Information and instructions for the Pharmacology 2A Full Practical Write-Up

Learning to write up experimental findings and draw logical conclusions from data is a very important aspect of training to be a scientist so please take this part of your course very seriously. The Full Write Up gives you practice of writing in a scientific manner which will enable you to communicate effectively with other scientists. You will receive feedback on how to improve future reports.

Format for your Pharmacology 2A Full Practical Write-Up
You **must** follow the format of a *British Journal of Pharmacology* Research Paper (although you do not have to use the two column layout). An example paper is available on Blackboard but you are encouraged to go online and browse through other examples. **If you do not follow this format, marks will be deducted.**

You must have the following sections:-

- **Title**
- **Abstract** which includes the following identified subsections**:**
    - **Background and Purpose**
    - **Experimental Approach**
    - **Key Results**
    - **Conclusions and Implications**
- **Introduction**
- **Methods**
- **Results** which includes:
    - **Figures/tables/traces with titles and legends**
    - **Written description of the results**
- **Discussion and conclusions**
- **References**

Your practical write-up must be type-written in font size 12 with 1.5 line spacing. You are required to use a standard font such as Times New Roman, Arial or Calibri.

The word limit for your write-up is 2000 words. This is an upper limit and good marks may be achieved with less than this limit. All text except the reference list and any text on your figures is included; note that figure legends **are** included in the word limit.

You will need to submit a version of your write-up to Turnitin via Blackboard that includes all text except your reference list; the figures should be removed from this version. You must also submit a full paper version including figures and references by the submission deadline.

Abstract
Should summarise the main points in the following subsections:

Background and Purpose
What was the main aim of the experiment and why is this important to investigate?
Experimental Approach
What technique(s) was used to investigate this and what was measured?
Key Results
What were the key results? Consider if some numerical value(s) may be useful here.
Conclusions and Implications
What is the conclusion and what does it mean?

Introduction

This section concisely sets out the background to the experiments that you have done. You should consider describing the tissue used, receptors present, drugs that you are using and how these drugs exert their effects. A few relevant references (text books or papers) should be cited. The Aims of the experiment should be clearly stated at the end of the Introduction.

Methods

You should concisely describe how the guinea-pig ileum experiment was performed and how the data was analysed. Methods should be written in the past tense and should not take the form of a list of bullet points. Do not simply write 'Experiments were performed as described on eBiolabs'. Look at how Methods are written in papers if you are not clear how this section should be done. You do not need to describe the vas deferens experiment – simply state that the results with this tissue were given to you. Similarly, in the methods write about the drug you actually tested and say you were given the other results. You should **not** include tables of dilutions – this is a standard technique that is not described in methods of research papers.

Results

Figures/Tables/Traces All figures, graphs and tables must be properly annotated and labelled and should include a figure legend (see below). The correct units must be used, and graphs must have correctly labelled axes. Data must be plotted correctly and best-fit curves drawn. Data sets should be clearly identifiable. You can either draw the graphs by hand or using a computer programme. If using Excel then you are advised to draw the curve of best fit by hand.

Example of a figure legend – note this is a different experiment to the ones you have performed and is an example only. A good figure legend has a brief sentence that acts as a title summarising the figure, which is often in bold, and then a few sentences explaining what the figure shows.

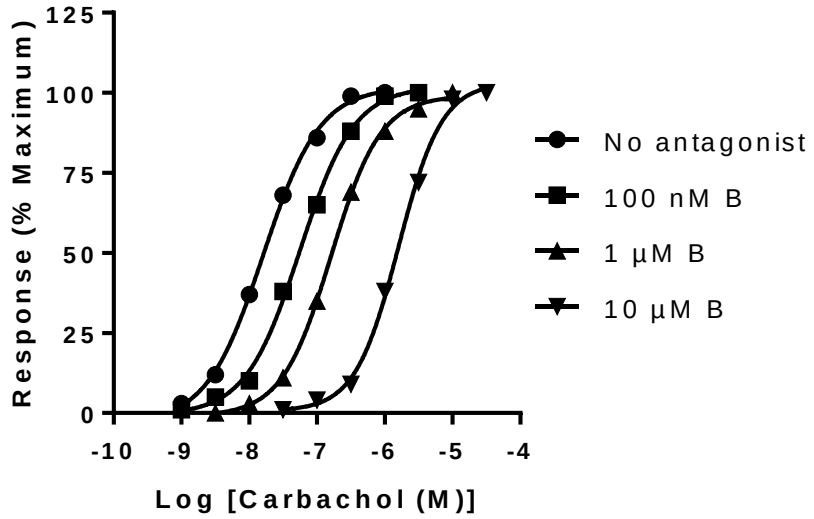

Figure 1. Drug B causes a concentration-dependent inhibition of the response to carbachol. Contraction of guinea-pig ileum was tested in response to carbachol using a standard organ bath. Concentration-response curves for carbachol were constructed for carbachol alone and carbachol in the presence of three concentrations of drug B as indicated in the key.

Written Results This section should have a **concise** written summary of the results obtained and will need to include important data such as EC_{50} values from concentration-response curves and calculated K_B values. Each figure or table should be referred to by number in the text and described, explaining what the experiment showed. The results section should not include discussion of the results, merely description.

Discussion and conclusions
Should discuss the results in context of how they relate to lecture material and other material such as published literature that may be relevant. Should also include information on the limitations to the current study and further experiments that could be done. The discussion should end with a concluding summary of the main findings of the study.

References
References used in the text should be listed in the British Journal of Pharmacology format (see example paper on Blackboard). You are not expected to use more than 5 references. Text book references are OK but you should also aim to include some original research papers.

Presentation
Clear, informative title; correct use of technical language; tidy layout which is easy to follow; abbreviations defined; drug names used/spelled correctly.

Marks will be awarded for each section as follows:-

Abstract	10%
Introduction	15%
Methods	10%
Results (figures/tables/traces each fully labelled with titles and legends)	15%
Results (written description)	15%
Discussion and conclusions	15%
References	10%
Presentation	10%
Total	**100%**

An outstanding write-up will take the following form:

Section	
Abstract	Accurate, concise, and comprehensive; all expected information clearly presented. Is in the correct BJP format.
Introduction	Introduction is concise and relevant. Gives appropriate background material on the subject area. Includes a clear statement of the aims and scientific basis of the practical.
Methods	Written in past tense and impersonal manner throughout. Concisely written and provides all details needed to repeat the experiment. Uses correct SI units and scientific terminology. Gives no extraneous detail (such as size of beaker used or dilution tables).
Results **(figures and tables)**	All Tables and graphs are numbered and have informative figure legend and have no faults in presentation. Well-chosen figures and tables. Units are correct. Best-fit curves well-drawn and data sets identifiable.
Results (description)	Clear, concise and comprehensive text that guides the reader through the accompanying tables, graphs and calculations. No errors or omissions. EC_{50} values correctly taken from graphs. K_B values calculated. Includes all components of data analysis asked for.
Discussion and conclusions	Findings reported and discussed in light of the material given in the Introduction. The implications of any practical problems constructively discussed. Theory related to practice. Evidence of further reading. Any analysis done uses correct methodology and inferences drawn are correct. Provides a conclusion relevant to the aims given in the introduction. Shows clear evidence of student's own original critical analysis.
References	A few relevant primary references or review articles from journals. References are listed using the British Journal of Pharmacology format.
Presentation	Extremely clear and comprehensive; organisation and presentation exceptional. Uses appropriate font and spacing. Few if any typographical or grammatical errors. Uses scientific language well.