

WEDNESDAY, NOVEMBER 21, 2018

9:00 Introducing participants & Expectations

9:15 Introduction into descriptive statistics

Overview: Measures of central tendency and spread, i.e.

- Arithmet. mean, range, standard deviation, standard error, confidence interval for the mean
- Median, interquartile range, confidence interval for the median

Explanation of the requirements for statistical parameters

Which measure for what purpose?

10:15 Introduction into using the program

Data organisation in GraphPad Prism

Computing descriptive statistics in GraphPad Prism

Differences to other statistical programs

11:00 Coffee Break

11:15 Creating simple graphs in GraphPad Prism

Available diagram types:
Histogramm, scatterplot; boxplot; barplot
Mean +-“error bars”

Diversity of „error bars“:
range, SD; SEM; CI

Explanation: Which graph type for what purpose?

12:15 Lunch Break

13:00 Introduction in inference statistics:

Overview: Theory and diversity of statistical tests

WEDNESDAY, NOVEMBER 21, 2018

1. Comparing two groups

A: Checking the requirements

- Visual inspection of scatterplots and histograms
- Tests of Normality and of outliers
- Tests of homogeneity of variances

B: Comparing paired and unpaired groups:

- t-Test
- Mann-Whitney U-Test, Wilcoxon – matched pairs signed rank test

2. Checking three or more groups - Overview

- Oneway-ANOVA – analysis of variance and post hoc-Tests
- Kruskal-Wallis –Test (Oneway-ANOVA of ranks and post hoc-Tests)

Which Test for what purpose? Which requirements?

14:00 Using GraphPad-Prism

Comparing two groups, tutorial data sets from GraphPad Prism

t-Test

Mann-Whitney U-Test

Wilcoxon – matched pairs signed rank test

15:00 Coffee Break

15:30 Graphs for comparisons of two groups

Boxplot and arrows for significance and labeling

Editing of simple graphs

Using GraphPad-Prism

16:30 Option 1 Questions for this day

THURSDAY, NOVEMBER 22, 2018

9:00 Comparing three or more groups: Analysis of variance (ANOVA)

Oneway-ANOVA and post hoc-Tests

Kruskal-Wallis–Test (Oneway-ANOVA for ranks and post hoc tests)

Repeated measure – design

10:15 Introduction and data organisation in GraphPad Prism for Oneway-ANOVA

11:00 Coffee Break

11:15 Linear regression – analysing relations between numeric x and y-values and their graphing

- Importance
- Procedures
- Graphs

12:15 Lunch Break

13:00 Criteria for good scientific graphs

Diversity of graph types – advantages and disadvantages

Requirements and use

Graphs for small and large data sets

14:00 Editing of graphs

Procedures

Graphs tutorial and graph Portfolio of GraphPad Prism

15:00 Coffee Break

15:30 Option 3 Introduction into Non linear regression (Enzyme kinetics, Michelis-Menten kinetics, ELISA etc.)

THURSDAY, NOVEMBER 22, 2018

Theory and using the program

15:30 Option 3 (wish of 83 % of participants)
Introduction into Non linear regression
(Enzyme kinetics, Michelis-Menten kinetics, ELISA etc.)

Theory and using the program

16:30 Non linear regression – further topics and using the program

Questions

Specific questions

FRIDAY, NOVEMBER 23, 2018

9:00 Speeding up the workflow (Data analysis and graphs for test series – from prototype to serial production)

10:15 Introduction into the program and data organisation in GraphPad Prism for serial production

11:00 Coffee Break

11:15 Option 1 (wish of 66 % of participants)
GraphPad Tutorial and Internet help:

Examples and tutorial data sets for analyses and graphs

Don't panic - How to use the help pages of GraphPad Prism

12:15 Option 2 (only if there is enough time)
Analysis of frequency data (counts; chisquare tests etc.)

- Importance
- Procedures
- Graphs

13:00 Farewell

VENUE

Intercity Hotel - Berlin Hauptbahnhof
Raum 9

Katharina-Paulus-Straße 5, 10557 Berlin

ABOUT THE TRANSREGIO 130 AND THE INTEGRATED RESEARCH TRAINING GROUP

The DFG has been supporting the collaborative research center grant Transregio 130 (TRR130) „B cells: Immunity and Autoimmunity“ since 2013. The research consortium, which assembles B cell immunologists from academic institutions in Freiburg, Berlin, Göttingen, Ulm and Erlangen, aims to better understand the function and dysfunction of B cells. B cells are an important part of the human immune system. When pathogens invade the body B cells are activated and differentiate into plasma cells that produce pathogen-fighting antibodies.

In particular, members of the TRR130 examine mechanisms that control the activation of B cells and the production of protective antibodies. The consortium also aims to elucidate how B cells with autoreactive antigen receptors are activated to produce tissue-destructing autoantibodies with the long-term goal to develop new therapeutic strategies against antibody-mediated autoimmune diseases (e.g., rheumatoid arthritis or systemic lupus erythematosus).

An integrated research training group (IRTG) “B cells and beyond” was established within the TRR130 to train highly skilled and internationally competitive immunologists and to foster interaction within and between the five participating cities. The program consists of strong research and training modules as well as a mentoring and career development concept. In addition, the IRTG provides platforms, e.g., an annual B Cell Winter School as well as Interregional and local B cell clubs for an intensive exchange between TRR130 members.

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Supported by

DFG Deutsche
Forschungsgemeinschaft



TRR 130
B cells: Immunity
and Autoimmunity

Introduction into Statistics with GraphPad Prism

Dr. Helmut Schlumprecht
Statistik-Service Schlumprecht

November 21 - 23, 2018
Berlin

