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Intracellular Messengers

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Intracellular Messengers

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Preface to the Series

When the President of Humana Press first suggested that a series on methods in the neurosciences might be useful, one of us (AAB) was quite skeptical; only after discussions with GBB and some searching both of memory and library shelves did it seem that perhaps the publisher was right. Although some excellent methods books have recently appeared, notably in neuroanatomy, it is a fact that there is a dearth in this particular field, a fact attested to by the alacrity and enthusiasm with which most of the contributors to this series accepted our invitations and suggested additional topics and areas. After a somewhat hesitant start, essentially in the neurochemistry section, the series has grown and will encompass neurochemistry, neuropsychiatry, neurology, neuropathology, neurogenetics, neuroethology, molecular neurobiology, animal models of nervous disease, and no doubt many more "neuros." Although we have tried to include adequate methodological detail and in many cases detailed protocols, we have also tried to include wherever possible a short introductory review of the methods and/or related substances, comparisons with other methods, and the relationship of the substances being analyzed to neurological and psychiatric disorders. Recognizing our own limitations, we have invited a guest editor to join with us on most volumes in order to ensure complete coverage of the field. These editors will add their specialized knowledge and competencies. We anticipate that this series will fill a gap; we can only hope that it will be filled appropriately and with the right amount of expertise with respect to each method, substance or group of substances, and area treated.

*Alan A. Boulton
Glen B. Baker*

Preface

Despite the success of earlier *Neuromethods* volumes, I was initially reluctant to edit a further volume because my own research is concerned with nonneural tissues. I changed my mind for two simple reasons. First, though the sheer diversity of extracellular signal molecules is staggering, still more impressive is the remarkably small number of transmembrane signaling processes they recruit—their receptors either have integral ion channels or enzyme activities, or else they catalytically activate G proteins. Likewise, when we look to the final intracellular targets of these signaling pathways, they are structurally diverse, but again there are common themes: the response may either be the gating of an ion channel, or else the phosphorylation of a target protein. Such conservation of signaling mechanisms is both impressive and convenient, and provides my justification for asking authors with interests in diverse tissues to contribute their methodological expertise to this volume.

Second, I think it would be difficult to overestimate the extent to which our understanding of intracellular signaling has been transformed by new and improved methodology. Thus, simple methods for measuring inositol phosphates have revealed the profound and widespread importance of the phosphoinositide pathways, the techniques of contemporary molecular biology have provided unrivaled opportunities to relate structure and function, and the complex spatial and temporal characteristics of intracellular signaling pathways were barely imaginable before the introduction of fluorescent indicators and single cell-imaging technology.

These are exciting times for students of intracellular messengers and much of that excitement comes from the opportunities to apply new methods. I hope this volume will provide an introduction to many of these methods and encourage neurobiologists to apply them.

Colin W. Taylor

Dedication

As this book neared completion, two people who contributed to it in their different ways died. Philip Godfrey, in his brief career, published a number of original papers on phosphoinositide pathways, notably on their roles in the brain; his chapter is testimony to his expertise in this area. In a very different way Elsie Philipson made her contribution for she made my career in science possible.

This volume is dedicated to them.

Colin W. Taylor

Contents

Preface to the Series	v
Preface.....	vii
List of Contributors	xix

Identification and Analysis of Function of Heterotrimeric Guanine Nucleotide-Binding Proteins Expressed in Neural Tissue

Graeme Milligan

1. Introduction	1
2. Purification Studies	4
3. Bacterial ADP-Ribosylation	6
3.1. Basic Aspects	6
3.2. Recent Advances in the Use of Bacterial Toxins to Study Pertussis Toxin-Sensitive G Proteins	9
3.3. Methodological Considerations	14
4. Assays for Receptor-G Protein Interactions.....	15
4.1. Alterations in Receptor-Agonist Binding Interactions in the Presence of Analogs of GTP	15
4.2. GTPase Studies	17
4.3. Agonist Stimulation of [³⁵ S]GTPγS Binding and of GTP Analog Photoaffinity Labeling	20
5. Direct Activation of G Proteins and Interactions of G Proteins and Effectors	21
5.1. Analogs of Guanine Nucleotides and Caged Compounds ..	21
5.2. Differential Affinities of GTP Analogs for G _s and "G _i "	21
5.3. Direct Activators, Inhibitors of G Proteins	22
6. Reconstitution Assays.....	23
6.1. G _s • Cyc ⁻ Membranes: Cholera Toxin "Stripped" Membranes	23
6.2. Pertussis Toxin-Sensitive G Proteins	24
7. Immunological Identification of G Proteins	26
7.1. Historical Perspectives	26
7.2. Recent Studies	28
7.3. Methodological Considerations for the Immunological Identification of G Proteins	31
7.4. Immunological Approaches to the Identification of Interactions Between Receptors and G Proteins	31

7.5. Methodological Considerations	37
8. Physical Location of G Proteins Within the Cell: Implications for Function	38
9. G Proteins and Ion Channels	40
9.1. Basic Aspects	40
9.2. Methodological Considerations	44
10. Regulation of G Protein Expression	44
11. Future Trends	45
11.1. Expression of Recombinant Protein	45
11.2. Site-Directed Mutagenesis	46
11.3. The Construction of Genetic Chimeras	46
11.4. Isolation of G Protein Mutants	47
11.5. Use of G Protein Antisera in Electrophysiological Experimentation	47
Acknowledgments	48
Abbreviations	48
References	48

Methods for the Analysis of Phosphoinositides and Inositol Phosphates

Philip P. Godfrey

1. Introduction	57
2. Tissue Preparation	60
2.1. Preparation and Stimulation of Brain Slices	61
2.2. Stimulation of Cell Lines	62
3. Extraction of Inositides from Tissues	62
3.1. Extraction of Lipids	63
3.2. Chloroform/Methanol Extraction and Analysis of a Total InsPs Fraction	64
3.3. Extraction with Perchloric Acid	64
3.4. Extraction with Trichloroacetic Acid	65
4. Separation and Analysis of Phosphoinositides	66
4.1. Thin-Layer Chromatography	66
4.2. Deacylation and Separation of Water-Soluble Products	67
4.3. Assay of CDP-Diacylglycerol (CDP-DG)	68
5. Analysis of Inositol Phosphates	69
5.1. Separation of Radiolabeled Inositol Phosphates	69
5.2. Mass Analysis of Inositol Phosphates	71
6. Conclusions	75
Acknowledgments	75
References	75

Inositol Trisphosphate Receptors and Intracellular Calcium: *Experimental Approaches*

**Colin W. Taylor, Jennifer M. Bond, David L. Nunn,
and Katherine A. Oldershaw**

1. Introduction	79
1.1. Formation of $\text{Ins}(1,4,5)\text{P}_3$	79
1.2. $\text{Ins}(1,4,5)\text{P}_3$ -Sensitive Ca^{2+} Stores	82
1.3. Mechanism of $\text{Ins}(1,4,5)\text{P}_3$ -Induced Ca^{2+} Mobilization	86
2. $\text{Ins}(1,4,5)\text{P}_3$ and Ca^{2+} Mobilization: Experimental Approaches	89
2.1. Cell Permeabilization	89
2.2. Ca^{2+} Mobilization	92
3. $\text{Ins}(1,4,5)\text{P}_3$ Receptor: Experimental Approaches	97
3.1. Identification of $\text{Ins}(1,4,5)\text{P}_3$ Receptors	97
3.2. Receptor Solubilization	104
3.3. Receptor Purification	107
3.4. Functional Properties of $\text{Ins}(1,4,5)\text{P}_3$ Receptors	109
4. Complex Changes in Intracellular Ca^{2+} : The Role of $\text{Ins}(1,4,5)\text{P}_3$	113
4.1. Ca^{2+} Entry	113
4.2. Organization of Intracellular Ca^{2+} Signals	115
5. Concluding Remarks	118
Acknowledgments	118
Abbreviations	119
References	119

Measurement of Intracellular Calcium with Fluorescent Calcium Indicators

Martin Poenie

1. Introduction	129
2. Properties of Fluorescent Ca^{2+} Indicators	131
2.1. Chelation Properties	131
2.2. Spectral and Fluorescence Properties	133
2.3. Calcium Buffering	137
2.4. Kinetics of Ca^{2+} Binding	139
3. Application of Fluorescent Ca^{2+} Indicators	141
3.1. Indicator Quality	141
3.2. Indicator Loading	142
4. Calibration and Quantitation	152
4.1. Calibration Parameters	152
4.2. Variables Affecting Dye Calibration Parameters	158
4.3. Methods of Calibration for Microscopy	159

4.4. Corrections for In Vitro Calibrations	163
5. Choosing a Fluorescent Calcium Indicator	166
6. Future Prospects	168
Acknowledgments	170
References	170

Single-Cell Imaging Technology

Roger B. Moreton

1. Introduction	175
2. Optics	179
2.1. Microscope	180
2.2. UV Light Source	182
2.3. Video Cameras	186
3. Image Processing	188
3.1. Digitization	189
3.2. Initial Processing	190
3.3. Image Display	195
3.4. Further Processing	198
4. Quantitative Interpretation of Single-Cell Images	203
4.1. Instrument Calibration	204
4.2. Background, Shading, and Autofluorescence Corrections	205
4.3. Calibration of Dyes	209
4.4. Other Sources of Error in Quantitation	215
4.5. Spatial and Temporal Resolution	221
5. Conclusion	226
Acknowledgments	227
References	227

Analysis of Protein Kinase C Function

Gillian M. Burgess

1. Introduction	231
2. Is Protein Kinase C Activated?	235
2.1. Measurement of Diacylglycerol	236
2.2. Translocation of Protein Kinase C	240
2.3. Phosphorylation of Endogenous Substrates of Protein Kinase C	245
3. Direct Activation of Protein Kinase C	246
4. Inactivation of Protein Kinase C	247
4.1. Downregulation of Protein Kinase C	248
4.2. Protein Kinase C Inhibitors	252
5. Identification of Protein Kinase C Isozymes	259

5.1. Purification of Protein Kinase C Subspecies	259
5.2. Immunological Analysis	261
Abbreviations	261
References	262

Synthetic Analogs of Intracellular Messengers

Barry V. L. Potter

1. Introduction	273
2. The cAMP Signaling System	276
2.1. Synthesis of cAMP Analogs	276
2.2. Biology of cAMP Analogs	280
3. cGMP as an Intracellular Messenger	282
4. <i>Myo</i> -Inositol 1,4,5-Trisphosphate as an Intracellular Messenger	283
4.1. Synthesis of Inositol Phosphates and Analogs	285
4.2. Biology of Inositol Phosphates and Analogs	294
5. Outlook	302
Acknowledgments	303
Abbreviations	303
References	303

Methods in Cyclic Nucleotide Research

Kenneth J. Murray

1. Introduction	313
1.1. Criteria for Establishing a Cyclic Nucleotide-Mediated Response	315
2. Cyclases	317
3. Cyclic Nucleotides	318
3.1. Assays of Cyclic Nucleotides	319
3.2. Cyclic Nucleotide Analogs	321
4. Cyclic Nucleotide-Dependent Protein Kinases	323
4.1. cAMP-Dependent Protein Kinase	323
4.2. cGMP-Dependent Protein Kinase	331
4.3. Phosphotransferase Assay	332
4.4. Activity Ratio Assay	334
4.5. Cyclic Nucleotide Binding Assays	335
4.6. Isoenzyme and Isoform Distribution	337
4.7. Protein Purification	338
5. Phosphodiesterases	339
5.1. Ca^{2+} -Calmodulin-Stimulated Phosphodiesterases (CaM-PDE, PDE I)	339
5.2. cGMP-Stimulated Phosphodiesterases (cGS-PDE, PDE II) ...	341

5.3. cGMP-Inhibited Phosphodiesterases (cGI-PDE, PDE III) ..	342
5.4. cAMP-Specific Phosphodiesterases (PDE IV)	343
5.5. cGMP-Specific Phosphodiesterases (PDE V)	345
5.6. Assays of Phosphodiesterases	346
5.7. Phosphodiesterase Inhibitors	347
5.8. Separation and Characterization of Phosphodiesterase Isoenzymes	348
Acknowledgments	350
Abbreviations	350
References	350

Caged Intracellular Messengers and the Inositol Phosphate Signaling Pathway

Ian Parker

1. Introduction	369
1.1. Utility of Caged Compounds for Studying Intracellular Messenger Systems	369
2. Methodology	372
2.1. Light Sources	372
2.2. Optics	376
2.3. Introduction of Caged Compounds into Cells	378
2.4. Artifacts	379
2.5. Flash Photolysis and Calcium Monitoring	380
3. Application of Caged Compounds to Study InsP_3 Signaling in Oocytes	382
3.1. Optical System	382
3.2. Intracellular Loading of Caged InsP_3	385
3.3. Responses Evoked in Oocytes by Photoreleased InsP_3 and Ca^{2+}	388
Acknowledgments	393
Abbreviations	393
References	393

Protein Phosphorylation

David B. Morton

1. Introduction.....	397
2. Assays for Protein Kinases and Their Substrates	398
2.1. Cyclic Nucleotide-Dependent Protein Kinases	398
2.2. Ca^{2+} -Dependent Protein Kinases	408

2.3. Tyrosine Kinases	412
2.4. Casein Kinases	415
3. Further Analysis of Phosphoproteins	416
3.1. Identification of the Phosphoamino Acid	417
3.2. Limited Proteolysis and Phosphopeptide Maps	418
4. Protein Phosphatases	419
5. Physiological Function of Protein Phosphorylation	422
Acknowledgments	425
Abbreviations	425
References	426

Investigation of the Intracellular Regulators and Components of the Exocytotic Pathway

Robert D. Burgoyne

1. Introduction.....	433
2. Intracellular Requirements for Exocytosis	435
3. The Control of Exocytosis by Intracellular Messengers.....	436
3.1. Ca^{2+}	436
3.2. Cyclic Nucleotides	439
4. The Cytoskeleton and Control of Exocytosis	441
5. Molecular Components of the Exocytotic Mechanism	443
5.1. Phospholipase A_2 and Arachidonic Acid	445
5.2. Calmodulin	445
5.3. Secretory Vesicle Docking Protein	447
5.4. Protein Kinase C	447
5.5. Guanine Nucleotide-Binding Proteins	448
5.6. Phosphorylation, Dephosphorylation, and Exocytosis	450
5.7. Involvement of Calpactin in Exocytosis	451
6. Technical Aspects in the Study of Exocytosis in Chromaffin Cells	454
6.1. Isolation and Culture of Chromaffin Cells	454
6.2. Determination of Catecholamine Secretion	456
6.3. Digitonin-Permeabilization of Cell Cultures	457
6.4. Assay of Cytoskeletal Actin	457
6.5. Assay of Cytosolic Ca^{2+} Concentration in Cell Populations	458
7. Conclusions and Future Prospects	459
Acknowledgment	461
Abbreviations	461
References	461

Intracellular Messengers in Vertebrate Photoreceptors:

Electrophysiological Techniques

Hugh R. Matthews and Trevor D. Lamb

1. Introduction.....	471
2. Overview of Electrical Recordings from Photoreceptors	474
2.1. Early Approaches	474
2.2. Preparation of Isolated Photoreceptors	474
2.3. Microscopy and Optical Stimulation	475
2.4. Recording Chamber and Cell Manipulation	477
2.5. Data Storage and Reduction	478
3. Recording Techniques	478
3.1. Suction-Pipet Technique.....	478
3.2. Patch-Clamp Technique	483
3.3. Simultaneous Suction-Pipet and Whole-Cell Technique	484
3.4. Whole-Cell Recording from Isolated Outer Segments.....	487
3.5. "Truncated Cell" Technique	488
3.6. Excised Patch and Cell-Attached Patch Recordings	488
4. Incorporation of Agents into the Cytoplasm	492
4.1. Overview of Methods	492
4.2. Ca^{2+} Chelators	492
4.3. cGMP	494
4.4. Nucleotide Analogs and Other Low-Molecular-Weight Drugs	496
4.5. Proteins	498
5. External Perfusion of the Outer Segment	500
5.1. Techniques for Rapid Solution Changes	500
5.2. Alteration of External Ions	503
5.3. Superfusion with Drugs	507
6. Summary	509
Abbreviations	509
References	509

Intracellular Messengers in Invertebrate Photoreceptors

Studied in Mutant Flies

Baruch Minke and Zvi Selinger

1. Introduction:	
The Inositol Lipid Cascade of Vision.....	517
2. Anatomy of the Retina.....	520
3. The Molecular Stages of the Phototransduction Cascade	524

3.1. The Photopigment	524
3.2. The Guanine Nucleotide-Binding Protein (G Protein)	544
3.3. Phosphoinositidase C	547
4. Light-Induced Reduction in Excitation Efficiency Owing to the <i>trp</i> and <i>nss</i> Mutations	550
5. Concluding Remarks	553
Abbreviations	554
References	554
Index	565

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