

**BIOCHEMICAL
SOCIETY**
TRANSACTIONS



1983

Volume 11

Managing Editor D. C. WATTS

London: The Biochemical Society © 1983

THE BIOCHEMICAL SOCIETY, 7, WARWICK COURT, LONDON WC1R 5DP

ISSN: 0300-5127

This journal contains unedited reports of the formal presentations of data and comments communicated to the Biochemical Society at Meetings and Colloquia organized by the Society or by Groups of the Society.

Printed in Great Britain by Spottiswoode Ballantyne Ltd., Colchester and London

INDEX OF AUTHORS

- Abbott, C. 736
Aitken, J. W. 702
Akhtar, M. 668
Al-Ahmad, R. K. 757
Allen, A. 763, 764, 765
Anketell, M. C. 783
Aragon, M. C. 696
Ashwell, M. 723, 727
- Bailey, C. J. 720
Bailey, D. S. 757
Baldwin, B. C. 659, 712, 713
Barrett, D. A. 750
Beechey, R. B. 753
Bell, J. A. 715
Berggren, P.-O. 722
Biggart, J. D. 772
Bird, C. C. 736
Black, D. 707, 708
Blackburn, N. J. 740, 741
Blatiak, A. 710
Bolton, H. 759
Booth, R. 702
Borzynski, L. 656
Botham, K. M. 716
Bowness, K. M. 725
Bowyer, D. E. 705
Boyd, G. S. 699, 716
Bradbury, A. 715
Brand, M. D. 691
Bremner, I. 774, 775
Bridges, I. G. 791
Brooks, C. J. W. 700
Bruce, S. E. 777
Buckland, B. R. 751
Burgess, R. J. 765
Burroughs, A. K. 718
Byrne, E. 626
- Cain, R. B. 739
Cammack, R. 785
Catt, M. 676
Chalmers, R. A. 724
Cheyne, M. A. 707
Clamp, J. R. 766, 767, 768
Clark, J. B. 626
Colbran, R. J. 703
Cole, W. J. 700
Cook, A. 757
Cook, K. G. 703
Cook, N. D. 784, 785
Cools, W. 665
Corfield, A. P. 766, 767, 768
Cropper, G. P. 762
Cummins, P. 749
- Danpure, C. J. 719
Davies, W. E. 750
Di Bello, I. C. 717
Dietschy, J. M. 639
Ding, J. L. 788
Djamgoz, M. B. A. 686
Dodd, G. 780, 781
Dorling, P. 717
Dormandy, T. L. 718
Downing, J. E. G. 686
- Edwards, R. H. T. 728
Elliott, R. J. 772
Enser, M. 723
Epstein, O. 718
Ernst, W. 676
Evans, G. M. 695
- Fackre, D. S. 747
Faik, P. 725
Fanning, J. M. 761
Fears, R. 642
Fincham, D. A. 776
Flatt, P. R. 720, 722
Fletcher, J. M. 726
Forsyth, F. 726
Fresneda, V. 729
Fryer, P. 734
Furth, A. J. 759
- Gaitonde, M. K. 695
Gardner, M. L. G. 810
Gibbons, G. F. 649, 698
Giménez, C. 696
Gohil, K. 728
Goldberg, A. 631
Gordon-Weeks, P. R. 693
Green, C. 637
Green, J. 786
Griffin, M. M. 757
Griffiths, D. G. 753
- Haggarty, P. 726
Hardingham, T. 734
Harris, J. R. 779
Harrison, C. 713
Haslam, J. M. 713
Hayes, D. J. 626
Hayes, M. R. 754
Heaton, F. W. 773
Heffron, J. J. A. 761
Hennessey, T. D. 798
Hermon-Taylor, J. 757
Herrera, E. 729, 730, 731, 732
Herrero, E. 696
Ho, M.-W. 759
Holloway, B. R. 778
Hoppel, C. L. 724
Howell, R. M. 762
Howells, R. D. 751
Hughes, E. W. 770
Hughes, S. M. 691
Hussain, A. A. 679
Hutchon, D. J. R. 760
Hutton, D. A. 764
Huxtable, C. 717
- Ingebritsen, T. S. 644
Ivell, R. 813
- Janes, R. A. 749
Jenkins, L. D. L. 739
Jenner, W. N. 713, 715
Jennings, G. 727
Jennings, P. R. 719
Jones, D. A. 728
Jones, E. D. 751
Jones, R. T. 735
- Karmali, A. 778
Keeling, P. L. 791
Kemp, C. M. 676
King, D. J. 708, 710, 711
Kirkpatrick, S. A. 708
Knowles, A. 672
Koper, W. J. 705
- Lagnado, J. R. 783
Lambert, S. J. 749
Large, P. J. 786
Lasunción, M. A. 731, 732
Lauwers, W. 665
Lawrie, T. D. V. 700
Leaver, H. A. 699, 760
Lipke, H. 788
López-Pérez, M. J. 694
- MacLachlan, J. 700
Manchee, G. R. 715
Marcyniuk, B. 770
Marichal, P. 665
Marsh, A. E. 740, 741
Marshall, R. D. 769
Martin, L. E. 713, 715
Maslen, C. 739
Matthews, D. M. 808
Maughan, R. J. 707
McAllister, G. 757
McBride, K. 772
McCull, K. E. L. 631
McGivan, J. D. 754
McKenna, R. M. 700
Mehra, R. K. 774, 775
Meister, A. 793
Mercer, E. I. 663
Millington, D. S. 724
Mitropoulos, K. A. 646
Møller, I. M. 755
Montague, D. J. 778
Moore, A. L. 753
Morgan, M. J. 725
Morgan-Hughes, J. A. 626
Morley, J. S. 798
Morinan, A. 692
Morris, E. 763
Muir, H. 613
Murphy, S. R. 763
- Neal, M. 684
Neuhoff, V. 682
- O'Bryan, P. M. 676
O'Callaghan, A. 761
Oraedu, A. C. I. 679
Osawa, Y. 656
Osborne, N. N. 682
- Packard, C. J. 634
Pain, R. H. 764
Palacin, M. 731, 732
Parks, L. W. 656
Partis, M. D. 753
Patel, K. 739
Payne, J. W. 794, 798, 800
Pearson, H. 746, 747
- Pease, R. J. 784
Peters, T. J. 777, 778, 784, 788
Phimister, G. M. 769
Polak, E. 780
Potter, J. 759
Prince, D. J. 686
Proudlove, M. O. 753
Pullinger, C. R. 698
- Radda, G. K. 627
Raine, J. B. 766
Ratcliffe, A. 734
Reid, R. A. 787
Richmond, D. 760
Richter, D. 813
Rickards, C. R. 751
Ringrose, P. S. 804
Robinson, B. H. 623
Robinson, D. 757
Rodriguez, R. J. 656
Roe, C. R. 724
Ross, B. D. 627
- Sanchez-Prieto, J. 694
Schiffmann, Y. 743, 745
Schoental, R. 782
Scott, J. E. 770
Scott, J. P. 770
Scott, P. G. 746, 747
Segal, S. 633
Sellers, L. A. 763
Shah, T. 777
Shepherd, J. 634
Shirley, S. 780, 781
Shute, J. K. 697
Simpson, C. M. F. 737
Simpson, E. R. 653
Skiera, L. A. 787
Skinner, E. R. 707, 708
Smith, B. R. 751
Smith, G. D. 784, 788
Smith, M. E. 697
Spady, D. K. 639
Srai, S. K. S. 718
Stacey, T. E. 724
Stadler, H. 735
Stange, E. F. 639
Stansfield, D. A. 702
Steven, F. S. 757
Stevenson, G. V. W. 705
Suckling, K. E. 651
Südhof, T. C. 736
Sundaram, T. K. 740, 741
Surif, S. 773
Swanston-Flatt, S. K. 720
- Taj, M. 679
Thomas, D. G. 704
Thomas, P. G. 713
Tiffany, J. M. 737, 738
Tracey, B. M. 724
Trayhurn, P. 727
Tyson, R. H. 791
- Valdivieso, F. 696
Van den Bossche, H. 665

INDEX OF AUTHORS

- Abbott, A. C. 736
 Abdulla, P. R. 186
 Adams, M. J. 429
 Agutter, P. S. 365, 371
 Aitken, A. 298
 Aitken, J. W. 702
 Akhtar, M. 668
 Al-Ahmad, R. K. 757
 Alberti, K. G. M. M. 185
 Allan, V. J. 208
 Allen, A. 763, 764, 765
 Allen, C. M. 275
 Allen, R. L. 349, 350
 Allen, S. 73
 Altoumah, B. 103
 Anderson, N. G. 297, 398
 Anketell, M. C. 783
 Aragon, M. C. 696
 Arch, J. R. S. 52
 Ashwell, M. 723, 727
 Ashworth, A. 460
 Austen, B. M. 160
 Ayad, S. R. 365, 404, 405
- Babu, Y. S. 142
 Bagshaw, C. R. 177
 Baig, M. A. A. 600, 601
 Bailey, C. J. 284, 285, 720
 Bailey, D. S. 167, 169, 170, 406, 408, 757
 Bailey, I. A. 278
 Baker, F. C. 589
 Baker, H. F. 68
 Balázs, R. 210
 Baldwin, B. C. 659, 712, 713
 Banner, M. R. 193, 194
 Barber, J. 387
 Barker, S. A. 16
 Barrett, D. A. 750
 Bartlett, K. 185, 286, 287
 Batt, R. M. 351
 Bause, E. 105
 Bayney, R. M. 460
 Beale, D. 466
 Beechey, R. B. 753
 Beeley, J. G. 103
 Beesley, P. W. 218
 Belingheri, L. 590
 Bell, C. G. 301, 303
 Bell, J. A. 715
 Beloff-Chain, A. 200
 Bennetto, H. P. 451
 Benveniste, P. 537
 Berggren, P.-O. 722
 Bernard-Dagan, C. 590
 Berry, L. R. 101
 Beynon, R. J. 351
 Biggart, J. D. 772
 Billington, D. 162
 Birch, D. J. 403
 Bird, C. C. 736
 Bittles, A. H. 356
 Black, D. 93, 707, 708
 Blackburn, N. J. 740, 741
 Bladon, P. T. 194
 Blair, I. A. 377
- Blair, J. A. 165, 375
 Bland, J. J. 174
 Blatiak, A. 400, 710
 Blechen, S. S. 359, 360
 Bodmer, J. L. 399
 Bolton, H. 759
 Bone, A. J. 287
 Boobis, A. R. 459
 Booth, I. R. 70
 Booth, R. 702
 Borzynski, L. 656
 Botham, K. M. 716
 Bouvier, P. 537
 Bowen, D. J. 594
 Bowness, K. M. 725
 Bowyer, D. E. 705
 Boyd, G. S. 699, 716
 Bradbury, A. 715
 Brand, M. D. 691
 Branford White, C. J. 199
 Branner-Jørgensen, S. 20
 Brassell, S. C. 575
 Bremner, I. 774, 775
 Bridger, W. A. 315
 Bridges, I. G. 791
 Brindle, K. M. 280, 281
 Brindle, P. A. 516
 Brooks, B. 52
 Brooks, C. J. W. 589, 700
 Brophy, P. J. 159, 219
 Brown, B. L. 359, 360
 Brown, J. R. 182
 Brownlee, G. G. 435
 Bruce, S. E. 777
 Bruckdorfer, K. R. 275, 378
 Bryant, J. A. 367
 Bucke, C. 13
 Buckingham, M. J. 374
 Buckland, P. R. 189, 751
 Burgess, G. M. 163
 Burgess, R. J. 765
 Burgoyne, R. D. 86, 158
 Burroughs, A. K. 718
 Burton, G. W. 261
 Butterworth, P. J. 165, 193
 Button, D. 102, 173
 Byers, D. A. 276
 Byrne, E. 626
- Cain, R. B. 385, 739
 Camilleri, M. 202
 Cammack, R. 785
 Campbell, A. K. 191, 196
 Campbell, I. D. 280, 281
 Cande, W. Z. 154
 Cane, D. E. 510
 Carbarns, I. R. I. 313
 Carpenter, W. R. 393
 Carroll, J. 391
 Cartledge, T. G. 339
 Caton, A. J. 435
 Catt, M. 676
 Cattell, L. 537
 Cawood, L. 359
 Chalmers, R. A. 724
 Chan, J. C. 291
- Chaplin, S. C. 179
 Chapman, D. J. 387
 Chapman, J. 203, 206
 Charlwood, B. V. 592
 Charlwood, K. A. 592
 Cheeseman, K. H. 261
 Chen, W. Y. J. 391, 392
 Cheyne, M. A. 707
 Chih-Chuan, L. 442
 Chuah, C. T. 139
 Clamp, J. R. 766, 767, 768
 Claret, M. 163
 Clark, J. B. 626
 Clark, N. J. 350
 Clarkson, D. T. 390
 Clemens, M. J. 361, 362
 Coade, S. B. 294
 Colbran, R. J. 703
 Cole, P. J. 377
 Cole, W. J. 700
 Colen, A.-M. 81
 Collier, H. O. J. 65
 Cook, A. 757
 Cook, D. J. 384, 385
 Cook, K. G. 703
 Cook, N. D. 784, 785
 Cools, W. 665
 Cooper, N. F. 194
 Corfield, A. P. 766, 767, 768
 Cornish-Bowden, A. 44
 Corrigan, J. 292
 Cossin, A. R. 332
 Cowey, C. B. 88
 Cox, T. M. 202
 Craig, R. 154
 Crompton, M. 282
 Cropper, G. P. 762
 Cross, A. J. 68
 Crow, T. J. 68
 Crowfoot Hodgkin, D. 411
 Crumpton, M. J. 155, 156
 Cumming, R. 86, 158
 Cummings, A. J. 178
 Cummins, P. 749
 Cunliffe, W. J. 194
 Cuthbert, N. J. 65
- Dale, B. A. 195
 Damtoft, S. 593
 Danpure, C. J. 98, 100, 181, 719
 Davies, A. A. 155
 Davies, C. J. 196
 Davies, D. A. R. 391
 Davies, D. S. 459
 Davies, W. E. 750
 Davies, W. J. 557
 Davies Jones, E. 189
 Daw, J. P. 347
 Day, T. 347
 Dean, R. T. 188, 399
 Dearing, J. A. M. 164
 De Bellerocche, J. S. 213, 371, 373
 Delaney, G. M. 451
 Di Bello, I. C. 717
- Dickson, J. G. 208
 Dietschy, J. M. 639
 Dils, R. R. 308
 Ding, J. L. 788
 Djamgoz, M. B. A. 686
 Dodd, G. 780, 781
 Dodgson, K. S. 380
 Doireau, P. 595
 Dollery, C. T. 377
 Dong-Cai, L. 419
 Dorling, P. 717
 Dormandy, T. L. 718
 Dowling, J. E. G. 686
 Duff, D. A. 289
 Dunham, V. L. 367
 Dunmore, S. 200
 Dupéron, P. 596
 Duszynski, J. 40
 Dwek, R. A. 132
 Dyson, M. 187
- Earnshaw, J. S. 380
 Eastwood, A. C. 368
 Edward, M. 383
 Edwards, P. A. W. 171
 Edwards, R. H. T. 728
 Eglinton, G. 575
 Ellerbrock, B. H. 590
 Elliott, G. F. 199
 Elliott, R. J. 772
 Ellory, J. C. 330
 El-Sharif, A. 194
 Engel, P. C. 175, 176
 England, P. J. 153
 Enser, M. 723
 Epstein, O. 718
 Ernst, W. 676
 Estall, M. R. 460
 Evans, C. 358
 Evans, G. M. 695
- Fackre, D. S. 747
 Faik, P. 725
 Fairhurst, S. 395
 Fanning, J. M. 761
 Fears, R. 642
 Feizi, T. 263
 Felton, C. 358
 Fernandes, D. L. 132
 Fincham, D. A. 776
 Finne, J. 269
 Flanagan, J. 441
 Flanigan, T. P. 208
 Flatman, S. 597, 598
 Flatt, P. R. 284, 285, 720, 722
 Flavell, R. A. 111
 Fletcher, J. M. 726
 Flint, H. J. 87
 Flynn, P. J. 201
 Foong, W.-C. 305
 Ford, T. C. 273
 Forsyth, F. 726
 Foster, C. S. 299
 Fowler, M. J. F. 364
 Fowler, M. W. 23

Subject Index

- Abscisic acid
 biosynthesis 553–557
 water stress 557–560
- Acetoacetyl-CoA reductase
 Streptomyces coelicolor 598–599
- Acetylcholine
 interaction with atracurium at neuromuscular junction 201–202
 retinal neurotransmitter 684–686
- N*-Acetylglutamate
 liver mitochondria 289
- N*-Acetyl-lactosaminic (complex) glycans
 conformation 134–136
- Acid phosphatase
 reactive groups 193
- Actomyosin subfragment 1
 muscle cross-bridges 150–151
 oxygen-exchange reactions 152
- Acyl-CoA:cholesterol acyltransferase
 3-hydroxy-3-methylglutaryl-CoA reductase 651–653
 regulation 651–653
 regulation by cholesterol 646–649
- Acyl-CoA (short-chain) dehydrogenase ox liver 176–177
- Adaptive changes
 cell membranes (Colloquium) 329–346
 cell-membrane models 329–330
 hibernator membrane-transport systems 330–332
 higher-plant membrane lipids 343–346
 yeast membranes 339–340
- Adaptive responses
 fish membranes 332–333
- Adenine nucleotides
 conversion in ischaemic heart 295–296
 maturation of oxidative phosphorylation in mitochondria 294
 t.l.c. of degradation products 291–292
- Adenine-nucleotide translocator
 control of oxidative phosphorylation 90–91
- Adenosine 3',5'-cyclic phosphate, *see* Cyclic AMP
- Adenosine 5'-[β , γ -imido]triphosphate
 muscle cross-bridges 150–151
- Adenosine triphosphatase (ATPase)
 F₁-F₀ from *Escherichia coli* 229–240
 oxygen-exchange reactions of actomyosin subfragment 1 152
 muscle cross-bridges 150–151
- Adenosine triphosphate
 photochemical release in muscle fibres 151
- Adenosine triphosphate synthesis
 redistribution-coupling hypothesis 745–746
- Adenosylcobalamin-dependent ethanolamine ammonia-lyase
 Escherichia coli 352–353
- S*-Adenosyl-L-methionine:cycloartenol C-24-methyltransferase
 inhibition by tertiary amines 537–543
- Adenovirus 2
 u.v.-light-irradiated 369–370
- Adenylate cyclase
 human brain 216–217
- Adipose tissue
 brown, *see* Brown adipose tissue
 effect of transplantation on triacylglycerol fatty acids 723
 periuterine, *see* Periuterine adipose tissue
 white, *see* White adipose tissue
- Adrenal cortex
 zona fasciculata cells 705
- Adrenaline
 oxidation by polymorphonuclear leucocytes 191
- Adrenergic agonists
 Ca²⁺ efflux from mitochondria 281–282
- α -Adrenergic receptors
 interaction with opiate receptors 64–65
- Adrenochrome
 polymorphonuclear leucocytes 191
- Adrenocortical cells
 corticotropin and steroidogenic enzymes 653–655
 cytochrome *P*-450 653–655
- Aedes aegypti*, *see* Mosquito
- Affinity labelling
 molecular weight of thyrotropin receptor 189–190
- Agglutinin
 wheat germ, *see* Wheat-germ agglutinin
- Aggregation
 platelets 378–379
- Alanine
 clofibric acid and release from muscle 289–290
 gluconeogenesis in liver cells 88–89
 mother-foetus transfer in starvation 731–732
 transport in horse erythrocytes 776–777
- Alanine carrier
 N-ethylmaleimide and plasma membranes 754–755
- Alcohol dehydrogenase
 kinetics in human and rat liver 729–730
- Alcoholism
 brain damage 57–58
- Aldehyde dehydrogenase
 CoA-dependent, *see* CoA-dependent aldehyde dehydrogenase
- Aldolase
 association with erythrocyte membranes 281–282
 liver complex with fructose bisphosphatase 241–244
- Aleurone tissue
 gibberellins 534–537
- Algae
 blue-green (*Anabaena variabilis*) 587–588
 blue-green (*Anacystis nidulans*) 389–390
 brown (*Fucus serratus*) 394–395
- Althesin
 neuromuscular effects 387
- Amacrine cells
 retinal peptides 686–689
 transmitter interaction 684–686
- Amines (tertiary)
 inhibition of plant sterol biosynthesis 537–543
- Amino acid sequence
 N-terminal region of pyruvate dehydrogenase α -subunit 298–299
- Amino acid transport
 deficiency in horse erythrocytes 776–777
 metabolic disorders 633–634
- Amino acids
 γ -glutamyl, *see* γ -Glutamyl amino acids
 intestinal uptake 808–810
 metabolism by stomach 297–298
- Aminoacidurias
 membrane transport disorders 633–634

- Aminoacyl-transfer RNA synthetase
erythrocyte cylindrin 779–780
- 4-Aminobutyrate
retinal neurotransmitter 684–686
- γ -Aminobutyrylcholine
possible existence in brain 750–751
- (α , S , S)- α -Amino-3-chloro-4,5-dihydro-5-isoxazoleacetic acid
(AT-125)
inhibition of γ -glutamyltransferase in fibroblasts 181–182
- 4-Aminolaevulinate
acute porphyria 631–632
- 4-Aminolaevulinate dehydratase
acute porphyria 631–632
- Ammonium chloride
phagocyte plasminogen activator 188–189
- Amniotic fluid
fatty acids and prostaglandins 760–761
- Amphetamine
effect on brain dopaminergic systems 68–69
- α -Amylase
gibberellins and cereal germination 534–537
- Amylose
structure and morphology 139–142
- Amyrin
acetates in tap root 595
- Anabaena variabilis*
synthesis of 2-methyl-6-phytyl-1,4-benzoquinone 587–588
- Anacystis nidulans*
membrane lipids 389–390
- Anaesthetics
intravenous, *see* Intravenous anaesthetics
- Angiotensin II
fatty acid oxidation in hepatocytes 198
- Antibiotics
azasteroids 656
peptide analogues 798–800
- Antibodies
anti-carbohydrate and differentiation antibodies 301–302
- Antibody genes
normal and abnormal lymphocytes 441
- Antigenic variation
influenza virus 435–441
- Antioxidants
tumour protective agents 261–262
- Antithrombin III
effect of heparin on inhibition of proteinases 97–98
- Aorta
elastin and aging 772–773
- Aphidicolin
inhibition of DNA synthesis 363–364
- Arachidonic acid
involvement of metabolites in stimulation of muscle protein synthesis 182–183
study of cascade 310–312
- Arginine pathway
inhibition and repression in *Neurospora crassa* 94–96
modulation in *Neurospora crassa* 87
- Aromatase
irreversible inhibitors of oestrogen biosynthesis 656–659
thyroxine analogues and inhibition 656–657
- Articular cartilage
electron-microscopic immunolocalization of proteoglycan 734–735
- Ascorbate feeding
sulphated glycosaminoglycans 383
- Asparagine *N*-glycosyltransferases
inhibition by epoxyalkyl peptides 105–106
- Astrocytes
cell surface and monoclonal antibodies 208
mixed cultures with oligodendrocytes 206–207
- Astroglia
characterization of labelled proteins 212–213
- Atebrin-fluorescence quenching
ATPase from *Escherichia coli* 229–240
- Atherogenesis
non-esterified fatty acids 705–706
- Atracurium
interaction with acetylcholine at neuromuscular junction 201–202
- Aubergine (*Solanum melongena*)
glycosylated sterols and germination 596
- Autoradiographic immunoassay
plant constituents 485–495
- Auxins
abscisic acid and water stress 557–560
- Azasteroid antibiotics
fungal sterol synthesis 656
- Azoxymethane
colonic-mucosal enzymes of sialic acid metabolism 766–767
- Bacillus*
pyruvate carboxylase 740–741
- Bacillus caldotenax*
pyruvate carboxylase 741–742
- Bacillus licheniformis*
wall teichoic acid 173–174
- Bacitracin
cholecystokinin release from brain 273–274
- Bacteria
bile acids and cancer 256–258
peptide transport 794–798
photosynthetic, *see* Photosynthetic bacteria
- Bacterial membranes
adaptation to temperature 333–335
wax esters as components 172–173
- Baker's yeast, *see* *Saccharomyces cerevisiae*
- Barley (*Hordeum vulgare*)
hydrolysis of steryl esters 588–589
peptide transport in seeds 800–803
- Basement membrane
glomerular, *see* Glomerular basement membrane
- Benzo[a]pyrene
cytochrome *P*-448-dependent hydroxylation 708–709
- Benzo[a]pyrene hydroxylase
cytochrome *P*-450 in yeast strains 710
- Bile
output of plasma-membrane enzymes increased by chenodeoxycholate feeding 162
- Bile acids
bacteria and large-bowel cancer 256–258
- Bile salts
dibutyryl cyclic AMP and synthesis 716–717
- Bioelectrochemistry
industrial and medical applications (Colloquium) 445–455
- Biotin
human leucocyte carboxylases 185–186
- Blood cells
vasoactive intestinal peptide 164
- Blood-group genes
specificities of glycosyltransferases 300–301
- Book Reviews and Publications Received 107–109, 221–227, 325–327, 469–471, 605–611, 827–830
- Brain
 γ -aminobutyrylcholine 750–751
calcium-dependent proteolysis of microtubule-associated proteins 158–159
ceruletide and neurotransmitter release 373–374
cuprizone and phosphodiesterase 217–218
cysteinesulphinatase decarboxylase 215–216

- damage in alcoholism 57–58
 developmental regulation of membrane glycoproteins 157–158
 dopaminergic systems and effect of amphetamine 68–69
 effect of drugs on enzyme activities 216–217
 ethanol and monoamine oxidase 692–693
 immunoaffinity isolation of nerve terminals 273–275
 measurement of protein synthesis 218–219
 microsomal lipid peroxidation 762–763
 microsomal thromboplastin activity 762–763
 postsynaptic densities 693–694
 release of cholecystokinin 273–274
 synaptosomes, mitochondria and mitoplasts 694–695
 thiamin metabolism *in vivo* 695–696
 Branched-chain amino acids
 clofibric acid and muscle metabolism 289–290
Brassica rapa, see Turnip
 Brassinolide
 plant steroid hormones 543–548
 Bromelain
 low-molecular-weight inhibitor 178–180
 Brown adipose tissue
 mitochondrial 'uncoupling' protein in *ob/ob* mice 727–728
 oxidative functions in Zucker rats 726–727
 subcellular fractionation 778–779
 Brush border
 differential expression of glycoproteins 170–171

¹³C nuclear magnetic resonance
 folic acid isotopomers 375–376
 Cadmium
 subcellular distribution in rat tissues 773
 Caerulein diethylamide, see Ceruletide
 Calcium
 hormonal regulation of efflux from mitochondria 281–282
 Calcium ion efflux
 liver and skeletal-muscle mitochondria 761–762
 Calcium ion influx
 effect of synaptosomal microtubules 86–87
 Calelectrin
 membranes, cytoskeleton and Ca²⁺ 736
 Calmodulin
 hormone-stimulated cyclic AMP production/degradation 359–360
 Cancer
 bacteria and bile acids 256–258
 dietary fat intake 254–256
 excess sialylation of cell surface 299–300
 plasma lipids 252–254
Candida utilis
 dimethylamine mono-oxygenase 786
 Capsicums
 sesquiterpenoid stress metabolites 589–590
 Carbohydrate
 influenza-virus haemagglutinin 145–147
 receptors and antigens 303–305
 structure in Fc fragment of immunoglobulin G 130–132
 Carbohydrate differentiation antigens
 anti-carbohydrate antibodies 301–302
 recognition by monoclonal antibodies 263–265
 sialic acid 270–271
 Carbohydrates
 redistribution during drying of wood 102–103
 role in enzymes 16–18
 Carbon dioxide fixation
 regulation in chloroplasts 74–76
 Carboxylases
 effect of biotin on human leucocyte 185–186
 Carnitine
 mitochondrial acyl-CoA/CoA ratios 724–725
 roles in mitochondrial metabolism 724–725

 Carotenoids
 determination in leaf extracts 591–592
 developments in biochemistry 473–483
 pathway of biosynthesis 473–483
 Carrot, wild, see Wild carrot
 Cartilage
 articular, see Articular cartilage
 proteoglycan aggregation 128–130
 proteoglycans 613–622
 Catabolite repression
 yeast membranes 339–340
 Catecholamines
 regulation of cardiac contraction 153
 Cauliflower-mosaic virus
 DNA polymerase in turnip plants 367–368
 Cell adhesion
 nerve cells in cerebellar cultures 210–212
 Cell-membrane lipids
 effect of ethanol 61–62
 Cell membranes
 adaptive changes (Colloquium) 329–346
 models for adaptive changes 329–330
 plasma lipids and lipoproteins 336–339
 Cell proliferation
 inhibition by interferons 361–362
 Cell separation
 centrilobular and periportal hepatocytes 275
 iso-osmotic Nycodenz gradients 273
 Cell surface
 carbohydrates and glycosyltransferase 269–270
 polysaccharides and recognition 265–267
 β-Cell tropin
 corticotropin-(22–39)-peptide 200
 structure and biological activity 201
 Cells
 Chinese-hamster ovary, see Chinese-hamster ovary cells
 Ehrlich ascites-tumour, see Ehrlich ascites-tumour cells
 HeLa, see HeLa cells
 liver, see Hepatocytes
 lymphoblastoid, see Lymphoblastoid cells
 plant, see Plant cells
 tumour, see Tumour cells
 Centrifugal analyser
 fluorogenic enzyme assays 276–277
Cercospora rosicola
 abscisic acid biosynthesis 553–557
 Cerebrum
 neuroregulators and effect of ethanol 62–63
 Ceruletide (caerulein diethylamide)
 neurotransmitter release 373–374
 Chemiluminescence-energy transfer
 immunoassay for cyclic AMP 196–197
 Chemiosmotic energy-coupling schemes
 metabolic control by pump-slippage and proton leakage 81–85
 Chenodeoxycholate
 feeding increases output of plasma-membrane enzymes into bile 162
 Chimpanzee (*Pan troglodytes*)
 Hepatitis-B-virus DNA replication 364
 Chinese-hamster ovary cells
 energy provision 725–726
 Chinese population
 abnormal haemoglobins 442–444
 Chlorophyll
 determination in leaf extracts 591–592
 Chloroplast membranes
 non-bilayer lipid structures 388–389
 Chloroplast thylakoid membranes
 temperature and lipid/protein ratio 387–388

- Chloroplasts
 biosynthesis of terpenoid quinones and chromanols 504–510
 regulation of CO₂ fixation 74–76
 site of prenylation and methylation reactions 590
- Chloroquine
 effect on mucopolysaccharide metabolism in skin fibroblasts 98–99, 100–101
- Cholecystokinin
 release from brain 213–214
- Cholera toxin
 normal, malignant and hybrid cells 404–405
- Cholesterol
 biosynthesis regulation by oxysterols 649–651
 carrier proteins 637–639
 endoplasmic-reticulum membranes 646–649
 hormonal control of synthesis 644–646
 movement within cells 637–639
 plasma concentration and cancer 252–254
 regulation of 3-hydroxy-3-methylglutaryl-CoA reductase 646–649
 serum high-density lipoproteins and exercise 707
 stability of liposomes 305–306
 synthesis in different organs 639–641
 uptake and low-density lipoproteins 639–641
- Cholesteryl ester hydrolase
 bovine testis 704
 corpus luteum 703
 hormone-sensitive lipase 703
- Cholesteryl esters
 acyl-CoA: cholesterol acyltransferase regulation 651–653
- Cholinergic drugs
 retina 684–686
- Chromanols, terpenoid
 biosynthesis 504–510
- Chromium
 tissue distribution in normal and *ob/ob* mice 722
- Chymotrypsin
 zymogens and active forms 351
- CIBA Medal Lecture
 seventeenth 613–622
- Cimetidine
 placental mono-oxygenase activity 178–179
- Citrate
 inhibitor/activator of malate dehydrogenase 347–348
- Citrofortunella mitis*
 monoterpene and sesquiterpene biosynthesis 590
- Citrulline
 control of biosynthesis in liver mitochondria 89–90
- Clofibrac acid
 muscle amino acid metabolism and alanine release 289–290
- Clonidine
 neuronal adaptation 65–68
- Cloning
 guinea-pig enterocyte RNA 408–409
- Cod (*Gadus morhua*)
 lipase activities 708
- Coenzyme A
 carnitine effects in mitochondria 724–725
- Coenzyme A-dependent aldehyde dehydrogenase
Escherichia coli 352–353
- Colchicine
 normal, malignant and hybrid cells 404–405
- Collagen
 developing tendons 770–771
 interaction with proteoglycans 613–622
 proteinase cleavage of C-terminal cross-linking region 746–747
- Colonic mucosa
 enzymes of sialic acid metabolism 766–767, 767–768, 768–769
- sialyltransferase activity 768–769
- Colworth Medal Lecture
 eighteenth 111–118
 nineteenth 119–126
- Compactin
 effect on sterol biosynthesis 642–644
 3-hydroxy-3-methylglutaryl-CoA reductase 642–644
- Compartmentation
 model and reality 47–52
- Complement system
 proteins activating and controlling 1–12
- Concanavalin A
 effect on frog olfactory mucosa 781–782
 selective inhibition of rat olfactory receptors 780–781
- Copper retention
 foetus and newborn 718–719
 Wilson's disease 718–719
- Copper-metallothioneins
 degradation in liver 774–775, 775–776
 effect of Zn²⁺ on synthesis 775–776
 intracellular distribution 774–775
- Coproporphyrinogen oxidase
 acute porphyria 631–632
- Corneal stroma
 lectin-binding proteins 199
- Corpus luteum
 cholesteryl ester hydrolase 703
 high-density lipoprotein 702
 lutropin-dependent progesterone synthesis 702
 protein-synthesis inhibitors and steroidogenesis 699–700
- Corpus striatum
 dopamine release 371–372
- Corticotropin
 cytochrome P-450 653–655
 induction of synthesis of steroidogenic enzymes 653–655
 mitochondrial steroid hydroxylase system 653–655
- Corticotropin-(22–39)-peptide
 β -cell tropin 200
- Cortisol synthesis
 adrenal-cortex zona-fasciculata cells 705
- Creatine kinase
 fluxes in rat cardiac muscle 174–175
- Cuprizone
 brain phosphodiesterase 217–218
- Curdlan
 structure and morphology 139–142
- Cutin
 biosynthesis in *Pisum sativum* 594–595
- Cyanogen bromide fragments
 glutathione S-transferases 353–354
- Cyclic AMP
 diauxic growth of yeast on glucose 403–404
 homogeneous immunoassay 196–197
 hormone-stimulated production 359–360
 normal, malignant and hybrid cells 404–405
- Cyclic nucleotide phosphodiesterase
 activation by rhodopsin 672–674
- 2',3'-Cyclic nucleotide 3'-phosphodiesterase
 brain and cuprizone 217–218
- Cyclodextrins
 structure and function 136–139
- Cycloeucaleanol: obtusifoliol isomerase
 inhibition by tertiary amines 537–543
- Cycloheximide
 inhibition of steroidogenesis 699–700
- Cylindrin
 erythrocytes and aminoacyl-tRNA synthetase activity 779–780
- Cysteinesulphinatase decarboxylase
 immunological study 215–216

- Cystine
uptake and metabolism in cystinosis 719–720
- Cystinosis
cystine uptake and metabolism 719–720
effect of γ -glutamyltransferase inhibitor 181–182
- Cystinuria
membrane transport 633–634
- Cytidine 3':5'-cyclic monophosphate
endogenous 354–355
- Cytidine 3':5'-cyclic monophosphate phosphodiesterase
purification and properties 355–356
- Cytochrome P-448
benzo[a]pyrene hydroxylase in yeast 708–709
catalytic mechanism and stability 18–19
- Cytochrome P-450
adrenocortical cells 653–655
corticotropin effects 653–655
fungicidal imidazoles and triazoles 665–667
microsomal, *see* Microsomal cytochrome P-450
nuclear regulatory gene in yeast 711
oxygen as substrate inducer 400–401
production in yeast strains 710, 711
purification from *Saccharomyces cerevisiae* 712
Saccharomyces cerevisiae 400–401, 401
- Cytoplasm
regulation of pH and relationship to metabolism in bacteria 70–72
- Cytoplasmic factor (low mol.wt.)
destabilization of DNA 365–366
- Cytoplasmic protein
nucleo-cytoplasmic RNA transport 371
- Cytosine arabinoside
inhibition of DNA synthesis 363–364
- Cytoskeletal proteins
bloodstream forms of *Trypanosoma brucei* 783–784
- Cytoskeleton
calelectrin, membranes and Ca^{2+} 736
lymphocyte 155–156
protein associated with lymphocyte plasma membrane 156–157
- Dantrolene sodium
contractile responses in neuromuscular junction 698
- Daucus carota*, *see* Wild carrot
- Daunorubicin
targetting to trypanosomes 182
- Dehydrogenases
 NAD^+ - and NADP^+ -dependent, *see* NAD^+ - and NADP^+ -dependent dehydrogenases
- Deoxycholate
effect on rat proximal jejunum 165–167
- 8-*epi*-Deoxyloganic acid
biosynthesis of iridoid glucosides 593–594
- Deoxyribonucleic acid
binding of polycyclic hydrocarbon metabolites 258–261
destabilization in liver nuclei 365–366
formation of 10-kilobase replication intermediates 361
hepatitis-B virus 364
newly replicated 361–362
synthesis in *Trypanosoma brucei* 366–367
u.v.-light-induced damage 368–369
- Deoxyribonucleic acid methylation
globin genes 111–118
- Deoxyribonucleic acid polymerase
cauliflower-mosaic-virus-infected turnip plants 367–368
- Deoxyribonucleic acid synthesis
effect of phenylalanine and mimosine 186–187
Epstein–Barr-virus-transformed B-lymphoblasts 363–364
- Depolarization
effect on synaptosomal microtubules 86–87
- Dermatan sulphate
see Proteodermatan sulphate
- Desert locust (*Schistocerca gregaria*)
embryogenesis 379–380
- Detergent
solubilization of glomerular basement membrane 396–397
- Development
nerve cells in cerebellar cultures 210–212
role of proteoglycans 613–622
- Dexamethasone
brain enzymes 216–217
lymphoblastoid-cell division 362–363
- Diabetes
stimulation of prostacyclin production by sera 309–310
- Diauxic growth
Saccharomyces cerevisiae 403–404
- Dibutyryl cyclic AMP
hepatocyte bile-salt synthesis 716–717
- Diclobutrazol
effects on fungal membranes 713
- Dietary fat
cancer 254–256
- Dietary lipids
metabolism of polycyclic hydrocarbons 258–261
- Diethyl pyrocarbonate
acid phosphatase 193
- Differentiation antigens
presence in epithelium 171–172
- Dihydrofolate reductase
pH-dependence 184–185
- 3,4-Dihydroxyphenethylamine, *see* Dopamine
- Dimethylamine
oxidation in *Candida utilis* 786
- Dinucleosomes
reconstitution on restriction fragments 370
- Disc membrane
e.s.r. studies 674–676
GTP-binding protein 674–676
rhodopsin monomer 691–692
rhodopsin structure and conformation 668–672
- Diterpenoids
biosynthesis in *Gibberella fujikuroi* 522–528
- DNA, *see* Deoxyribonucleic acid
- Dolichols
biosynthesis 497–504
glycoprotein synthesis in plants 568–574
- Dopamine (3,4-dihydroxyphenethylamine) release
substance P 371–372
- Dopaminergic systems
effect of amphetamine 68–69
- Drug-dependence
neurochemistry (Colloquium) 57–69
- Drug-induced proteins
genes (Colloquium) 457–467
- Drug-metabolizing enzymes
genes 460–463
survey 457–458
- Drugs
prostacyclin synthesis 358
- Duchenne muscular dystrophy
platelets 378–379
- Duodenum
enterocyte as model for adaptive gene expression 167–168
- Dystrophy
muscular, *see* Muscular dystrophy
- Ecdysteroid phosphate
locust embryogenesis 379–380

- Ehrlich ascites-tumour cells
effect of phenylalanine and mimosine on DNA synthesis 186–187
- Elastase
aging aorta elastin 772–773
- Elastin
aging aorta 772–773
- Electrochemical sensors
clinical analysis 448–451
- Electrochemistry
protein, *see* Protein electrochemistry
- Electrodes
electron transfer 445–448
- Electromotor neuron
synaptic-vesicle cholinergic antigen 735
- Electron paramagnetic resonance (e.p.r.) spectroscopy
scallop myosin 177–178
- Electron spin resonance (e.s.r.) spectroscopy
interaction of lipid with myelin proteolipid protein 159–160
- Electron transfer
biological systems and electrodes 445–448
- Electron transport
redistribution-coupling hypothesis 745–746
- Electrophoresis
binding of fatty acids to proteins 308
two-dimensional, *see* Two-dimensional electrophoresis
- Embryogenesis
desert-locust 379–380
- Endopeptidase
neutral, *see* Neutral endopeptidase
- Endoplasmic reticulum
cholesterol and 3-hydroxy-3-methylglutaryl-CoA reductase 646–647
- Energy conversions
thermodynamic optimization 45–47
- Energy transfer
redistribution-coupling hypothesis 745–746
- Enterocyte
isolation of RNA for cloning 169–170
lactase gene expression 406–408
model for adaptive gene expression 167–168, 169–170, 408–409
model for investigation of glycoprotein biosynthesis 170–171
- Enteroglucagon
ob/ob-mouse small intestine 720–721
- Enzyme assays
fluorogenic in centrifugal analyser 276–277
- Enzyme kinetics
erythrocyte 280–281
isotope effects 817–825
³¹P n.m.r. 376–377
recent advances 817–825
- Enzyme secretion
lysosomal, *see* lysosomal enzyme secretion
- Enzyme systems
analysis of control *in vivo* 35–40
- Enzymes
catalytic mechanism and stability 18–19
chemical modification for industrial use 20–21
drug-metabolizing, *see* Drug-metabolizing enzymes
microsomal, *see* Microsomal enzymes
practicality for industrial use 13–14
role of carbohydrates 16–18
stabilization 19–20
stabilization and modification for industrial use (Colloquium) 13–21
- Epidermis
filaggrin precursor 195–196
histidine ammonia-lyase 349–350
peptide mapping of keratin proteins 194–195
- Epithelium
glycolipids 268–269
presence of differentiation antigens 171–172
- Epoxyalkyl peptides
inhibition of asparagine *N*-glycosyltransferases 105–106
- Epstein-Barr-virus-transformed B-lymphoblasts
DNA synthesis 363–364
- Ergosterol
biosynthesis pathway in fungi 659–663
fungicidal inhibitors of biosynthesis 659–663
- Erythrocyte membranes
association with aldolase 281–282
- Erythrocytes
amino acid transport deficiency 776–777
cyclindrin and aminoacyl-tRNA synthetase 779–780
kinetic properties of enzymes 280–281
- Escherichia coli*
adenosylcobalamin-dependent ethanolamine ammonia-lyase 352–353
CoA-dependent aldehyde dehydrogenase 352–353
F₁-F₀ ATPase 229–240
pH-dependence of dihydrofolate reductase 184–185
succinyl-CoA synthetase (Biochemical Review) 315–323
unc mutants 229–240
- Ethanol
brain damage in alcoholism 57–58
brain monoamine oxidase 692–693
effect on cell-membrane lipids 61–62
effect on cerebral neuroregulators 62–63
metabolic and nutritional aspects 59–61
- Ethanolamine ammonia-lyase
adenosylcobalamin-dependent, *see* Adenosylcobalamin-dependent ethanolamine ammonia-lyase 352–353
- Ethylene glycol
uptake by *Pseudomonas fluorescens* 739
- N*-Ethylmaleimide
alanine carrier in plasma membranes 754–755
- Etomidate
neuromuscular effects 387
- Excision repair
u.v.-light-induced DNA damage 368–369
- Exercise
defects in muscle metabolism 626–627, 627–630
effect on intracellular pH in skeletal muscle 92–93
high-density lipoprotein composition 707
- Extracellular matrix
proteoglycans as organizers 613–622
- Eyelid
Meibomian-gland fatty-acid reduction 737–738
sterols in Meibomian-gland secretions 738
- F₁-ATPase
Escherichia coli 229–240
- Familial hypercholesterolaemia
3-hydroxy-3-methylglutaryl-CoA reductase 634–636
low-density-lipoprotein receptor pathway 634–636
- Farnesyl pyrophosphate
precursor of sesquiterpenes 510–515
- Fast atom bombardment (FAB) mass spectrometry
analysis of steroid conjugates 602–603
steroids and terpenoids 561–565
- Fatty acid biosynthesis
fungicidal imidazoles and triazoles 665–667
- Fatty acid synthetase
Streptomyces coelicolor 597
- Fatty acids
binding to proteins 308
effect on mitochondrial pyruvate carboxylase 286–287

- effects of vasopressin and angiotensin II on oxidation in hepatocytes 198
- foetal membranes and amniotic fluid 760–761
- non-esterified, *see* Non-esterified fatty acids
- oxidation in human skeletal-muscle mitochondria 728–729
- reduction in Meibomian glands 737–738
- triacylglycerol, *see* Triacylglycerol fatty acids
- Fibroblasts**
- characterization of labelled proteins 212–213
- cystine uptake and metabolism in cystinosis 719–720
- inhibition of γ -glutamyltransferase 181–182
- skin, *see* Skin fibroblasts
- Fibronectin**
- cultured-cell nuclei 405–406
- mitogenic activity 365
- Field desorption (FD) mass spectrometry** 561–565
- Filaggrin**
- high-molecular-weight form of precursor 195–196
- Fish membranes**
- adaptive temperature response 332–333
- Flavobacterium* sp.**
- poly(ethylene glycol) uptake 739–740
- Fluorescent probe**
- D-glyceraldehyde-3-phosphate dehydrogenase 425–429
- Fluorogenic enzyme assays**
- centrifugal analyser 276–277
- Foetal membranes**
- acylglycerols and prostaglandins 760–761
- Foetus**
- alanine and glycerol transfer in starvation 731–732
- Folic acid isotopomers**
- ¹³C n.m.r. 375–376
- Frog**
- concanavalin A effect on olfactory mucosa 781–782
- Fructose bisphosphatase**
- liver complex with aldolase 241–244
- Fructose 2,6-bisphosphate**
- discovery, biological effects, biosynthesis and biodegradation 250–251
- regulation of glycolysis 246–247
- regulation of phosphofructokinase 248–249
- Fructose intolerance**
- liver inhibitor of fructose 1-phosphate aldolase 202–203
- Fructose 1-phosphate aldolase**
- liver inhibitor in fructose intolerance 202–203
- Fucus serratus***
- trace metals and lipid metabolism 394–395
- Fuel cells**
- microbial, *see* Microbial fuel cells
- Fungi**
- azasteroid effects 656
- ergosterol biosynthesis 659–663
- Fungicides**
- cytochrome P-450 and sterol synthesis 665–667
- inhibitor of sterol 14 α -demethylase 663–665
- inhibitors of ergosterol biosynthesis 659–663
- N-substituted imidazoles and triazoles 665–667
- Gadus morhua*, *see* Cod**
- Ganglion cells**
- neuroactive peptides in retina 686–689
- Gas-liquid chromatography (g.l.c.)**
- cheap home-made injector 599–600
- Gastrointestinal tract**
- mucous glycoproteins 763–764, 764–765, 765–766
- Gene expression**
- duodenal enterocyte as model 167–168, 169–170
- guinea-pig enterocyte lactase 406–408
- Gene splicing**
- globin 111–118
- immunoglobulins 119–126
- Genes**
- antibody, *see* Antibody genes
- cytochrome P-450 regulation in yeast 711
- drug-induced proteins (Colloquium) 457–467
- drug-metabolizing enzymes 460–463
- globin 111–118
- immunoglobulin 119–126
- Geochemistry**
- terpenoids and steroids 575–586
- Germanicol**
- acetates in tap root 595
- Germination**
- control by gibberellins 534–537
- hydrolysis of steryl esters 588–589
- sterol glycosylation 595
- Gibberella fujikuroi***
- diterpenoid and gibberellin biosynthesis 522–528
- Gibberellins**
- analytical procedures 528–534
- biosynthesis in *Gibberella fujikuroi* 522–528
- control of cellular processes in cereals 534–537
- cutin biosynthesis 594–595
- higher plants 528–534
- inhibitors of biosynthesis 522–528
- metabolism in *Pisum sativum* 528–534
- Ginseng saponins**
- mouse lactate dehydrogenase 356–357
- Glial cells**
- scanning electron microscopy 203–205
- translation of polyribosomes 205–206
- Glioma cells**
- lipid methylation 219
- Globin genes**
- expression *in vivo* 111–118
- rabbit and man 111–118
- Glomerular basement membrane**
- solubilization with detergent 396–397
- Glucagon-like immunoreactive peptides**
- ob/ob*-mouse small intestine 720–721
- Glucans**
- multiple-helical 139–142
- Glucocorticoids**
- polyamines and cytolethal response 736–737
- Gluconeogenesis**
- alanine and serine as precursors in liver cells 88–89
- control in liver cells 88
- hormonal stimulation through increased mitochondrial metabolic flux 78–81
- Glucose**
- glycogen and glyceride glycerol synthesis in starvation 730–731
- response in obese mice 285–286
- Glucose 1,6-bisphosphatase**
- glucose 1,6-bisphosphate in muscle 279
- Glucose 1,6-bisphosphate**
- control of muscle glucose 1,6-bisphosphatase 279
- Glucose 6-phosphatase**
- effect of *NN'*-*o*-phenylenedimaleimide 194
- Glucose-tolerance factor**
- chromium tissue distribution 722
- Glucosides**
- iridoid 593–594
- Glucosylation**
- plant sterols 565–568
- Glucuronidation**
- sex dimorphism 183–184
- Glutamate dehydrogenase**
- Peptococcus asaccharolyticus* 175–176

- Glutamine synthetase
 human brain 216–217
 γ -glutamyl amino acids
 transport and metabolism 793–794
 γ -Glutamyltransferase
 immunological characterization in hepatoma cells 788–789
 inhibition in fibroblasts 181–182
 Glutaraldehyde
 1-methylpyridinium iodide catabolism 385
 Glutaric acid
 1-methylpyridinium iodide catabolism 384–385
 Glutathione
 transport and metabolism 793–794
 Glutathione *S*-transferase
 genetic relationships and inducibility 466–467
 nomenclature of multiple forms 353
 Glutathione *S*-transferase B
 lipid peroxidation 308–309
 Glutathione *S*-transferases AA and B
 CNBr fragments of α - and γ -subunits 353–354
 Glycans
 conformation of *N*-acetyl-lactosaminic (complex) type 134–136
 D-Glyceraldehyde-3-phosphate dehydrogenase
 fluorescent probe 425–429
 Glyceride glycerol
 synthesis from glucose in starvation 730–731
 Glycerol
 mother–foetus transfer in starvation 731–732
 Glycerol 3-phosphate acyltransferase
 mammary gland 283–284
 Glycoconjugates
 recognition phenomena 127–128
 stereochemistry 127–147
 Glycogen
 synthesis from glucose in starvation 730–731
 Glycogen phosphorylase *b*
 binding of oligosaccharide 142–144
 Glycogen storage diseases
 ³¹P n.m.r. 627–630
 Glycolipids
 epithelial cells 268–269
 expression in ontogenesis and oncogenesis 267–268
 Glycolysis
 lack of inactivation by pH 278–279
 recent advances in control (Colloquium) 241–251
 role of fructose 2,6-bisphosphate in regulation 246–247
 study by n.m.r. spectroscopy 244–246
 Glycolytic enzymes
 regulation *in situ* and *in vitro* 241–251
 Glycoprotein
 preparation from gastric mucus 764–765
 Tamm–Horsfall, *see* Tamm–Horsfall glycoprotein
 N-terminal amino acids 765–766
 Glycoproteins
 conformation of *N*-acetyl-lactosaminic (complex) type
 glycans 134–136
 developmental regulation in brain 157–158
 enterocyte as a model for investigation of biosynthesis
 170–171
 gastrointestinal mucus 763–764, 764–765, 765–766
 synthesis in plants 568–574
 Glycosaminoglycans
 sulphated, *see* Sulphated glycosaminoglycans
 Glycosides
 sterol and triterpene 565–568
 Glycosylation
 inhibition by tunicamycin 497–504
 plant glycoprotein biosynthesis 568–574
 sterol and germination 595
 Glycosyltransferases
 blood-group *A* and *B* genes 300–301
 modulation of cell-surface carbohydrates 269–270
 Glyoxylate cycle
 developing liver 289
 Graves' disease
 thyrotropin receptor 751–753
 Growth cones
 membrane glycoproteins in brain 157–158
 Guanidinobenzoate
 tumour-cell surface 757
 Guanosine diphosphate
 binding to brain adipose tissue 726–727
 Guanosine triphosphate
 rod outer segments 672–674
 Guanosine triphosphate-binding protein
 interaction with disc membrane 674–676
 rod outer segments 672–674, 674–676
 Haemagglutinin
 structure and role of carbohydrate moieties 145–147
 Haemoglobins
 abnormal species in Chinese population 442–444
 Haemosiderin
 human spleen 192
 Heart
 conversion of adenine nucleotides 295–296
 creatine kinase fluxes in muscle 174–175
 lack of inactivation of glycolysis by pH 278–279
 myosin heavy-chain isoenzymes during development 749–750
 ³¹P n.m.r. study of enzyme kinetics 376–377
 N-terminal primary sequence of pyruvate dehydrogenase
 α -subunit 298–299
 Heat stress
 non-bilayer structures in chloroplast membranes 388–389
 HeLa cells
 u.v.-light-irradiated adenovirus 2 369–370
 Heparin
 association with water and metal ions 96
 binding of Zn²⁺ 96–97
 controlled depolymerization 101–102
 effect on inhibition of proteinases by antithrombin III
 97–98
 Hepatitis-B virus DNA
 replication in chronic chimpanzee carriers 364
 Hepatocytes
 control of gluconeogenesis 88
 dibutyryl cyclic AMP and bile-salt synthesis 716–717
 effect of valproate on intermediate metabolism 287–289
 effects of vasopressin and angiotensin II on fatty acid
 oxidation 198
 gluconeogenesis from alanine and serine 88–89
 insulin-degrading activity 393–394
 mono-oxygenase expression 463–466
 separation of centrilobular and periportal 275
 Hepatoma cells
 immunological characterization of γ -glutamyltransferase
 788–789
 NADH pyrophosphatase distribution between membranes
 784–785
 Hibernators
 membrane transport 330–332
 High-density lipoproteins
 lutropin-dependent progesterone synthesis 702
 serum of marathon runners 707
 Histidine ammonia-lyase
 rainbow-trout kidney 350
 Histidine ammonia-lyase isoenzymes
 guinea-pig liver and epidermis 349–350

- Holoenzyme
 cofactor and hydrophobic segment of protein 743–744
- Hopkins Memorial Lecture
 thirteenth 229–240
- Hordeum vulgare*, see Barley
- Hormones
 immunoassay in plants 485–495
- Hurler's disease
 effect of chloroquine on mucopolysaccharide metabolism in skin fibroblasts 98–99, 100–101
- Hyaluronate
 binding of proteoglycan 128–130
- Hyaluronidase
 testicular, see Testicular hyaluronidase
- Hydrazine
 sickle-cell anaemia 180–181
- Hydrogen ions, see Protons
- γ -Hydroxybutyrate
 effect on electroretinogram 214–215
- Hydroxylation
 carotenoid biosynthesis 473–483
- 3-Hydroxy-3-methylglutaryl-CoA reduction
 acyl-CoA:cholesterol acyltransferase 651–653
 carotenoid biosynthesis 473–483
 effect of compactin 642–644
 endoplasmic-reticulum cholesterol 646–649
 familial hypercholesterolaemia 634–636
 hormonal regulation 644–646
 inhibition by oxysterols 649–651
 plant sterol biosynthesis 548–552
 polyisoprenoid biosynthesis 497–504
 regulation by protein phosphorylation 644–646
- 25-Hydroxycholesterol
 effects on cholesterol metabolism 649–651
- 5-Hydroxytryptamine
 retinal neurons 682–684
- Hypothalamus
 somatostatin biosynthesis and transport 813–815
- Imidazoles
 fungicides 665–667
- Imipramine
 binding sites in neuroblastoma \times glioma hybrid cells 209–210
- Immunoaffinity isolation
 brain nerve terminals 273–275
- Immunoassay
 cyclic AMP 196–197
 plant constituents 485–495
- Immunoglobulin G
 N-linked oligosaccharides 132–134
 structure of carbohydrate in Fc fragment 130–132
- Immunoglobulins
 human genes for 119–126
 V- and C-region genes 119–126
- Inborn errors of metabolism (Colloquium) 623–636
- Influenza virus
 antigenic variation 435–441
 carbohydrate moieties of haemagglutinin 145–147
- Inhibitor proteins
 dog liver 347
- Inosine
 uptake in skeletal muscle 91–92
- Insulin
 neuroendocrine reflexes in secretory response 284–285
 response in obese mice 285–286
 structure and function 411–417, 417–419
- Insulin-degrading activity
 leakage from cultured liver cells 393–394
- Insulin derivatives
 problems in relation to structure 419–425
- Interferons
 cell proliferation 361–362
 lymphoblastoid-cell division 362–363
- Intermediate metabolism
 effect of valproate 287–289
- Intervening sequences
 globin genes 111–118
 immunoglobulin chains 119–126
- Intestinal microvillus membranes
 two-dimensional electrophoresis 397–398
- Intestine
 passage of intact peptides across mucosa 810–813
 peptide absorption 808–810
 small, see Small intestine
- Intravenous anaesthetics
 neuromuscular effects 387
- Iridoid glucosides
 biosynthesis from 8-*epi*-deoxyloganic acid 593–594
- Isoenzymes
 histidine ammonia-lyase, see Histidine ammonia-lyase isoenzymes
- Isoprenaline
 brain enzymes 216–217
- Isoprenoids
 geochemistry 575–586
- Isotopomers
 folic acid, see Folic acid isotopomers
- Japanese quail
 photoperiod and thyroxine transport 392–393
- Jejunum
 effects of deoxycholate 165–167
- Keratin
 peptide mapping of proteins 194–195
- Ketonaemia
 reversal by vasopressin 357
- Kidney
 rainbow-trout histidine ammonia-lyase 350
- Kidney tubules
 phosphate depletion and parathyrin resistance 165
- Kinetics
 enzyme, see Enzyme kinetics
- Lactase
 gene expression in enterocytes 406–408
- Lactase-phlorizin hydrolase
 hydrophobic and hydrophobic subunits 759–760
- Lactate dehydrogenase
 ginseng saponins 356–357
- Lactuca sativa*, see Lettuce
- Lamtidine
 radioimmunoassay 713–714
- Lead
 subcellular distribution in rat tissues 773
- Lectins
 binding proteins in corneal stroma 199
 cell-surface carbohydrates in resistant cells 269–270
- Lettuce (*Lactuca sativa*)
 amyirin and germanicol acetates in root 595
- Leucocytes
 effect of biotin on carboxylases 185–186
 oxidation of adrenaline 191
- Leukotriene B₄
 human pulmonary macrophages 377–378
- Ligandin
 CNBr fragments 353

- Light
 photosynthetic-bacterial membrane assembly 340–343
 retina metabolism 679–681
- Link protein
 cartilage 128–130
- Lipid composition
 platelets 378–379
- Lipid metabolism
 brown-algal (*Fucus serratus*) 394–395
 trace metals 394–395
- Lipid methylation
 glioma cells 219
- Lipid peroxidation
 brain microsomal fraction 762–763
 glutathione *S*-transferase B 308–309
 microsomal, *see* Microsomal lipid peroxidation
 thromboxane and prostaglandin biosynthesis 306–307
- Lipid/protein ratio
 chloroplast thylakoid membranes 387–388
- Lipid structures (non-bilayer)
 heat stress 388–389
- Lipids
 and cancer (Colloquium) 252–262
 biosynthesis in periuterine adipose tissue 732–734
 cell membrane, *see* Cell-membrane lipids
 interaction with myelin proteolipid protein 159–160
 mechanism of uptake by tissues 93–94
 interaction with rhodopsin 674–676
 membrane, *see* Membrane lipids
 plasma, *see* Plasma lipids
 tumour protective agents 261–262
- Lipopolysaccharide
Shigella flexneri serotype 6-R (rough) 386–387
- Lipopolysaccharides
Shigella flexneri, *see* *Shigella flexneri* lipopolysaccharides
- Lipoprotein
 high-density, *see* High-density lipoprotein
 low-density, *see* Low-density lipoprotein
- Lipoprotein lipase
 trout and cod liver 708
- Lipoproteins
 plasma lipids and cell membranes 336–339
 platelet aggregation 275–276
- Liposomes
 cholesterol and stability 305–306
- Lithium
 membrane-vesicle tryptophan transport 696–697
- Liver
N-acetylglutamate contents of mitochondria 291
 alcohol dehydrogenase 729–730
 control of mitochondrial citrulline biosynthesis 89–90
 destabilization of DNA 365–366
 glyoxylate cycle 289
 heat-stable inhibitor of phosphorylase phosphatase 347
 histidine ammonia-lyase 349–350
 microsomal lipid peroxidation 395–396
 Na⁺-stimulated mitochondrial Ca²⁺ efflux 761–762
 nucleocytoplasmic RNA transport 371
 soluble glutathione transferase 466–467
- Liver cells, *see* Hepatocytes
- Locust, desert, *see* Desert locust
- Low-density-lipoprotein receptor pathway
 familial hypercholesterolaemia 634–636
- Low-density lipoproteins
 degradation in different organs 639–641
 effects mimicked by 25-hydroxycholesterol 649–651
 uptake and cholesterol synthesis 639–641
- Loxidine
 metabolism in rat and dog 715–716
 radioimmunoassay 713–714
- Lutropin
 progesterone synthesis in corpus luteum 702
- Lycopene
 desaturation of phytoene 473–483
- Lymphoblastoid-cell division
 interferons and dexamethasone 362–363
- Lymphoblasts (B)
 Epstein–Barr-virus-transformed, *see* Epstein–Barr-virus-transformed B-lymphoblasts
- Lymphocytes
 antibody genes 441
 cytoskeletal protein associated with plasma membrane 156–157
 cytoskeleton 155–156
- Lymphoid cells
 polyamines and glucocorticoid-induced cytolethal response 736–737
- Lysosomal enzyme secretion
 macrophage surface mannose receptor 399–400
- Macrophage surface mannose receptor
 initiation of lysosomal enzyme secretion 399–400
- Macrophages
 pulmonary, *see* Pulmonary macrophages
- Malate dehydrogenase
 citrate as inhibitor/inactivator 347–348
- Malignant hyperthermia
 changes in intramuscular metabolites 296–297
- Mammary gland
 glycerol 3-phosphate acyltransferase 283–284
- Mannose
 macrophage surface receptor, *see* Macrophage surface mannose receptor
- α -D-Mannosidases
 swainsonine inhibition 717–718
- Mannosidosis
 swainsonine-induced 717–718
- Mass spectrometry
 steroid conjugates 602–603
 steroids and terpenoids 561–565
- Meibomian gland
 fatty acids reduced to alcohols 737–738
 sterols in secretions 738
- Melanoma (mouse B16)
 calmodulin 359–360, 360
 cyclic AMP 359–360
- Membrane
 cell, *see* Cell membrane
 cofactor and hydrophobic segment of holoenzyme protein 743–744
 disc, *see* Disc membrane
- Membrane assembly
 photosynthetic bacteria 340–343
- Membrane lipid order
 noradrenaline and Ca²⁺ binding 163
- Membrane lipids
 adaptive changes in higher plants 343–346
 interaction with fungicides 665–667
 phase properties 389–390
 phospholipid composition and methylation 219
- Membrane proteins
N-polymethylenecarboxymaleimides as thiol-group probes 753–754
- Membrane transport systems
 adaptive changes in hibernators 330–332
- Membranes
 amino acid transport disorders 633–634
 bacterial, *see* Bacterial membranes
 calelectrin, cytoskeleton and Ca²⁺ 736
 chloroplast thylakoid, *see* Chloroplast thylakoid membranes

- diclobutrazol effects in fungi 713
 erythrocyte, *see* Erythrocyte membranes
 fish, *see* Fish membranes
 foetal, *see* Foetal membranes
 glomerular basement, *see* Glomerular basement membrane
 intestinal microvillus, *see* Intestinal microvillus membranes
 NADH pyrophosphatase distribution in hepatoma cells 784–785
 plasma, *see* Plasma membranes
 postsynaptic density 693–694
 yeast, *see* Yeast membranes
see also Endoplasmic reticulum
- Metabolic control**
 transmembrane flux (Colloquium) 70–85
- Metabolic efficiency**
 usefulness of concept 44–45
- Metabolic regulation**
 role of substrate cycles 52–56
- Metabolic systems**
 catalysis and modulation (Colloquium) 29–56
 catalysis and modulation (introduction to Colloquium) 29–31
 utility of mathematical models 31–35
- Metal ions**
 association with heparin 96
- Metallothioneins, *see* Copper-metallothioneins**
- Metals**
 trace, *see* Trace metals
- Methohexitone**
 neuromuscular junction 742
- Methotrexate**
 stability of liposomes containing 305–306
- Methylamine**
 1-methylpyridinium iodide metabolism 385–386
- Methylation**
 lipid in glioma cells 219
- 2-Methyl-6-phytyl-1,4-benzoquinone**
 synthesis by *Anabaena variabilis* 587–588
- 1-Methylpyridinium iodide**
Pseudomonas fluorescens 384–385, 385–386
- 5-Methyltetrahydropteroylglutamate**
 effect of deoxycholate on jejunal adsorption 165–167
- Metiamide**
 sex dimorphism in sulphoxidation and glucuronidation 183–184
- Mevalonic acid**
 carotenoid biosynthesis 473–483
 gibberellin biosynthesis 522–528, 528–534
 phytoalexin metabolism 516–552
 plant sterol synthesis 548–552
 polyisoprenoid biosynthesis 497–504
- Mevinolin**
 effect on sterol biosynthesis 642–644
- Microbial fuel cells** 451–453
- Microcomputer**
 radiochromatogram data 310–312
- Microsomal cytochrome *P*-450**
Saccharomyces cerevisiae 402
- Microsomal enzymes**
 human variants 459–460
- Microsomal lipid peroxidation**
 development in liver 395–396
 glutathione *S*-transferase B 308–309
- Microtubule-associated proteins**
 calcium-dependent proteolysis in brain 158–159
- Microvillus membranes**
 intestinal, *see* Intestinal microvillus membranes
- Mimosine**
 phenylalanine and enhancement of DNA synthesis 186–187
- Mitochondria**
N-acetylglutamate contents 289
 adenine nucleotides and maturation of oxidative phosphorylation 294
 brown-adipose-tissue uncoupling protein 727–728
 brown and white adipose tissue 778–779
 carnitine effects on metabolism 724–725
 control of citrulline biosynthesis 89–90
 hormonal regulation of Ca²⁺ efflux 282–283
 isoelectric point, from brain 694–695
 metabolic defects in muscle 626–627
 metabolism of aldehyde products of monoamine oxidation 787
 Na⁺-stimulated Ca²⁺ efflux 761–762
 plant, *see* Plant mitochondria
 pyruvate carboxylase and fatty acids 286–287
 skeletal-muscle fatty acid oxidation 728–729
 thyroid-hormone control of nicotinamide nucleotide redox reactions 292–293
- Mitochondrial metabolic flux**
 role in hormonal stimulation of gluconeogenesis 78–81
- Mitochondrial myopathy**
 human 626–627
³¹P n.m.r. 627–630
- Mitochondrial respiration**
 control 40–43
- Mitogenic activity**
 fibronectin preparations 365
- Monoamine oxidase**
 brain 692–693
 ethanol 692–693
 mitochondrial aldehyde metabolism 787
- Monoclonal antibodies**
 astrocyte cell surface 208
 differentiation antigens in epithelium 171–172
 excess sialylation of cancer cell surface 299–300
 recognition of carbohydrate differentiation antigens 263–265
- Mono-oxygenase**
 effect of cimetidine on placental 178–179
 expression in hepatocytes 463–466
- Monoterpenes**
 biosynthesis in *Pinus* and *Citrus* 590
 biosynthesis in tissue culture 592–593
 cell-free studies of biosynthesis 510–515
- Morphogenesis**
 role of proteoglycans 613–622
- Morton Lecture**
 third 473–483
- Mosquito (*Aedes aegypti*)**
 arylated proteins 788
- Motor-nerve section**
 phosphatidylinositol phosphodiesterase in muscle 697–698
- Mucopolysaccharides**
 effect of chloroquine on metabolism in skin fibroblasts 98–99, 100–101
- Mucus**
 gastrointestinal tract 763–764, 764–765, 765–766
- Muscle**
 effect of clofibric acid on amino acid metabolism and alanine release 289–290
 enzymology of contraction 149–154
 glucose 1,6-bisphosphatase and control of glucose 1,6-bisphosphate 279
 metabolite changes in malignant hyperthermia 296–297
 new proteinase 348–349
 n.m.r. studies of glycolysis 244–246
 photochemical release of ATP 151
 protein synthesis and arachidonic acid metabolites 182–183
 relationship between biochemistry and physiology 149–150

- skeletal, *see* Skeletal muscle
smooth, *see* Smooth muscle
structural and chemical states of cross-bridges 150–151
- Muscle contraction
dantrolene sodium 698
- Muscle metabolism
³¹P n.m.r. 627–630
- Myelin
transport of proteins from oligodendrocytes 208–209
- Myelin proteolipid protein
interaction with lipid 159–160
- Myocardium
pyruvate and energy provision 279–280
- Myosin
e.p.r. and fluorescence studies 177–178
heavy-chain isoenzymes in heart during development 749–750
phosphorylation of light chain 154
- NAD⁺- and NADP⁺-dependent dehydrogenases
three-dimensional structure of 6-phosphogluconate dehydrogenase 429–435
- NADH pyrophosphatase
membrane distribution in hepatoma cells 784–785
- Nerve
motor, *see* Motor nerve
- Nerve cells
development in cerebellar cultures 210–212
- Nerve terminals
immunoaffinity isolation 273–275
- Neuroactive peptides
retina 686–689
- Neuroblastoma × glioma hybrid cells
imipramine-binding sites 209–210
- Neuromuscular effects
intravenous anaesthetics 387
- Neuromuscular junction
dantrolene sodium 698
interaction of atracurium and acetylcholine 201–202
methohexitone 742
- Neurons
adaptation to normorphine and clonidine 65–68
electromotor, *see* Electromotor neurons
mammalian retina 682–684
regulation of pH 76–78
- Neuropeptide metabolism
neutral endopeptidase 372–373
- Neuropeptides
human therapeutic applications 804–808
- Neuroregulators
cerebrum 62–63
effect of ethanol 62–63
- Neurospora crassa*
inhibition and repression of arginine pathway 94–96
modulation of arginine pathway 87
- Neurotransmitter release
ceruletide 373–374
- Neurotransmitters
interactions in retina 684–686
- Neutral endopeptidase
neuropeptide metabolism 372–373
- Nicotinamide nucleotides
control of redox reactions in mitochondria 292–293
- Non-esterified fatty acids
atherogenic effect in arterial smooth-muscle cells 705–706
- Noradrenaline
membrane lipid order and Ca²⁺ binding 163
- Norethisterone acetate
aromatase inhibition 656–659
- Normorphine
neuronal adaptation 65–68
- Nuclear magnetic resonance (n.m.r.) spectroscopy
¹³C, *see* ¹³C nuclear magnetic resonance
glycolysis in muscle 244–246
immunoglobulin-derived *N*-linked oligosaccharides 132–134
kinetic properties of erythrocyte enzymes 280–281
³¹P, *see* ³¹P nuclear magnetic resonance
spin-echo, *see* Spin-echo proton nuclear magnetic resonance
succinyl-CoA synthetase (Biochemical Review) 315–323
- Nuclei
liver 365–366
uptake of fibronectin 405–406
- Nucleic acids
structure and function (Colloquium) 411–444
- Nucleo-cytoplasmic RNA transport
rat liver 371
- Nucleus accumbens
dopamine release 371–372
- Nycodenz
cell separation on iso-osmotic gradients 273
- Obese (*ob/ob*) mice
neuroendocrine reflexes and insulin secretion 284–285
plasma glucose and insulin responses 285–286
- Oestrogen biosynthesis
irreversible inhibitors of aromatase 656–659
- Olfactory mucosa
concanavalin A effect in frog 781–782
- Olfactory receptors
selective inhibition by concanavalin A 780–781
- Oligodendrocytes
mixed cultures with astrocytes 206–207
transport of myelin proteins 208–209
- Oligosaccharide
binding to glycogen phosphorylase *b* 142–144
- Oligosaccharides
circularly closed 136–139
N-linked in immunoglobulin G 132–134
- Opiate receptors
interaction with α -adrenergic receptors 64–65
- Optic nerve
transport of proteins from oligodendrocytes to myelin 208–209
- Ovomucoid
interaction with wheat-germ agglutinin 103–104
- Oxidative phosphorylation
adenine nucleotides and maturation in mitochondria 294
control by adenine-nucleotide translocator 90–91
- 2,3-Oxidosqualene: β -amyrin cyclase
inhibition by tertiary amines 537–543
- Oxygen
cytochrome *P*-450 400–401
photosynthetic-bacterial membrane assembly 340–343
yeast membranes 339–340
- Oxygenated sterols
analysis in plasma and serum 700–701
- Oxysterols
3-hydroxy-3-methylglutaryl-CoA reductase inhibition 649–651
regulation of cholesterol biosynthesis 649–651
- ³¹P nuclear magnetic resonance
enzyme kinetics in perfused heart 376–377
inborn errors of muscle metabolism 627–630
- Pan troglodytes*, *see* Chimpanzee
- Papain
low-molecular-weight inhibitor 179–180

- Paramylon**
 structure and morphology 139–142
- Parathyrin**
 resistance in phosphate-depleted kidney cells 165
- Pea (*Pisum sativum*)**
 cutin biosynthesis 594–595
 metabolism of gibberellins 528–534
- Pentagastrin**
 substrate utilization by stomach 398–399
- Pentalenene**
 biosynthesis 510–515
- Peptide analogues**
 antibacterial activity 798–800
 transport 798–800
- Peptide mapping**
 keratin proteins 194–195
- Peptide transport**
 bacteria 794–798
 (Colloquium) 793–815
 energy coupling 794–798
 germinating barley seeds 800–803
 methods 794–798
 thiol and protein reagents 800–803
- Peptides**
 antitumour agents 804–808
 antiviral 804–808
 effects on kidney 804–808
 glucagon-like immunoreactive, *see* Glucagon-like immunoreactive peptides
 intestinal absorption 808–810
 neuroactive, *see* Neuroactive peptides
 passage intact across intestinal mucosa 810–813
 use as drugs 804–808
see also Neuropeptides
- Peptide-transport protein**
 dithiol-dependent 800–803
 germinating barley 800–803
- Peptococcus asaccharolyticus***
 glutamate dehydrogenase 175–176
- Periuterine adipose tissue**
 lipid biosynthesis 732–734
 method for infusion *in situ* in rat 732–734
- Peroxidation**
 lipid and tumour protective agents 261–262
 microsomal lipid, *see* Microsomal lipid peroxidation
 thromboxane and prostacyclin biosynthesis 306–307
- pH**
 effect of exercise in skeletal muscle 92–93
 regulation in cytoplasm and relationship to metabolism in bacteria 70–72
 regulation in neurons 76–78
 regulation in plant cells 73–74
- Phagocytes**
 secretion of plasminogen activator 188–189
- Phenylalanine**
 effect on enhancement of DNA synthesis by mimosine 186–187
- NN'*-*o*-Phenylenedimaleimide**
 effect on glucose 6-phosphatase 194
- Phlorizin hydrolase, *see* Lactase–phlorizin hydrolase**
- Phosphatase**
 acid, *see* Acid phosphatase
- Phosphate**
 depletion and kidney cells 165
- Phosphatidylinositol phosphodiesterase**
 denervation in skeletal muscle 697–698
- Phosphocreatine**
 exercise in myopathic muscle 626–627, 627–630
³¹P n.m.r. studies 627–630
- Phosphodiesterase**
 cyclic nucleotide, *see* Cyclic nucleotide phosphodiesterase
- Phosphofructokinase**
 regulation 241–251
 regulation by phosphorylation and fructose 2,6-bisphosphate 248–249
- 6-Phosphogluconate dehydrogenase**
 three-dimensional structure 429–435
- Phospholipid metabolism**
 rye roots 390–391
- Phospholipids**
 composition and lipid methylation in glioma cells 219
 polar interaction with α -tocopherol 600–601, 601–602
- Phosphorylase phosphatase**
 heat-stable dog liver inhibitor proteins 347
- Phosphorylation**
 myosin light chain 154
 oxidative, *see* Oxidative phosphorylation
 protein in regulation of cardiac contraction 153
 regulation of phosphofructokinase 248–249
- Photoperiod**
 Japanese-quail thyroxine transport 392–393
- Photoreceptor degeneration**
 retina metabolism 679–681
- Photosynthetic bacteria**
 membrane assembly 340–343
- Phylloquinone**
 biosynthesis 504–510
 prenylation and methylation reactions 590
- Phytoalexins**
 metabolism 516–522
- Phytoene**
 desaturation to lycopene 473–483
- Pinus***
 biosynthesis of monoterpenes and sesquiterpenes 590
- Pisum sativum*, *see* Pea**
- Placenta**
 effect of cimetidine on mono-oxygenase activity 778–779
- Plant-cell cultures**
 industrial use 23–28
- Plant cells**
 regulation of internal pH 73–74
- Plant growth regulators**
 inhibitors of gibberellin biosynthesis 522–528
- Plant hormones**
 effect on sterol synthesis 548–552
- Plant mitochondria**
 chlorotetracycline fluorescence 755–756
 energization measurement 755–756
 5-*n*-undecyl-6-hydroxy-4,7-dioxobenzothiazole 785
- Plant tissue culture**
 biosynthesis of monoterpenes and sesquiterpenes 592–593
- Plants**
 abscisic acid and water stress 557–560
 biosynthesis of steryl glycosides and saponins 565–568
 glycoprotein synthesis 568–574
 immunoassay of constituents 485–495
 inhibition of sterol biosynthesis by tertiary amines 537–543
 metabolism of phytoalexins 516–522
 polyprenol-linked sugars 568–574
 regulation of sterol synthesis 548–552
 steroid hormones 543–548
 terpenoid biosynthesis and biochemistry 497–586
- Plasma**
 thyroxine and its transport proteins 391–392
- Plasma lipids**
 lipoproteins and cell membranes 336–339
- Plasma membrane**
 chenodeoxycholate and output of enzymes into bile 162
 effect of noradrenaline on lipid order and Co²⁺ binding 163
N-ethylmaleimide and alanine carrier 754–755

- lymphocyte 156–157
 organization in nerve cells in cerebellar culture 210–212
- Plasma metabolites
 spin-echo proton n.m.r. 374–375
- Plasminogen
 secretion of activator by phagocytes 188–189
- Plastoquinone
 biosynthesis 504–510
- Platelets
 aggregation and lipid composition 378–379
 aggregation and lipoproteins 275–276
- Polyamines
 glucocorticoid-induced cytolethal response in lymphoid cells 736–737
- Polycyclic hydrocarbons
 metabolism and dietary lipids 258–261
- Poly(ethylene glycol) precipitation
 yeast cytochrome *P-450* 402
- Poly(ethylene glycols)
 uptake in *Flavobacterium* 739–740
- Polyglycols
 uptake by *Pseudomonas fluorescens* 739
- Polyhydroxybutyrate
 role of acetoacetyl-CoA reductase in biosynthesis 598–599
- Polyisoprenoid chains
 biosynthesis 497–504
- N*-Polymethylenecarboxymaleimides
 probes for membrane-protein thiol groups 753–754
- Polyprenols
 sugar-linked in plants 568–574
- Polyribosomes
 glial cells 205–206
- Polysaccharides
 cell surface recognition 265–267
- Polyunsaturated fatty acids
 metabolism of polycyclic hydrocarbons 258–261
- Porphyrins
 haem biosynthesis 631–632
- Postsynaptic density
 forebrain and cerebellum 693–694
 protein/glycoprotein composition 693–694
- Pregnancy
 small-intestinal epithelium development 757–759
- Probe
 fluorescent, *see* Fluorescent probe
- Progesterone
 synthesis by corpus-luteum cells 702
- Polycopene
 carotenoid biosynthesis 473–483
- Promotor
 rabbit β -globin gene 111–118
- Prostacyclin synthesis
 drugs 358
 lipid peroxidation 306–307
 stimulation by sera 309–310
- Prostaglandin E₁
 normal, malignant and hybrid cells 404–405
- Prostaglandins
 foetal membranes and amniotic fluid 760–761
- Protein
 hydrophobic segment of holoenzyme 743–744
 peptide-transport, *see* Peptide-transport protein
 'uncoupling', *see* 'Uncoupling' protein
- Protein electrochemistry
 exploitation 453–455
- Protein/lipid ratio, *see* Lipid/protein ratio
- Protein phosphatase inhibitors
 regulation of cholesterol synthesis 644–646
- Protein phosphorylation
 hormonal control of liver cholesterol synthesis 644–646
- Protein synthesis
 arachidonic acid metabolites and skeletal muscle 182–183
 inhibitors that do not inhibit steroidogenesis 699–700
 measurement in brain 218–219
 simulation in reticulocytes 313–314
Trypanosoma brucei 366–367
- Proteinase
 new one from muscle 348–349
- Proteinases
 cleavage of collagen C-terminal cross-linking region 746–747
 effect of heparin on inhibition by antithrombin III 97–98
- Proteins
 activating and controlling complement system 1–12
 arylation in mosquito 788
 binding of fatty acids 308
 cytoskeletal, *see* Cytoskeletal proteins
 drug-induced, *see* Drug-induced proteins
 folding, denaturation and stability 15–16
 inhibitor, *see* Inhibitor proteins
 membrane, *see* Membrane proteins
 phosphorylation in regulation of cardiac contraction 153
 structure and function (Colloquium) 411–444
- Proteodermatan sulphate
 protein core 747–749
- Proteoglycan antigen
 cholinergic electromotor neuron 735
 synaptic vesicles 735
- Proteoglycans
 cartilage 613–622
 developing tendons 770–771
 development and morphogenesis 613–622
 electron-microscopic immunolocalization in cartilage 734–735
 interaction with collagen 613–622
 molecular conformations in aggregation 128–130
 organizers of extracellular matrix 613–622
 protein core of proteodermatan sulphate 747–749
 role in wound healing 613–622
- Proteolysis
 calcium-dependent of brain microtubule-associated proteins 158–159
 peptide mapping of epidermal keratin proteins 194–195
 purification of enzyme from calf thymus nuclei 187–188
- Protons
 pump slippage and leakage in chemiosmotic energy-coupling schemes 81–85
- Protoporphyrinogen oxidase
 acute porphyria 631–632
- Pseudomonas fluorescens*
 catabolism of 1-methylpyridinium iodide 384–385, 385–386
 uptake of glycols and polyglycols 739
- Pulmonary macrophages
 leukotriene B₄ 377–378
- Pyruvate
 energy provision in Chinese-hamster ovary cells 725–726
 energy provision in myocardium 279–280
 inborn errors of metabolism 623–626
- Pyruvate carboxylase
Bacillus caldotenax 741–742
 effect of fatty acids on mitochondrial 286–287
 inborn errors of pyruvate metabolism 623–626
 role of zinc 740–741
 thermophilic *Bacillus* 740–741
- Pyruvate dehydrogenase
 inborn errors of pyruvate metabolism 623–626
N-terminal primary sequence of α -subunit 298–299
- Quail, Japanese, *see* Japanese quail

- Quinone analogue, *see* 5-n-Undecyl-6-hydroxy-4,7-dioxobenzothiazole
- Quinones (terpenoid)
biosynthesis 504–510
- Radioimmunoassay
plant constituents 485–495
- Rainbow trout (*Salmo gairdnerii* Richardson)
kidney histidine ammonia-lyase 350
lipase activities 708
- Receptors
carbohydrate 303–305
low-density-lipoprotein, *see* Low-density-lipoprotein receptor pathway
macrophage surface mannose, *see* Macrophage surface mannose receptor
olfactory, *see* Olfactory receptors
thyrotropin 189–190
- Replication
10-kilobase DNA intermediates 361
- Respiration
human mitochondrial myopathy 626–627
mitochondrial, *see* Mitochondrial respiration
- Restriction fragments
dinucleosomes 370
- Reticulocytes
simulation of protein synthesis 313–314
- Retina
4-aminobutyrate metabolism 679–681
biochemistry (Colloquium) 668–689
2-deoxyglucose entry 679–681
glutamine metabolism 679–681
heterogeneity of neurons 682–684
 γ -hydroxybutyrate and electroretinogram 214–215
light and metabolism 679–681
neuroactive peptides 686–689
neurotransmitter interactions 684–686
rhodopsin bleaching and rod adaptation 676–678
rhodopsin monomer 691–692
- Retinal
chromophore environment and conformation 668–672
- Retinoids
serum concentration and cancer 252–254
- Rhodopsin
bleaching and rod adaptation 676–678
monomeric in disc membrane 691–692
phosphodiesterase activation 672–674
retinal-binding residue 668–672
structure and conformation in disc membrane 668–672
- Ribonucleic acid
isolation from enterocyte 169–170
molecular cloning 408–409
nucleo-cytoplasmic transport, *see* Nucleo-cytoplasmic RNA transport
- Rod outer segments
e.s.r. studies 674–676
rhodopsin bleaching intermediates and enzyme activation 672–674
- Rods
adaptation and rhodopsin bleaching 676–678
- Roots
amyrin and germanicol acetates 595
rye phospholipid metabolism 390–391
- Rose Bengal
acid phosphatase 193
- Rough microsomal membranes
binding of synthetic signal peptide 160–161
- Rye (*Secale cereale*)
root phospholipid metabolism 390–391
- Saccharomyces cerevisiae*
benzo[a]pyrene hydroxylase activity in various strains 710
changes in cyclic AMP concentration 403–404
cytochrome P-448-dependent benzo[a]pyrene hydroxylase 708–709
cytochrome P-450 400–401, 401
cytochrome P-450 in various strains 710, 711, 712
diauxic growth on glucose 403–404
diclobutrazol effects on membranes 713
microsomal cytochrome P-450 402
nuclear regulatory gene for cytochrome P-450 711
- Salmo gairdnerii*, *see* Rainbow trout
- Saponins
biosynthesis 565–568
ginseng, *see* Ginseng saponins
- Scallop (*Pecten maximus*)
myosin 177–178
- Scanning electron microscopy
glial-cell cultures 203–205
- Schistocerca gregaria*, *see* Desert locust
- Schizophrenia
effect of amphetamine on brain dopaminergic systems 68–69
- Seasonal changes
sheep plasma thyroxine 391–392
- Secale cereale*, *see* Rye
- Secondary-amine mono-oxygenase
substrate specificity in *Candida utilis* 786
- Secondary plant products
immunoassay 485–495
- Secretion
enzyme, *see* Enzyme secretion
- Sediments
geochemistry of steroids and terpenoids 575–586
- Seeds
sterol synthesis 548–552
- Selenium
deposition in rat tissues 782
- Serine
gluconeogenesis in liver cells 88–89
- Serum
analysis of oxygenated sterols 700–701
- Sesquiterpenes
biosynthesis in *Pinus* and *Citrus* 590
biosynthesis in tissue culture 592–593
cell-free studies of biosynthesis 510–515
- Sesquiterpenoids
stress metabolites of capsicums 589–590
- Sex dimorphism
metamide sulphoxidation and glucuronidation 183–184
- Shigella flexneri* lipopolysaccharides
structure of basal region 104
- Shigella flexneri* serotype 6-R (rough)
lipopolysaccharide structure 386–387
- Short-chain acyl-CoA dehydrogenase
purification from ox liver 176–177
- Sialic acid
carbohydrate differentiation antigens 270–271
colonic-mucosal enzymes metabolizing 766–767, 767–768, 768–769
- Sialylation
cancer cell surface 299–300
- Sialyltransferase
colonic mucosa 768–769
gastrointestinal tract 768–769
- Sickle-cell anaemia
hydrazine 180–181
- Signal peptide
binding to pancreatic rough microsomal membranes 160–161

- Skeletal muscle
 defective mitochondrial metabolism 626–627
 denervation and phosphatidylinositol phosphodiesterase 697–698
 effect of exercise on intracellular pH 92–93
 mitochondrial fatty acid oxidation 728–729
 Na⁺-stimulated mitochondrial Ca²⁺ efflux 761–762
 uptake of inosine 91–92
- Skin fibroblasts
 effect of chloroquine on mucopolysaccharide metabolism 98–99, 100–101
 sulphated glycosaminoglycans 383
- Small intestine
 enteroglucagon in *ob/ob* mice 720–721
 epithelium development in guinea pig 757–759
see also Duodenum and Jejunum
- Smooth-muscle cells
 atherogenic effect of fatty acids 705–706
- Sodium biselenite
 selenium deposition in rat tissues 782
- Solanum lycopersicum*, *see* Tomato
Solanum melongena, *see* Aubergine
- Solid-phase enzyme immunoassay
 plant constituents 485–495
- Somatostatin
 biosynthesis in hypothalamus 813–815
- Spin-echo proton nuclear magnetic resonance
 plasma and urine metabolites 374–375
- Spleen
 haemosiderin 192
- Starch
 biosynthesis in developing wheat grain 791–792
- Starvation
 glycogen and glyceride glycerol formation and glucose synthesis 730–731
 mother–foetus alanine and glycerol transfer 731–732
- Stereochemistry
 circularly closed oligosaccharides 136–139
 glycoconjugates 122–147
 polyisoprenoid biosynthesis 497–504
- Steroid biosynthesis
 corpus luteum 699–700
 protein-synthesis inhibitors 699–700
- Steroid conjugates
 analysis by fast atom bombardment mass spectrometry 602–603
- Steroid hormones
 plants 543–548
- Steroid hydroxylase systems
 corticotropin induction 653–655
- Steroids
 geochemistry 575–586
 mass-spectrometric methods 561–565
- Sterol biosynthesis
 azasterol inhibition in fungi 656
 effect of different substrates 698–699
 fungicide imidazoles and triazoles 665–677
 inhibition 659–663
 monitored with [³H]water 698–699
- Sterol 14 α -demethylases
 inhibition 663–665
- Sterols
 biosynthesis and function (Colloquium) 637–667
 biosynthesis and phytoalexins 516–522
 effect of compactin on biosynthesis 642–644
 glucosylation 565–568
 glycosylation during germination 595
 inhibition of biosynthesis by tertiary amines 537–543
 Meibomian-gland secretions 738
 regulation of synthesis in higher plants 548–552
- Steryl esters
 hydrolysis during germination of barley 588–589
- Steryl glycosides
 biosynthesis 565–568
- Stomach
 metabolism of amino acids 297–298
 pentagastrin-stimulated rat 398–399
- Stomata
 abscisic acid 557–560
- Streptomyces coelicolor*
 acetoacetyl-CoA reductase 598–599
 fatty acid synthetase 597
- Stress
 heat, *see* Heat stress
- Substance P
 dopamine release 371–372
 retinal transmitter 686–689
- Substrate cycles
 role in metabolic regulation 52–56
- Substrate utilization
 pentagastrin-stimulated rat stomach 398–399
- Succinyl-CoA synthetase
 n.m.r. spectroscopy (Biochemical Review) 315–323
- Sugars
 polyprenol-linked in plants 568–574
- Sulphated glycosaminoglycans
 human skin fibroblasts 383
- Sulphoxidation
 sex dimorphism 183–184
- Swainsonine
 α -D-mannosidase inhibition 717–718
- Synaptic vesicles
 proteoglycan antigen in cholinergic electromotor neuron 735
- Synaptosomal microtubules
 effect of depolarization and Ca²⁺ influx 86–87
- Synaptosomes
 isoelectric point 694–695
 lithium and tryptophan transport 696–697
- Tamm–Horsfall glycoprotein
 disaggregation 769–770
- Tate and Lyle Lecture 485–495
- Teichoic acid
Bacillus licheniformis 173–174
- Temperature
 adaptation in bacterial membranes 333–335
 adaptative response of fish membranes 332–333
 plant growth 387–388
- Tendons
 proteoglycan–collagen arrangements in development 770–771
- Terpenoids
 biosynthesis and biochemistry in plants 497–586
 geochemistry 575–586
 mass-spectrometric methods 561–565
- Testicular hyaluronidase
 radiolabelled purified 380–381
- Testis
 cholesterol ester hydrolase 704
- β -Thalassaemia
 genetic and molecular defects 111–118
- Thermal adaptation
Anacystis membrane lipids 389–390
- Thiamin
 brain metabolism *in vivo* 695–696
- Thin-layer chromatography (t.l.c.)
 adenine nucleotide degradation products 291–292
 radiochromatogram and microcomputer 310–312

- Thiol groups
N-polymethylenecarboxymaleimide probes with membrane proteins 753–754
- Three-dimensional structure
 6-phosphogluconate dehydrogenase 429–435
- Thromboplastin
 brain microsomal fraction 762–763
- Thromboxane
 lipid peroxidation 306–307
- Thylakoid membranes
 chloroplast, *see* Chloroplast thylakoid membranes
- Thymus
 proteolytic enzyme from nuclei 187–188
- Thyroid hormones
 control of nicotinamide nucleotide redox reactions in mitochondria 292–293
- Thyroidectomy
 heart enzyme kinetics 376–377
- Thyrotropin receptor
 hydrophilic fragment 751–753
 LATS (long-acting thyroid stimulator)-absorbing activity 751–753
 molecular weight 189–190
- Thyroxine
 aromatase inhibition 656–659
 seasonal changes in sheep plasma 391–392
- Thyroxine transport
 photoperiod 392–393
- α -Tocopherol
 biosynthesis 504–510
 polar interaction with phospholipids 600–601, 601–602
 synthesis by *Anabaena variabilis* 587–588
- Tomato (*Solanum lycopersicon*)
 glycosylated sterols and germination 596
- Toxin
 cholera, *see* Cholera toxin
- Trace metals
Fucus lipid metabolism 394–395
- Transcription
 globin genes 111–118
- Transformation
 Epstein–Barr virus 363–364
- Transglutaminase
 subcellular localization in rat liver 777
- Translation
 polyribosomes from glial cells 205–206
- Transport
 membrane, *see* Membrane transport
 nucleo-cytoplasmic RNA, *see* Nucleo-cytoplasmic RNA transport
- Transport proteins
 thyroxine 391–392
- Triacylglycerol fatty acids
 effect of adipose-tissue transplantation 723
- Triazoles
 fungicides 665–667
- Triose phosphates
 starch biosynthesis in developing wheat grain 791–792
- Triterpenes
 biosynthesis of glycosides 565–568
- Trypanosoma brucei*
 cytoskeletal proteins 783–784
 DNA and protein synthesis 366–367
 targeting of daunorubicin 182
- Trypsin
 canine anionic and cationic 351
- Tryptophan
 lithium and transport 696–697
- Tumour cells
 surface guanidinobenzoate 757
- Tunicamycin
 inhibition of protein *N*-glycosylation 497–504
- Turnip (*Brassica rapa*)
 cauliflower-mosaic-virus-infected 367–368
- Two-dimensional electrophoresis
 intestinal microvillus membranes 397–398
- Tyramine
 mitochondrial metabolism 787
- Ultraviolet light
 adenovirus 2 in HeLa cells 369–370
 DNA damage 368–369
- unc* mutants
Escherichia coli 229–240
- 'Uncoupling' protein
ob/ob-mouse brown-adipose-tissue mitochondria 727–728
- 5-n-Undecyl-6-hydroxy-4,7-dioxobenzothiazole
 plant mitochondria 785
- Urine metabolites
 spin-echo proton n.m.r. 374–375
- Uronic acids
 autoanalyser 381–382
- Uroporphyrinogen I synthase
 acute porphyria 631–632
- Ustilago maydis*
 diclobutrazol effects on membranes 713
- Valproate (2-n-propylpentanoate)
 intermediate metabolism 287–289
- Vasoactive intestinal peptide
 human blood cells 164
- Vasopressin
 fatty acid oxidation in hepatocytes 198
 reversal of ketonaemia 357
- Vicia faba*
 abscisic acid biosynthesis 553–557
- Virus
 adeno-, *see* Adenovirus
 cauliflower-mosaic, *see* Cauliflower-mosaic-virus
 Epstein–Barr, *see* Epstein–Barr virus
 influenza, *see* Influenza virus
 hepatitis-B, *see* Hepatitis-B virus
- Water
 association with heparin 96
- Water stress
 abscisic acid 557–560
- Wax esters
 components of bacterial membranes 172–173
- Wellcome Trust Lecture
 second 1–12
- Wheat-germ agglutinin
 interaction with ovomucoid 103–104
- Wheat grain
 triose phosphates in starch biosynthesis 791–792
- White adipose tissue
 subcellular fractionation 778–779
- Wild carrot (*Daucus carota*)
 DNA repair 368–369
- Wilson's disease
 copper retention in foetus and newborn 718–719
- Wood
 redistribution of carbohydrates during drying 102–103
- Wound healing
 role of proteoglycans 613–622

- X-ray crystallography
 oligosaccharide binding to glycogen phosphorylase *b* 142–144
- Xylosides
 proteoglycans and development 613–622
- Yeast
 baker's, *see Saccharomyces cerevisiae*
 see also Candida utilis
- Yeast membranes
 adaptive changes 339–340
- Zinc
 copper-metallothionein synthesis 775–776
- Zinc ions
 binding by heparin 96–97
- Zona fasciculata cells
 bovine adrenal cortex 705
- Zymogens
 canine trypsins and chymotrypsin 351

- Frame, M. 216
 Francis, D. L. 65
 Frauli, M. 214
 Freshney, R. I. 216
 Fresneda, V. 729
 Fricker, S. P. 363, 366
 Fryer, P. 734
 Fulcher, I. S. 372
 Furth, A. J. 759
 Furuya, E. 248
 Fyfe, D. A. 181

 Gacesa, P. 380, 381
 Gaitonde, M. K. 695
 Gallo, V. 210
 Gardiner, I. M. 371
 Gardner, M. L. G. 810
 Garrett, C. S. 289
 Gerhard, W. 435
 Geuns, J. M. C. 543, 599
 Gibbons, G. F. 649, 698
 Gibson, F. 229
 Gibson, J. F. 192
 Gielen, J. E. 463
 Gillett, M. P. T. 336
 Giménez, C. 696
 Giraud, F. 163
 Gleed, C. D. 371
 Gleizes, M. 590
 Glover, J. 391, 392
 Goad, L. J. 548, 588, 602
 Gohil, K. 728
 Goldberg, A. 631
 Goldfinch, M. J. 448
 Goldman, Y. E. 151
 Goldstone, T. P. 282
 Goodwin, T. W. 473
 Goody, R. S. 150
 Gordon-Weeks, P. R. 157, 693
 Goris, J. 347
 Gounaris, K. 388
 Gover, S. 429
 Grahn, M. F. 165
 Grant, D. 96
 Gray, C. J. 16
 Gray, E. G. 86
 Green, C. 637
 Green, J. 786
 Green, K. L. 305
 Greenwell, P. 300
 Griffin, D. 553
 Griffin, M. M. 757
 Griffiths, D. G. 753
 Griffiths, J. R. 91, 92, 291
 Groen, A. K. 40, 88, 89, 90
 Gurr, M. I. 308

 Haggarty, P. 726
 Haines, A. P. 254
 Hakomori, S. 267
 Hall, G. M. 296
 Halsall, S. 181
 Hanson, J. R. 522
 Hanson, P. J. 297, 398
 Hardingham, T. E. 128, 734
 Hardman, M. A. 182
 Hardy, M. F. 348
 Hardy, S. J. S. 205
 Harkness, R. A. 294

 Harper, N. 356
 Harris, J. R. 779
 Harrison, C. 713
 Harwood, J. L. 343, 394
 Haslam, J. M. 403, 713
 Hassall, D. G. 275, 378
 Hatton, M. W. C. 101
 Hawkes, G. E. 374
 Hayes, D. J. 626
 Hayes, M. R. 754
 Heaf, D. J. 391, 392
 Heaton, F. W. 773
 Heffron, J. J. A. 761
 Heinrich, R. 31
 Helliwell, J. R. 429
 Hemming, F. W. 497
 Hemmings, N. L. 173
 Henderson, A. H. 191
 Henehan, G. T. M. 59
 Hennessey, T. D. 798
 Hermon-Taylor, J. 169, 170, 406, 408, 757
 Herrera, E. 729, 730, 731, 732
 Herrero, E. 696
 Hers, H.-G. 250
 Hibberd, M. G. 151
 Higgins, I. J. 445
 Hilburn, M. E. 165
 Hill, H. A. O. 453
 Hill, M. J. 256
 Hirst, E. A. 205
 Ho, M.-W. 759
 Holloway, B. R. 778
 Holman, R. B. 62
 Holmes, R. 397
 Homans, S. W. 132
 Hopewell, R. 349
 Hoppel, C. L. 724
 Horecker, B. L. 241
 Horgan, R. 553
 Hornby, D. P. 175
 Horton, A. A. 395
 Horváth, L. I. 159
 Houghton, C. 384, 385
 Howell, R. M. 762
 Howells, R. D. 189, 751
 Hue, L. 246
 Huggins, J. P. 153
 Hughes, E. W. 770
 Hughes, M. A. 588
 Hughes, R. A. 199
 Hughes, S. M. 691
 Hull, R. 367
 Humphries, M. J. 365
 Hunter, C. N. 340
 Hurst, J. S. 306
 Hussain, A. A. 679
 Hutchinson, W. L. 295
 Hutchon, D. J. R. 760
 Hutton, D. A. 764
 Hutton, R. A. 378
 Huxtable, C. 717

 Idle, J. R. 183
 Iles, R. A. 92, 374
 Illsley, N. P. 294
 Ingebriksen, T. S. 644
 Ingold, K. U. 261

 Isaac, R. E. 379
 Itzhaki, S. 186
 Ivell, R. 813

 Janes, R. A. 749
 Jardine, J. 103
 Jeacocke, S. A. 153
 Jenkins, L. D. L. 739
 Jenkins, R. O. 339
 Jenner, S. A. 205
 Jenner, W. N. 713, 715
 Jennings, G. 727
 Jennings, P. R. 719
 Jensen, S. R. 593
 Jessup, W. 188
 Jin-Bi, D. 419
 Johnson, K. J. 370
 Johnson, L. N. 127, 142
 Jones, D. A. 728
 Jones, E. D. 751
 Jones, P. W. 352
 Jones, R. T. 735
 Jun-Ming, Y. 419
 Juszczak, R. 162

 Kacser, H. 35, 94
 Kaelin, A. C. 178
 Kaiping, S. 590
 Karlsson, K. A. 268
 Karmali, A. 778
 Keeling, P. L. 791
 Kelsey, C. R. 377
 Kemp, C. M. 676
 Kemshead, J. T. 208
 Kendrick-Jones, J. 154
 Kenny, A. J. 372
 Keogh, J. M. 279, 376
 Ketterer, B. 308, 466
 King, D. J. 400, 708, 710, 711
 King, H. K. 347
 Kingsbury, A. E. 210
 Kinney, A. J. 390
 Kirkpatrick, S. A. 708
 Klein, R. A. 366
 Klibanov, A. M. 19
 Knight, R. K. 377
 Knowles, A. 672
 Kobata, A. 132
 Koper, W. J. 705
 Kosterlitz, H. W. 64
 Koundakjian, P. P. 287
 Kremers, P. 463
 Kroll, R. G. 70

 Ladner, R. C. 145
 Lagnado, J. R. 783
 Laidman, D. L. 534, 600, 601
 Lambert, S. J. 749
 Large, P. J. 786
 Lasunción, M. A. 731, 732
 Lauwers, W. 665
 Lawrie, T. D. V. 700
 Lawson, R. 298
 Lazarus, N. R. 393
 Leaback, D. H. 276
 Leaver, H. A. 699, 760
 Leegood, R. C. 74
 Lehle, L. 568
 Lewis, B. 252

 Lewis, I. A. S. 602
 Lichtenthaler, H. K. 591
 Lipke, H. 788
 Littleton, J. M. 61
 Lloyd, D. 339
 Lloyd, G. M. 172
 Loblely, R. W. 397
 Lof, C. 89
 Long, W. F. 96, 97
 Lönn, U. 361
 Lonsdale-Eccles, J. D. 195
 López-Pérez, M. J. 694
 Loughman, B. C. 390
 Lowe, C. R. 448
 Lucas, M. L. 165
 Lucke, J. N. 296
 Lutaya, G. 91, 92
 Luzio, J. P. 273

 MacDermot, J. 377
 MacFarlane, K. 102
 MacLachan, J. 700
 MacMillan, J. 528
 MacNeil, S. 359, 360
 Malcolm, A. D. B. 370
 Manchee, G. R. 715
 Mannock, D. A. 389
 Mansfield, T. A. 557
 Mantle, D. 348
 Mantle, T. J. 353
 Marcyniuk, B. 770
 Marichal, P. 665
 Marsh, A. E. 740, 741
 Marsh, D. 159
 Marshall, R. D. 127, 769
 Martin, A. D. 78
 Martin, L. E. 713, 715
 Maslen, C. 739
 Mason, J. R. 451
 Matsar, R. 372
 Matthews, D. M. 808
 Matthews, P. M. 174
 Matthews, S. B. 191
 Maughan, R. J. 707
 Maxwell, J. R. 575
 McAllister, G. 406, 757
 McBride, K. 772
 McCapra, F. 196
 McColl, K. E. L. 631
 McCrodden, J. M. 59
 McDonald, A. R. 365, 371
 McDonald, J. R. 384, 385
 McDonald-Gibson, R. G. 306, 310
 McEvoy, F. A. 164, 309, 358
 McGivan, J. D. 754
 McKenna, R. M. 700
 McKenzie, R. C. 219
 McLean, P. 202
 McLennan, A. G. 368, 369
 Meek, K. M. 199
 Mehra, R. K. 774, 775
 Meijer, A. J. 89
 Meister, A. 793
 Mei-Zhen, L. 419
 Melloni, E. 241
 Mercer, E. I. 663
 Merlevede, W. 347
 Meyer, D. J. 308, 466

- Millington, D. S. 724
 Millner, P. A. 387
 Mills, D. 153
 Mitchell, S. C. 183
 Mitropoulos, K. A. 646
 Mizuochi, T. 132
 Møller, I. M. 755
 Monjardino, J. 364
 Montague, D. J. 778
 Montreuil, J. 134
 Moore, A. L. 753
 Moore, G. 361
 Morgan, M. J. 725
 Morgan-Hughes, J. A. 626
 Morinan, A. 692
 Morley, J. S. 798
 Morris, E. 763
 Morris, H. R. 200
 Morris, P. G. 92
 Morris, S. R. 587
 Morton, J. 200
 Mowbray, J. 292, 295
 Mucha, R. F. 64
 Muir, H. 128, 613
 Munday, M. R. 283
 Murphy, S. R. 763
- Narula, A. 537
 Navaratnam, N. 193
 Nayagam, S. D. 102
 Nayyir-Mazhir, R. 375
 Neal, M. 684
 Neill, S. J. 553
 Neuhoff, V. 682
 Newsholme, E. A. 52
 Newton, R. P. 354, 355
 Nielsen, B. J. 593
- O'Bryan, P. M. 676
 O'Callaghan, A. 761
 O'Connor, K. J. 393
 O'Donnell, M. W. 202
 Olavesen, A. H. 380
 Oliver, R. F. 383
 Omorphos, S. C. 180
 Oraedu, A. C. I. 679
 Osawa, Y. 656
 Osborne, N. N. 682
 Ottaway, J. H. 47, 313
 Owen, F. 68
 Owen, J. S. 275, 336
 Owens, R. J. 156
- Packard, C. J. 634
 Packter, N. M. 597, 598
 Pain, R. H. 15, 764
 Paine, A. J. 275
 Palacin, M. 731, 732
 Palmer, R. M. 182
 Parke, D. V. 457
 Parks, L. W. 656
 Partis, M. D. 753
 Pask, H. T. 153
 Patel, A. 196
 Patel, A. J. 212
 Patel, K. 739
 Patel, M. K. N. 309, 358
 Patel, N. 177
 Patel, N. P. 98, 100
 Patterson, L. H. 182
- Pauly, G. 590
 Payne, J. W. 794, 798, 800
 Pearson, H. 746, 747
 Pease, R. J. 784
 Pemberton, P. W. 397
 Pennington, R. J. T. 348
 Pennock, J. F. 504
 Perkins, S. J. 128
 Peters, T. J. 181, 192, 777, 778, 784, 788
 Pette, D. 279
 Phillips, D. C. 130
 Phillips, I. R. 460
 Phimister, G. M. 769
 Phipps, D. A. 350
 Pickersgill, R. W. 429
 Pike, S. F. 460
 Piperakis, S. M. 369
 Poggioli, J. 163
 Pogson, C. I. 393
 Polak, E. 780
 Pontremoli, S. 241
 Porteous, D. J. 94
 Porteous, J. W. 29
 Potter, J. 759
 Price, R. G. 396
 Prince, D. J. 686
 Prottey, C. 349
 Proudlove, M. O. 753
 Pullinger, C. R. 698
- Quemerais, D. 595
 Quinn, P. J. 329, 388
- Rabbitts, T. H. 119, 441
 Rabin, B. R. 460
 Radda, G. K. 174, 279, 376, 627
 Rademacher, T. W. 132
 Rahier, A. 537
 Rahman, K. 162
 Rainey, J. B. 766
 Ramsay, G. 445
 Rapoport, S. M. 31
 Ratcliffe, A. 734
 Raven, J. A. 73
 Raymond, F. L. 435
 Reeds, P. J. 182
 Rees, H. H. 379
 Rees Smith, B. 189
 Reichert, P. 215
 Reid, K. B. M. 1
 Reid, R. A. 787
 Renkonen, O. 265
 Rice-Evans, C. A. 180
 Richardson, P. J. 273
 Richmond, D. 760
 Richter, D. 813
 Rickards, C. R. 189, 751
 Rickwood, D. 273
 Ridd, D. H. 160
 Ridley, R. M. 68
 Ringrose, P. S. 804
 Ritchie, J. C. 183
 Roberts, C. R. 188
 Robinson, B. H. 623
 Robinson, D. 757
 Robinson, D. O. 169, 408
 Robson, L. E. 64
 Rodriguez, R. J. 656
 Roe, C. R. 724
- Rofe, A. M. 357
 Roller, S. D. 451
 Rose, M. E. 561, 602
 Ross, B. D. 627
 Rumsby, M. G. 203, 206, 208
 Rushton, M. R. 381
 Russell, N. J. 172, 333
 Ryan, C. M. 218
- Sadler, A. M. 402
 Saenger, W. 136
 Sahota, A. 375
 Said, H. M. 165
 Sakakibara, R. 248
 Salih, S. G. 354, 355
 Salihon, J. 401
 Salvage, B. J. 354
 Sanchez-Prieto, J. 694
 Sansom, M. S. P. 142
 Sarko, A. 139
 Savill, C. M. 405
 Schauer, R. 270
 Schiffman, Y. 743, 745
 Schoental, R. 782
 Scholey, J. M. 154
 Schultz, G. 590
 Scott, J. E. 770
 Scott, J. P. 770
 Scott, P. G. 746, 747
 Segal, S. 633
 Sellers, L. A. 763
 Seymour, A.-M. L. 278, 279, 376
 Shah, T. 777
 Shand, A. J. 384, 385
 Sharma, R. J. 91, 291
 Sharrard, R. M. 359, 360
 Shaw, G. K. 57
 Shaw, L. 176
 Sheehan, D. 353
 Sheehan, M. J. 213, 373
 Shephard, E. A. 460
 Shepherd, J. 634
 Sherratt, H. S. A. 286, 287
 Shirley, S. 780, 781
 Shute, J. K. 697
 Simmons, D. A. R. 104, 386
 Simmons, R. M. 149
 Simpson, C. M. F. 737
 Simpson, E. R. 653
 Simpson, R. J. 280, 281
 Skehel, J. J. 145
 Skiera, L. A. 787
 Skinner, E. R. 93, 707, 708
 Slater, T. F. 261
 Sleep, J. 152
 Smith, B. R. 751
 Smith, G. D. 784, 788
 Smith, F. M. M. 308
 Smith, K. L. 394
 Smith, M. E. 697
 Smith, R. C. 154
 Smith, R. H. 182
 Smith, R. L. 183
 Snell, C. R. 209
 Snell, K. 289, 291
 Snell, P. H. 209
 Sochor, M. 202
 Soll, J. 590
- Sols, A. 241
 Spady, D. K. 639
 Srai, S. K. S. 718
 Stacey, T. E. 724
 Stadler, H. 735
 Stange, E. F. 639
 Stansfield, D. A. 702
 Steven, F. S. 757
 Stevens, A. N. 92
 Stevenson, G. V. W. 705
 Stewart, C. A. 365, 371
 Stirk, J.-H. 185, 286
 Stirling, J. L. 451
 Stone, S. R. 184
 Stuart, D. 419
 Stucki, J. W. 45
 Stura, E. A. 142
 Suckling, K. E. 651
 Südhof, T. C. 736
 Sugden, M. C. 198, 283
 Sundaram, T. K. 740, 741
 Surholt, B. 52
 Surif, S. 773
 Sutton, B. J. 130
 Swanston-Flatt, S. K. 720
 Sweeney, F. P. 379
 Swoboda, B. E. P. 363
- Tager, J. M. 40, 88, 89
 Tahourdin, C. S. M. 212
 Taj, M. 679
 Tan, K. H. 308
 Tanaka, K. 451
 Taniguchi, T. 132
 Tanner, W. 568
 Tattersall, A. J. 100
 Taylor, G. W. 200
 Taylor, J. B. 466
 Taylor, S. A. 396
 Tenniswood, M. P. R. 169
 Thiersault, M. 596
 Thomas, C. M. 367
 Thomas, D. G. 704
 Thomas, H. C. 364
 Thomas, P. G. 713
 Thomas, R. C. 76
 Threlfall, D. R. 516, 587
 Thurston, C. F. 451
 Tibbs, G. R. 295
 Tiffany, J. M. 737, 738
 Tilleray, V. J. 362
 Tipton, K. F. 59
 Titheradge, M. A. 78
 Todd, R. 419
 Tomlinson, S. 359, 360
 Tooth, P. J. 154
 Tracey, B. M. 724
 Trayhurn, P. 727
 Trentham, D. R. 151
 Troke, J. M. 289
 Tsiquaye, K. N. 364
 Tsou, C. L. 425
 Turnball, D. M. 287
 Turner, A. J. 372
 Turner, A. P. F. 445
 Turner, J. M. 352
 Tyson, R. H. 791
- Urban, P.-F. 214, 215
 Uyeda, K. 248

- Valdivieso, F. 696
 van Dam, K. 81
 Van den Bossche, H. 665
 Van Den Dungen, H. 212
 Van Dorst, S. 782
 Van Roermund, C. M. 89
 Vaughan, P. F. T. 216
 Veares, M. P. 602
 Verger, A. 595
 Vervoorn, R. C. 40, 88
 Voaden, M. J. 679
 Vogel, H. J. 315

 Waddell, K. A. 377
 Waelkens, E. 347
 Wagner, S. A. 766, 767, 768
 Wakelam, M. J. O. 279
 Wali, F. A. 201, 387, 698, 742
 Walker, A. G. 217
 Walker, D. A. 74
 Walker, J. H. 735, 736
 Walker, J. M. 179, 187
 Walker, S. W. 359, 360
 Walker-Smith, D. J. 800

 Wall, J. C. 170, 406, 757
 Walsh, F. S. 208
 Walton, D. C. 553
 Walton, M. J. 88
 Walton, T. J. 594
 Wanders, R. J. A. 40, 89, 90
 Waterman, M. R. 653
 Watkins, D. K. 779
 Watkins, W. M. 300
 Watson, D. G. 589
 Watts, A. 674
 Watts, D. I. 198
 Weiler, E. W. 485
 Weir, M. P. 192
 Wellburn, A. R. 591
 Wells, C. 177
 Westerhoff, H. V. 40, 81, 90
 Wharton, C. W. 817
 Whitburn, S. B. 375
 White, G. L. 305
 Whittaker, V. P. 735
 Whitwell, H. L. 757
 Wiggins, T. E. 712
 Wigglesworth, N. M. 155
 Wiley, D. C. 145

 Wilkie, D. 711
 Wilkie, D. R. 244
 Willemsens, G. 665
 Williams, D. A. 351
 Williams, D. S. 310
 Williams, G. 757
 Williams, W. P. 388, 389
 Williamson, D. H. 357
 Williamson, F. B. 96, 97
 Williamson, J. E. 182
 Willis, J. S. 330
 Wills, E. D. 258
 Wilson, I. A. 145
 Wilson, N. R. 203
 Winchester, B. 717
 Winkler, M. A. 401, 402
 Winskill, A. M. 404
 Winterbottom, N. 747
 Wiseman, A. 18, 400, 401, 402, 708, 710, 711
 Wojciechowski, Z. A. 565
 Wood, B. 718
 Wood, E. J. 194
 Wood, P. 781
 Wood, P. H. 740, 741

 Woodhead, N. E. 96, 97
 Wright, R. M. 194
 Wu, H. C. 139

 Xu, G. Q. 425

 Yarborough, C. 656
 Yates, A. D. 300
 Yeaman, S. J. 298, 703, 704, 705
 Yewdell, J. W. 435
 Young, J. D. 776
 Young, S. N. 713
 Youssef, A. M. 93

 Zhang, Y.-S. 417
 Zhao, K. Y. 425
 Zhou, J. M. 425
 Zhu-Li, W. 419
 Zomer, E. 788
 Zorzano, A. 729, 730
 Zuckerman, A. J. 364

Van Dorst, S. 782	Waterman, M. R. 653	Willemsens, G. 665	Yarborough, C. 656
Voaden, M. J. 679	Watkins, D. K. 779	Williams, G. 757	Yeaman, S. J. 703, 704, 705
Wagner, S. A. 766, 767, 768	Watts, A. 674	Winchester, B. 717	Young, J. D. 776
Wali, F. A. 698, 742	Wharton, C. W. 817	Winterbottom, N. 747	Young, S. N. 713
Walker, J. H. 735, 736	Whittaker, V. P. 735	Wiseman, A. 708, 710, 711	
Walker-Smith, D. J. 800	Whitwell, H. L. 757	Wood, B. 718	Zomer, E. 788
Wall, J. C. 757	Wiggins, T. E. 712	Wood, P. 781	Zorzano, A. 729, 730
	Wilkie, D. 711	Wood, P. H. 740, 741	