestrogen regulated mRNAs in the ZR-75-1 human breast cancer cell line	R. J. DALY, D. L. MANNING & C. D. GREEN	169
Regulation of gonadotrophin biosynthesis in the rat anterior pituitary by gonadoliberin and androgens	B. T. MARTIN, A. BETTERIDGE & R. P. CRAVEN	170
The expression of sequences which map to chromosome 21 in normal and Down's syndrome tissues	L. A. J. STEFANI, A. V. PALMER, J. GALT, M. A. FERGUSON-SMITH & N. C. NEVIN	171
Regulation of the human skin fibroblast androgen receptor by androgens	M. B. HODGINS & D. A. ROWNEY	172
Hormonal regulation of epidermal growth factor receptor gene in T47D breast cancer cells	G. ALLAN, M. DOOLEY, B. GREGORY, M. CLYNES & D. R. HEADON	173
The molecular cloning and expression of the human gene for heat shock protein 108	R. F. POWER & D. R. HEADON	174
Effects of glucocorticoid treatment of rats <i>in vivo</i> on insulin sensitivity of soleus and extensor digitorum longus muscles <i>in vitro</i>	B. LEIGHTON, F. J. LOZEMAN, R. A. J. CHALLISS & E. A. NEWSHOLME	174
The preparation of a C-terminal gastrin peptide containing a synthetic B-bend mimetic	A. J. DOUGLAS, G. MULHOLLAND, B. WALKER, D. J. S. GUTHRIE, D. T. ELMORE & R. F. MURPHY	175
Are all growth hormone genes glucocorticoid responsive?	B. N. PERRY, D. SAVVA & C. J. SKIDMORE	176
Effect of human growth hormone on rat skeletal muscle: increased collagen production	B. H. MORELAND, N. SHEERIN, D. WOOD, C. AYLING & D. SCHULSTER	177
Effects of mercurials on hydrogenase from <i>Desulfovibrio vulgaris</i> (Hildenborough)	T. FAGAN & S. G. MAYHEW	178
Biosynthesis of isotopically enriched L-serine	L. S. GARIANI & J. P. G. MALTHOUSE	179
Resolution of the α -glucosidases of <i>Streptomyces tosaensis</i>	J. BEHAN, C. T. KELLY & W. M. FOGARTY	180
The amyolytic enzymes of <i>Penicillium amagasakiense</i>	E. M. DOYLE, C. T. KELLY & W. M. FOGARTY	181

The periplasmic nitrate reductase and trimethylamine- <i>N</i> -oxide reductase of the photosynthetic bacterium <i>Rhodospirillum rubrum</i>	A. G. McEWAN, D. J. RICHARDSON, J. B. JACKSON & S. J. FERGUSON	182
Extracellular β -galactosidase of <i>Paecilomyces varioti</i>	M. R. O'MAHONY, C. T. KELLY & W. M. FOGARTY	183
Bacterial α -glucosidases — a reclassification	C. T. KELLY & W. M. FOGARTY	184
Preliminary studies on the amylolytic system of the anaerobe <i>Clostridium butyricum</i>	J. MCCARTHY, C. T. KELLY & W. M. FOGARTY	184
L-Leucine thiomide as an inhibitor of leucine aminopeptidase	R. E. BEATTIE, C. H. WILLIAMS & D. T. ELMORE	185
The behaviour of leucine aminopeptidase towards <i>N</i> -methyl-L-leucine chloromethyl ketone	R. E. BEATTIE, A. J. DOUGLAS, D. T. ELMORE, R. F. MURPHY, B. WALKER & C. H. WILLIAMS	186
Nitric oxide reductase of <i>Paracoccus denitrificans</i>	G. CARR & S. J. FERGUSON	187
Fragmentation of cartilage proteoglycans	G. MURPHY & F. BARRY	188
Trypsin effect on the lipid bilayer: characterization of released vesicles	M. MCGUINNESS & H. SMYTH	189
Studies on an angiotensin-converting enzyme of guinea-pig brain	E. LYNKEY, M. ELMORE, G. O'CUINN & B. O'CONNOR	191
Distribution, characterization and clinical significance of a cathepsin B-like enzyme in breast cancer	J. M. SIMON & M. J. DUFFY	192
The effect of gene expression on copy number and heritable stability of recombinant plasmids in <i>Bacillus subtilis</i>	M. NEWELL, A. J. MCLOUGHLIN & C. HUSSEY	192
The effect of reactor configuration on plasmid loss	D. BYRNE, C. HUSSEY & A. J. MCLOUGHLIN	193
Factors influencing the expression and maintenance of recombinant plasmids in <i>Bacillus subtilis</i>	B. LICKEN, A. J. MCLOUGHLIN & C. HUSSEY	194
Cloning of part of the gene for bovine deoxyribonuclease I	D. SHIELDS, D. J. MCCONNELL & F. G. WINDER	195
An immortalized human thyroid cell line, SGHTL-34, responsive to thyrotrophin and auto-antibodies	G. WHITLEY, A. JOHNSTONE & S. NUSSEY	196
Immortalization of human thyrocytes by transfection	A. JOHNSTONE, G. WHITLEY & S. NUSSEY	197
The effect of cell recycle batch fermentation on ethanol production by <i>Pachysolen tannophilus</i> and <i>Candida shehatae</i>	K. A. KAVANAGH & P. A. WHITTAKER	198
Effects of phencyclidine-like drugs on ⁸⁶ Rubidium efflux from rat cortical synaptosomes	E. J. FLETCHER, C. T. O'SHAUGHNESSY, C. DREW, S. ZEMAN & D. LODGE	200
Lipoprotein cholesterol levels in hypercholesterolaemic rabbits	N. O'MEARA, L. O'DONNELL, D. OWENS, P. B. COLLINS, A. H. JOHNSON & G. H. TOMKIN	200
Effect of chemical sympathectomy on cholesterol metabolism in rabbits	R. DEVERY, H. KESSERWANI, N. O'MEARA, D. OWENS, P. COLLINS, A. JOHNSON & G. TOMKIN	201
Regulation of mitogen-induced lymphocyte transformation by low density lipoprotein	D. OWENS, P. COLLINS, A. JOHNSON & G. TOMKIN	202
Interregulation of volatile and long-chain fatty acid metabolism in ovine hepatocytes	A. FAULKNER & H. T. POLLOCK	203
Pathways of propionate metabolism to glucose in ovine hepatocytes	A. FAULKNER & H. T. POLLOCK	204
Lithium transport in erythrocytes	S. PARTRIDGE, M. S. HUGHES, G. M. H. THOMAS & N. J. BIRCH	205
An investigation into the use of a dysprosium shift reagent in the nuclear magnetic resonance spectroscopy of biological systems	M. S. HUGHES, G. M. H. THOMAS, S. PARTRIDGE & N. J. BIRCH	207
Nuclear magnetic resonance studies of lithium ion transport in isolated rat hepatocytes	G. M. H. THOMAS, M. S. HUGHES, S. PARTRIDGE, R. I. OLUFUNWA, G. MARR & N. J. BIRCH	208
On the subcellular location of particulate luliberinase activity in guinea-pig brain	M. A. ELMORE & G. O'CUINN	209
Uptake of methylglyoxal-bis(guanylhydrazone) by BHK-21/C13 cells	M. E. NUTTALL & H. M. WALLACE	210
Effect of NSD-1055 on BHK-21/C13 cells	H. M. WALLACE	211
A 65 kDa inhibin from bovine follicular fluid	A. BOYHAN, P. BROWN, J. LYDON, A. D. W. DOBSON & D. R. HEADON	212
Biosynthesis of 2',3'-cyclic nucleotide 3'-phosphodiesterase (Wolfram proteins) in rat brain and glioma cells	G. E. BLAIR, J. SAWECKA, S. A. GRIFFITHS & M. E. BLAIR ZAJDEL	212
Effects of gentamicin on the calcium and polyphosphoinositide metabolism of rat renal brush border membrane vesicles	C. GODSON & M. P. RYAN	213
Photoaffinity labels for the active site of monoamine oxidase	F. R. C. BACKWELL & C. H. WILLIAMS	214
The use of neuropeptidases to release drug from peptide-based prodrugs	F. R. C. BACKWELL, D. T. ELMORE & C. H. WILLIAMS	214
Quantification of lactoferrin in bovine milk fractions	R. MEHRA, M. MCENROE & W. DONNELLY	215
The immobilization of oligonucleotides and their hybridization properties	U. B. VOSS & A. D. B. MALCOLM	216