

colloquia**670th Meeting, University College Cork****colloquium: Chemoprotection**

An overview of bioactivation of chemical carcinogens	H. R. GLATT	1
Modulation of signal-transduction pathways by chemopreventive agents	M. M. MANSON, K. A. HOLLOWAY, L. M. HOWELLS, E. A. HUDSON, S. M. PLUMMER, M. S. SQUIRES AND S. A. PRIGENT	7
Diet and colorectal cancer prevention	S. A. BINGHAM	12
Human metabolic pathways of dietary flavonoids and cinnamates	G. WILLIAMSON, A. J. DAY, G. W. PLUMB AND D. COUTEAU	16
Cytotoxicity, genotoxicity and oxidative reactions in cell-culture models: modulatory effects of phytochemicals	N. M. O'BRIEN, J. A. WOODS, S. A. AHERNE AND Y. C. O'CALLAGHAN	22
Chemical modulation of chemotherapy resistance in cultured oesophageal carcinoma cells	D. SHEEHAN AND G. MEADE	27
The Nrf2 transcription factor contributes both to the basal expression of glutathione S-transferases in mouse liver and to their induction by the chemopreventive synthetic antioxidants, butylated hydroxyanisole and ethoxyquin	J. D. HAYES, S. A. CHANAS, C. J. HENDERSON, M. McMAHON, C. SUN, G. J. MOFFAT, C. R. WOLF AND M. YAMAMOTO	33
Cytochrome P450s and chemoprevention	C. J. HENDERSON, A. SAHRAOEI AND C. R. WOLF	42

colloquium: Cell Survival and Apoptosis

Regulation of survival signals from the insulin-like growth factor-I receptor	R. O'CONNOR, C. FENNELLY AND D. KRAUSE	47
Role of the BH3 (Bcl-2 homology 3) domain in the regulation of apoptosis and Bcl-2-related proteins	R. J. LUTZ	51
GSH extrusion and the mitochondrial pathway of apoptotic signalling	S. COPPOLA AND L. GHIBELLI	56

colloquium: Biosensors and Novel Bioanalytical Methods

Electrochemical investigation of cellobiose oxidation by cellobiose dehydrogenase in the presence of cytochrome c as mediator	V. FRIDMAN, U. WOLLENBERGER, V. BOGDANOVSKAYA, F. LISDAT, T. RUGAS, A. LINDGREN, L. GORTON AND F. W. SCHELLER	63
Two-photon fluorescence excitation in detection of biomolecules	E. SOINI, N. J. MELTOLA, A. E. SOINI, J. SOUKKA, J. T. SOINI AND P. E. HÄNNINEN	70

Phosphorescent porphyrin probes in biosensors and sensitive bioassays	D. B. PAPKOVSKY, T. O'RIORDAN AND A. SOINI	74
Double-stranded DNA liquid-crystalline dispersions as biosensing units	Y. M. YEVDOKIMOV	77
Rapid antibody biosensor assays for environmental analysis	A. J. KILLARD, M. R. SMYTH, K. GRENNAN, L. MICHELI AND G. PALLESCHI	81
Direct electron transfer catalysed by enzymes: application for biosensor development	A. GHINDILIS	84
The use of electrochemically grown polymers on metallized electrodes to reduce electrode fouling in biological matrices	D. J. DALY, C. K. O'SULLIVAN AND G. G. GUILBAULT	89

colloquium: Organisms, Organs, Cells and Organelles: *in vivo* and *in vitro* Experimental Systems

The multifunctional protein AtMFP2 is co-ordinately expressed with other genes of fatty acid β-oxidation during seed germination in <i>Arabidopsis thaliana</i> (L.) Heynh.	P. J. EASTMOND AND I. A. GRAHAM	95
Studying metabolic regulation in human muscle	G. J. KEMP	100
Use of <i>in vivo</i> and <i>in vitro</i> techniques for the study of the effects of insulin on hepatic triacylglycerol secretion in different insulinaemic states	V. A. ZAMMIT	103
The use of <i>in situ</i> haemoglobin-free perfused liver in metabolic-control analysis	S. SOBOLL AND G. C. BROWN	109
Perfused heart studies to investigate lipid metabolism	R. D. EVANS, M. J. BENNETT AND D. HAUTON	113
NMR spectroscopy and imaging of the neonatal brain	C. E. COOPER AND J. S. WYATT	121
Adipocyte studies: systems for investigating effects of growth hormone and other chronically acting hormones	R. G. VERNON	126
The isolated hepatocyte preparation: 30 years on	M. N. BERRY AND J. W. PHILLIPS	131
Hepatocyte couples	R. COLEMAN AND M. G. ROMA	136
Lipid metabolism in peroxisomes: enzymology, functions and dysfunctions of the fatty acid α- and β-oxidation systems in humans	R. J. A. WANDERS, E. G. VAN GRUNSVEN AND G. A. JANSEN	141
The molecular basis of lysosomal storage diseases and their treatment	B. WINCHESTER, A. VELLODI AND E. YOUNG	150
Does the mitochondrial transcription-termination complex play an essential role in controlling differential transcription of mitochondrial DNA?	S. P. SELWOOD, Z. M. A. CHRZANOWSKA-LIGHTOWLERS AND R. N. LIGHTOWLERS	154

Muscle fibres: applications for the study of the metabolic consequences of enzyme deficiencies in skeletal muscle	S. VIELHABER, A. KUDIN, R. SCHRÖDER, C. E. ELGER AND W. S. KUNZ	159
Function of the mitochondrial outer membrane as a diffusion barrier in health and diseases	F. N. GELLERICH, S. TRUMBECKAITE, J. R. OPALKA, E. SEPPET, H. N. RASMUSSEN, C. NEUHOFF AND S. ZIERZ	164
Mitochondria and cell death	A. P. HALESTRAP, E. DORAN, J. P. GILLESPIE AND A. O'TOOLE	170
The mitochondrial trifunctional protein: centre of a β-oxidation metabolon?	S. EATON, T. BURSBY, B. MIDDLETON, M. POURFARZAM, K. MILLS, A. W. JOHNSON AND K. BARTLETT	177
The carnitine acyltransferases: modulators of acyl-CoA-dependent reactions	R. R. RAMSAY	182
Leishmania pyruvate kinase: the crystal structure reveals the structural basis of its unique regulatory properties	L. A. FOTHERGILL-GILMORE, D. J. RIGDEN, P. A. M. MICHELS AND S. E. V. PHILLIPS	186

colloquium: Growth Factors and Cytokines at the Maternal/Fetal Interface

Leucocyte populations and cytokine regulation in human uteroplacental tissues	G. S. VINCE AND P. M. JOHNSON	191
Decidual natural-killer-cell interaction with trophoblast: cytolysis or cytokine production?	Y. W. LOKE AND A. KING	196
Growth factor-extracellular matrix synergy in the control of trophoblast invasion	J. D. APLIN, H. LACEY, T. HAIGH, C. J. P. JONES, C.-P. CHEN AND M. WESTWOOD	199
Structure-function relations in the human placenta	P. DOCKERY, J. BIRMINGHAM AND D. JENKINS	202
H₁.A-G in the human placenta: expression and potential functions	P. LE BOUTEILLER	208
Role of hormone-controlled T-cell cytokines in the maintenance of pregnancy	M.-P. PICCINNI, E. MAGGI AND S. ROMAGNANI	212
Genetic analysis of insulin-like growth factor II and HLA-G in pre-eclampsia	J. BIRMINGHAM, D. JENKINS, T. McCARTHY AND M. O'BRIEN	215

colloquium: Aging and the Immune System

Cell senescence and human aging: where's the link?	R. G. A. FARAGHER	221
Relicative senescence as a barrier to human cancer	E. K. PARKINSON, J. MUNRO, K. STEEGHS, V. MORRISON, H. IRELAND, N. FORSYTH, S. FITZSIMMONS AND S. BRYCE	226
Regulation of cell cycle re-entry by growth, survival and stress signalling pathways	S. J. COOK, K. BALMANNO, A. GARNER, T. MILLAR, C. TAVERNER AND D. TODD	233

Telomere diminution as a cause of immune failure in old age: an unfashionable demurral	R. A. MILLER	241
Measurement of telomere length in haematopoietic cells using <i>in situ</i> hybridization techniques	U. M. MARTENS, V. BRASS, M. ENGELHARDT, S. GLASER, C. F. WALLER, W. LANGE, C. SCHMOOR, S. S. S. POON AND P. M. LANSDORP	245
Immunosenescence: potential causes and strategies for reversal	R. ASPINALL AND D. ANDREW	250
Regulation of apoptosis and replicative senescence in CD8⁺ T cells from patients with viral infections	M. V. D. SOARES, M. K. MAINI, P. C. L. BEVERLEY, M. SALMON AND A. N. AKBAR	255

colloquium: Evolution of Sequences, Structures and Genomes

Evidence in favour of ancient octaploidy in the vertebrate genome	T. J. GIBSON AND J. SPRING	259
Searching for the ideal forms of proteins	W. R. TAYLOR	264
Using the CATH domain database to assign structures and functions to the genome sequences	F. PEARL, A. E. TODD, J. E. BRAY, A. C. R. MARTIN, A. A. SALAMOV, M. SUWA, M. B. SWINDELLS, J. M. THORNTON AND C. A. ORENGO	269
Origins and evolution of AIDS viruses: estimating the time-scale	P. M. SHARP, E. BAILES, F. GAO, B. E. BEER, V. M. HIRSCH AND B. H. HAHN	275