

The Effect of Space Travel on Immune System Gene Expression

John Smith

Thesis submitted for the degree of
Master of Science in Bioinformatics

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Preface

I would like to thank everybody who kept me busy the last year, especially my promotor and my assistants. I would also like to thank the jury for reading the text. My sincere gratitude also goes to my wife and the rest of my family.

John Smith

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Abstract

The **abstract** environment contains a more extensive overview of the work. But it should be limited to one page.

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Abbreviations

LoG	Laplacian-of-Gaussian
MSE	Mean Square error
PSNR	Peak Signal-to-Noise ratio

Symbols

42	“The Answer to the Ultimate Question of Life, the Universe, and Everything” according to [?]
c	Speed of light
E	Energy
m	Mass
π	The number pi

Chapter 1

Introduction

1.1 History of Long Term Space Travel and Space Analogs

1.1.1 Year in Space

1.1.2 Space Analogs

Concordia Platform

Mars 500

1.2 Space travels relationship to immune system gene expression changes

1.2.1 How does space travel effect immune system gene expression?

1.2.2 Why does space travel effect immune system gene expression?

Radiation

Micro-gravity

Stress

Hypoxia

Microbial Contamination

Sleep disruption

Insufficient Nutrition

1.3 Microarray Analysis

1.3.1 How do microarrays work?

Affymetrix Microarrays

1.3.2 How do you analyze microarray data?

R Bioconductor Project

Oligo Package

RMA Normalization

1.4 Statistical Analysis

Master thesis filing card

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Abstract:

Here comes a very short abstract, containing no more than 500 words. \LaTeX commands can be used here. Blank lines (or the command \par) are not allowed!

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