REGISTRATION OF YOUR MASTER PROJECT

Prior to the commencement of experiment, the project must be registered by filling the application form called `Admission Prerequisites Form for Master Thesis application´. This application form can be downloaded from the iSTEM course website (http://www.ruhr-uni-bochum.de/istem/concept.html.en) and the blackboard.

MASTER THESIS GUIDE

This thesis should prepare you for publications in journals. This guide provides hints, regarding how to write your master thesis, but not all points mentioned below are obligatory to follow.

- The thesis may not be longer than 100 pages
- The thesis has to be written in English (obligatory)
- You have to announce your thesis at least 5 months in advance (obligatory)

General information

Supervisor

It is strongly recommended to discuss the thesis with your first supervisor well ahead of the submission date.

Language of the thesis

The thesis must be written in English. Decide in advance, if you use British English or US English; do not mix. The abstract must be presented in English and German.

Length of the thesis

The thesis should be between 40 - 100 pages, not including the references.

The thesis must be bound, a collections of pages is not acceptable.

Sections of the thesis

The thesis should contain all of the following sections (in the order shown):

- Cover Page
- Signature Page
- Abstract (in English and German)
- Table of Content
- Introduction (including Aims)
- Materials and Methods (including list of Abbreviations)
- Results
- Discussion
- References
- List of Tables (optional)
- List of Figures (optional)
- Acknowledgments
- Appendices

Begin each new chapter on a new page. Continue the text to the bottom of the page unless you are at the end of a chapter. Do not split references in your bibliography; always complete an entry on a single page.

General format

- Format: A4 (NOT Letter)
- Font: Arial, Times New Roman or similar,12 point
- Double spacing for the main body of the text
- Single spacing for title page, table of content, references and descriptions of figures and tables
- Left margin: 3 cm, right margin: 2.5 cm
- Alignment: justify
- New pages for each section (acknowledgment, abstract…)
- Pages numbered at the bottom in Times New Roman

It is recommended to hand in a draft of the master thesis to your first referee for corrections at least 3 weeks before the deadline.

Page Numbers

Page numbers should be either in the middle of the page or at the right margin.
Every page should have a page number printed on it, except the cover page and signature page. All pages should be paginated consecutively. The preliminary pages should be numbered in Roman numerals beginning with the Acknowledgments Page. The signature page is considered as page “I”, but it should not be numbered (if you are using MSWord make sure you have two breaks, one appearing before your first numbered preliminary page and the other appearing before your first numbered non-preliminary page).

Preliminary pages
Signature Page (counted in the page count but not numbered)
Acknowledgments (first page that is numbered with Roman numeral)
Abstract (numbered with Roman numeral)
Table of Contents (numbered with Roman numeral)
List of Tables (numbered with Roman numeral)
List of Figures (numbered with Roman numeral)

The first non-preliminary page is numbered 1. Continue with Arabic numbering throughout the entire body of the manuscript.
An example table of content can be found in the appendix.

Parts of the thesis

Cover Page

You can find two examples of cover page at the end of this document.

Signature Page

You can find a draft of first page at the end of this document.

Acknowledgements

On the Acknowledgment Page, the author expresses her or his professional and personal indebtedness, including any permission to use previously copyrighted material. Check your acknowledgements for grammar and spelling. This page should also be double-spaced.

Acknowledgments are written in a dignified and professional manner. When writing the acknowledgments, be sure that your use of “person” is consistent. If you begin with “the author”, use third person throughout. If you begin with the first person (I, me, my), use first person throughout.

Abstract

The Abstract should be a single paragraph between 200 - 350 words. The words in the heading do not count for the 350-word limit.

The Abstract should be comprehensible to readers before they have read the paper, and abbreviations and reference citations should be avoided. The overall aims of the paper should be briefly stated in this section.

The abstract should be written in English and German, the translation should not change the sentences.

Table of Content

Do not list the Cover Page, Signature Page or Table of Content pages in the Table of Content.

The page numbers for the following pages should all be in Roman numerals: the Acknowledgments, Abstract, List of Tables and List of Figures.

Double space between new levels of headings. The Introduction is the first page of the body of the manuscript and is numbered as page 1.

The basic rule is to strive for consistency. Do not mix organizational schemes: if you begin with decimal headings, use decimal headings throughout. If you list subordinate headings for one chapter, list them for all the chapters where they appear.

Titles should not run into the page number column.

All Appendices should have a title; they should appear in all capital letters. Do not designate an Appendix “A” unless there is an Appendix “B”. List Appendix titles with page numbers.

List of Tables/List of Figures

The List of Tables should always be placed before your List of Figures. All Table/Figure captions listed on your List of Tables/List of Figures should match their counterpart Table/Figure captions within your manuscript word for word.

Introduction

This briefly introduces the background of the research topic and outlines the current state of knowledge. It should point to the specific question of your study. It should therefore include, and lead to a clear statement regarding the Aims of the project.

Materials and Methods

This section describes how the methods used in the study was performed. Published methods should be referred to and need only a brief description identifying modifications made to published methods.

The used materials and methods should be presented in a logical order. Materials, which may include cells, organisms, special chemicals etc., should be described. Give

only essential details of preparation of reagents and solutions. Avoid recipe-type lists. It is essential that readers of the thesis are able to repeat your work from the description given, but avoid excessive details. Do not forget to mention the statistical methods you have used. Include brief comments, as appropriate, on safety procedures that are necessary for the safe conduct of the experiments.

Nomenclature, Abbreviations and Units

Authors should follow internationally accepted rules and conventions. Particular care should be taken with genetic nomenclature. The international system of units (SI) should be used; ml is acceptable in place of cm^3 for liquid measures. The preferred form for units is g mL^-1 and not g/mL. Multiplication of numbers should be indicated by a multiplication sign with spaces on either side (e.g. 6.2×10^8) a space should be inserted between numbers and the units (e.g. 10 mM) and between units by a space (e.g. mg L^{-1}).

Results

Keep this section to a statement of results, with supporting figures and tables, but provide linking paragraphs to say why you did the experiments. It is not necessary to present this section in the order in which you performed the work. However, a logical order should be followed.

The reader will only notice trends in Figures and Tables that you bring to his/her attention so make sure to refer to them within the text ("see Fig. 2"; "As shown in table 3" etc.).

This section is not the place for judgment or discussion of your results! Accordingly, avoid referring to literature in this section, except where it is essential to explain why you moved on to another approach. The text in the results section should be continuous i.e. do not insert page breaks after each result´s sub-section.

Figures and Tables

Both should be included in the text body. Figures and Tables should be equipped with a title and a legend. The title should summarize the content of the figure or the table. Legends should give all keys to symbols and should explain error bars. If an experiment was done three times, this should be stated. If data were averaged to give information shown in the graph, this has to be stated as well.

Most systems have several controls, it is important that the reader understands what you mean by the term. In particular, never talk of **the** control; it suggests that you can only think of one.

Within a table or figure, you can use a different font compared to the rest of your manuscript as long as the font size is readable in the final size of the figure. Margins for Tables and Figures should be the same as for the rest of the manuscript. The font size of the captions, numbers, and page numbers on pages with a table or figure should match the font size of the rest of the manuscript. Tables and figures should be numbered in a consistent manner, using Arabic numbers (1, 2, 3) and should match what is listed on your List of Tables or List of Figures. They should either be numbered sequentially throughout the document (1, 2, 3), or within chapters and appendices (1.1, 1.2, A.1, A.2). If you use the `within chapter numbering option´, use this option throughout the entire manuscript. You should use a consistent numbering sequence for both tables and figures.

See Appendix for examples of proper figures and tables.

Discussion
In this section you make connections with the literature, speculate on overall mechanisms and suggest extensions of your experiments. Make sure your discussion is not a reiteration of results. You should discuss what your results mean and place them in the context of published material.
Include suggestions for possible future work. Note that if your practical work yields few results, you should still contribute a full and thoughtful discussion section; why might experiments not have worked; how your (negative) results can be interpreted in the context of the literature.

Citing
In the text a reference should be cited by author and date, e.g. 'Water is known to boil at 100°C (Jones and Brown, 1872; Brown *et al.*, 1873) and freeze at…' Not more than two authors may be cited per reference; if there are more than two authors use *et al*. References cited in the text should be sorted by first by publication date (latest first) and then alphabetically.

References
If you want to use a citing program, EndNote is recommended (Citavi is known for problems).
Make sure that you have read the references you quote and that the reference list is accurate.
References should be listed alphabetically according to the initial letter of the surname of the first author. If the same authors have published more than one paper, list them in the order in which their papers appeared. If necessary use a and b e.g. 1990a.
References should include, in the following order: authors' names; year; article or chapter title; editors (books only); journal or book title; name and address of publisher (books only); volume number and inclusive page numbers.
The name of each journal should be abbreviated according to the World List of Scientific Periodicals and italicized. References should therefore be listed as follows:

Tugendreich, S., Bassett, D.E., Jr, McKusick, V.A., Boguski, M.S. and Hieter, P. (1994) Genes conserved in yeast and humans. *Hum. Mol. Genet*., 3, 1509-1517.

Gehring, W. (1994) A history of the homeobox. In Duboule, D. (ed.), Guidebook to the Homeobox Genes. Oxford University Press, Oxford, UK, pp. 1-10

Lewin, B. (1994) Genes V. Oxford University Press, Oxford, UK.

Appendices (optional)
Appendices are useful, particularly as a place for explanations, which are too long for the main text and for documents, charts, copied forms or data sheets related to the main text.
All Appendices should have a title. All appendix titles (with the exception of when only one appendix is used) should have an alpha assigned to them (A, B, C). Appendices should have headers, which are formatted exactly as chapter headers. Appendix subheadings should not be listed on the Table of Contents.

TECHNICAL NOTES ON THESIS PRODUCTION

1. It is important to produce clear, well-planned diagrams, which should appear in the text at appropriate size. If you intend to reduce the size of diagrams to half the size of the original, lines and lettering in the original should be twice the size you require in the final copy. Avoid fine shading or stippling that will not reproduce well. Note that large areas of solid black do not copy well.

2. Make back-up copies of your computer files/disks as you go along. Computer problems will not be accepted as an excuse for late submission.

3. Be careful of your use of punctuation. In general, titles and headings do not require full stops. Use a spellchecker on your computer where possible.

APPENDIX

Examples of Front Page
Draft for the First Page
Example of a Table of Content
Example of Figure with Legend
Example of Table with Legend

RUHR-UNIVERSITÄT BOCHUM

New Strategies of Immunohistochemical Study of Apoptotic mechanisms in the Cell Therapy for Heart Diseases

by

Michaela Mustermann

Thesis submitted to

Ruhr University Bochum

Medical Faculty

For the degree of

Master of Science

Molecular and Developmental Stem Cell Biology

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Presented April 16, 2003

Commencement May 2003

Approved:

First Referee (Thesis Advisor)

Second Referee

Head of Examination Board

I understand that my thesis will become part of the collection of the Ruhr University Bochum. My signature below authorizes release of my thesis to any reader upon request. I also affirm that the work represented in this thesis is my own work.

Michaela Shouldermann; Author

TABLE OF CONTENTS

Page

Example of Figure with Legend

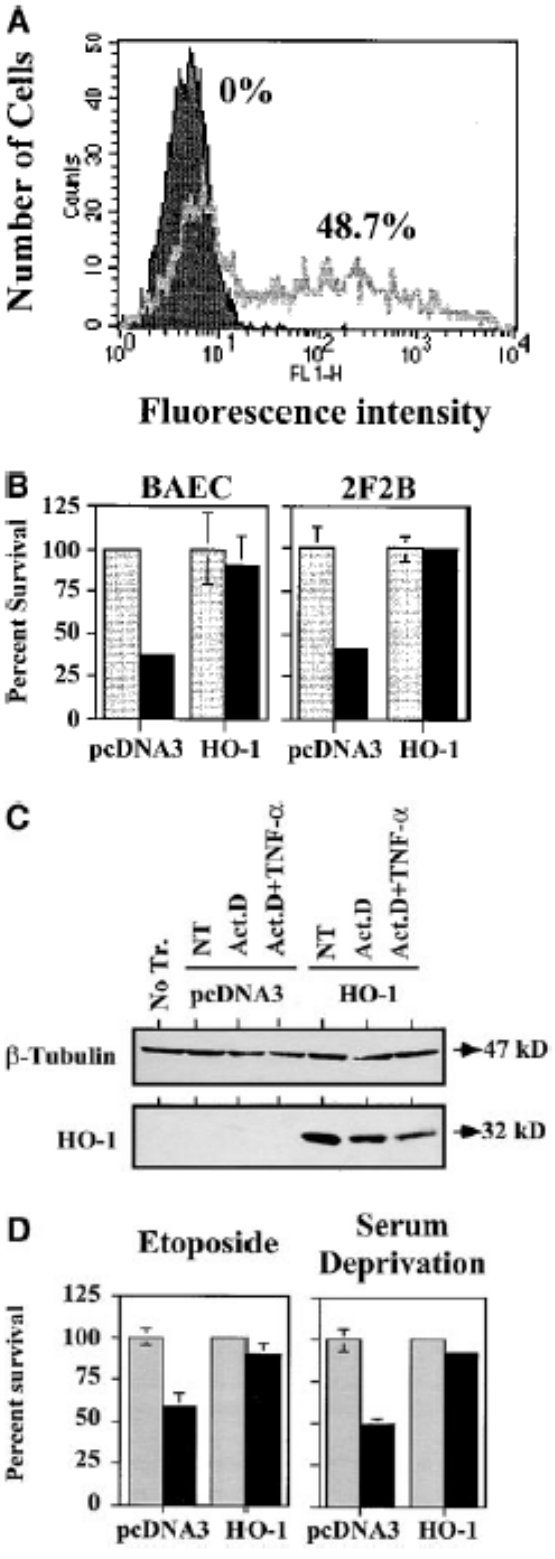

Figure 1. HO-1 suppresses EC apoptosis. (A) 2F-2B ECs were transfected with a GFP-expressing plasmid and monitored for GFP expression by flow cytometry. The percentage of transfected ECs was assessed by measuring fluorescence intensity in ECs transfected with control (pcDNA3; filled histogram) versus GFP (open histogram) expression plasmids. (B) ECs were cotransfected with b-galactosidase plus control (pcDNA3) or HO-1 (b-actin/HO-1) expression vectors. EC apoptosis was induced by TNF-α plus Act.D and apoptosis of ß-galactosidase–transfected ECs was quantified. Gray bars represent ECs treated with Act.D and black bars represent ECs treated with TNF-α plus Act.D. Results shown are the mean 6 SD from duplicate wells taken from 1 representative experiment out of 10. (C) HO-1 expression was detected in BAECs by Western blot. No Tr, nontransfected. NT, nontreated. (D) 2F-2B ECs were cotransfected with ß-galactosidase plus control (pcDNA3) or HO-1 (ß-actin/HO-1) expression vectors. Gray bars represent untreated ECs and black bars represent ECs treated with etoposide (200 mM, 8 h) or subjected to serum deprivation (0.1% FCS for 24 h). Results shown are the mean 6 SD from duplicate wells taken from one representative experiment out of three independent experiments. Similar results were obtained using BAECs.

Example of Table with Legend

Table 1. Plasmid sets used to produce influenza virus from cloned cDNA*

	Experiment							
	1	2	3	4	5	6	7	8
RNA polymerase I plasmids for†								
PB1	+	+	−	−	−	−	−	−
PR8-PB1	−	−	+	+	+	+	+	+
PB2	+	+	+	+	+	+	+	+
PA	+	+	+	+	+	+	+	+
HA	+	+	+	+	+	+	+	+
NP	+	+	+	+	+	+	+	+
NA	+	+	+	+	+	+	+	+
M	+	+	+	+	+	+	+	+
NS	+	+	+	+	+	+	+	+
Protein expression plasmids for								
PB1	+	+	+	+	−	+	+	+
PB2	+	+	+	+	+	−	+	+
PA	+	+	+	+	+	+	−	+
NP	+	+	+	+	+	+	+	−
HA	−	+	−	+	+	+	+	+
NA	−	+	−	+	+	+	+	+
M1	−	+	−	+	+	+	+	+
M2	−	+	−	+	+	+	+	+
NS2	−	+	−	+	+	+	+	+
Virus titer, pfu/ml	7×10^3	7×10^3	1×10^3	3×10^4	0	0	0	0

*293T cells were transfected with the indicated plasmids. Twenty-four (Experiments 1 and 2) or 48 hr (Experiments 3–8) later, the virus titer in the supernatant was determined in MDCK cells.

†Unless otherwise indicated, plasmids were constructed with cDNAs representing the RNAs of A/WSN/33 virus.