Practical Pharmacology for the Pharmaceutical Sciences

Description: Practical Pharmacology for the Pharmaceutical Sciences is a lab survival guide for those studying Pharmacology, providing hands-on advice on developing pharmacology laboratory and data handling skills. Suitable for both undergraduates and postgraduates, it focuses on laboratory techniques rather than computer-simulated data. It also guides the reader through the process of communicating experimental results in a variety of formats, including posters, oral presentations and project reports.

Split into three main areas, the following topics are covered in detail:

Preparation for Experimental Pharmacology
- Legal aspects
- Fundamentals of Pharmacology
- Definitions, calculations and statistics

Experiments in Pharmacology
- Microtitre-based techniques using isolated cells
- In vitro techniques using isolated tissues and organs
- Biochemical techniques using cell-free systems

Communicating experimental results
- Data presentation
- How to write scientific reports
- Pharmacological literature

Supported with numerous questions throughout the text, as well as step by step instructions for practical experiments, this book presents an approach to learning pharmacology through an appreciation of authentic experimental data.

Contents: Preface ix
Acknowledgements xi

1 Before Entering the Pharmacology Laboratory 1
1.1 Safety and Risk Assessment 1
1.2 The Laboratory Record Book 3
1.3 Use of Animals in Practical Pharmacology 4
1.4 Experimental Design 5
1.5 Units, Dilutions and Logarithms 7
1.5.1 Units of Mass 8
1.5.2 Units, Concentrations and Logarithms 8
1.5.3 Dilutions 9
1.5.4 Logarithms 10
1.6 Essential Statistics 12

1.6.1 Continuous Data t-test, ANOVA, Non-parametric Tests and Regression 12

1.6.2 Discontinuous Data X2 and Fisher’s Exact Test 21

2 Basic Pharmacological Principles 27

2.1 Drug Receptor Interaction 27

2.1.1 Agonists 27

2.1.2 Antagonists 30

2.1.3 Receptor Classification 36

2.2 Bioassays 37

2.2.1 Single-point Assays 38

2.2.2 Bracketing Assays, Three-point or 2×1 Assays 38

2.2.3 Multi-point Assays, Such As Four-point or 2×2 Assays 39

3 Isolated Tissues and Organs 43

3.1 Equipment for In Vitro Experiments 44

3.2 Organ Baths 45

3.3 Physiological Salt Solutions 46

3.4 Transducers 47

3.5 Recording Equipment and Software 49

3.6 Dosing 50

3.7 Electrically Stimulated Preparations 52

3.8 Fault-Finding of In Vitro Isolated Tissue Preparations 53

4 Smooth Muscle Preparations 55

4.1 Gastrointestinal Smooth Muscle Preparations 55

4.2 Guinea Pig Isolated Ileum 56

4.2.1 Concentration Response Curves for Cholinesters 57

4.2.2 Selective Antagonism 59

4.2.3 Specificity of Blood Cholinesterases 62

4.2.4 Quantification of the Potency of an Antagonist 64

4.2.5 Bioassays 67

4.2.6 Calcium Channel Blockers 73

4.2.7 Field-stimulated Guinea Pig Isolated Ileum 76

4.3 Rabbit Isolated Jejunum and the Finkleman Preparation 78
4.3.1 Adrenoceptor Sub-types 79  
4.4 Isolated Tracheal Rings 80  
4.5 Isolated Vas Deferens 82  
5 Cardiovascular Preparations 93  
5.1 Isolated Perfused Heart Preparations 94  
5.1.1 The Langendorff Preparation 95  
5.1.2 Cardiac Interactions of Anti-asthma Drugs 98  
5.1.3 The Rat Isolated Auricle Preparation 99  
5.2 Thoracic Aorta Preparation 102  
5.2.1 Drugs Regulating Nitric Oxide-mediated  
6 Skeletal Muscle 107  
6.1 Types of Skeletal Muscle 107  
6.2 Multiply-Innervated Skeletal Muscle Preparations 108  
6.2.1 Agonists and Antagonists Acting on the Frog Rectus Abdominis 109  
6.2.2 Action of Anticholinesterases on the Dorsal Muscle of the Leech 111  
6.3 Focally Innervated Skeletal Muscle Preparations 116  
6.3.1 The Frog Gastrocnemius Muscle Sciatic Nerve Preparation 119  
7 Isolated Cells 121  
7.1 Freshly Isolated and Cultured Cells 121  
7.1.1 Advantages of Isolated Cells 121  
7.1.2 Cultured Cells 122  
7.1.3 Cell Counting 122  
7.2 Platelets 125  
7.2.1 Inhibition of Aggregation by Nitric Oxide Donors 127  
7.3 Neutrophils 131  
7.3.1 Measurement of NADPH Cytochrome c Reductase 132  
7.3.2 Measurement of Intracellular [Ca2+] 134  
8 Biochemical Pharmacology 141  
8.1 Pharmacological Applications of Common Biochemical Techniques 141  
8.2 Enzyme Inhibitors 142  
8.3 Acetylcholinesterase Inhibitors 143
Fax Order Form
To place an order via fax simply print this form, fill in the information below and fax the completed form to 646-607-1907 (from USA) or +353-1-481-1716 (from Rest of World). If you have any questions please visit http://www.researchandmarkets.com/contact/

Order Information
Please verify that the product information is correct.

| Product Name: | Practical Pharmacology for the Pharmaceutical Sciences |
| Web Address: | http://www.researchandmarkets.com/reports/2898937/ |
| Office Code: | SCD2UVPH |

Product Format
Please select the product format and quantity you require:

<table>
<thead>
<tr>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard Copy (Paper back):</td>
</tr>
</tbody>
</table>

* Shipping/Handling is only charged once per order.

Contact Information
Please enter all the information below in BLOCK CAPITALS

<table>
<thead>
<tr>
<th>Title:</th>
<th>Mr</th>
<th>Mrs</th>
<th>Dr</th>
<th>Miss</th>
<th>Ms</th>
<th>Prof</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Name:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last Name:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Email Address:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Title:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organisation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postal / Zip Code:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Number:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fax Number:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Please refrain from using free email accounts when ordering (e.g. Yahoo, Hotmail, AOL)
Payment Information

Please indicate the payment method you would like to use by selecting the appropriate box.

☐ Pay by credit card:

You will receive an email with a link to a secure webpage to enter your credit card details.

☐ Pay by check:

Please post the check, accompanied by this form, to:

Research and Markets,
Guinness Center,
Taylors Lane,
Dublin 8,
Ireland.

☐ Pay by wire transfer:

Please transfer funds to:

Account number 833 130 83
Sort code 98-53-30
Swift code ULSBIE2D
IBAN number IE78ULSB98533083313083
Bank Address Ulster Bank,
27-35 Main Street,
Blackrock,
Co. Dublin,
Ireland.

If you have a Marketing Code please enter it below:

Marketing Code: __________________________

Please note that by ordering from Research and Markets you are agreeing to our Terms and Conditions at http://www.researchandmarkets.com/info/terms.asp

Please fax this form to:
(646) 607-1907 or (646) 964-6609 - From USA
+353-1-481-1716 or +353-1-653-1571 - From Rest of World