

From Cts to p-value

Three-Day Biostatistics Course



Application oriented analysis of data obtained by real-time PCR

The participants are encouraged to bring their own experimental data!

➤ *Objective*

The objective of this course is to provide an understanding of data processing and statistical methods applicable for analysis of data obtained by real-time PCR. A key ingredient in the course is practical exercises based on real data, including data sets provided by participants. The common experimental designs are introduced and data from such studies are analysed by participants under the supervision of instructors. Throughout the course participants will become familiar with most common experimental cases and self-create excel-based templates for data analysis which they bring home for their own use. In addition, an overview of suitable qPCR software tools will be given.

➤ *Content*

- Amplification process
- Threshold level and the Ct value
- Computation of the Copy number
- Computation of the expression value
- Normalisation methods
- Selection and normalisation with housekeeping genes
- How to design experiment
- Good statistical practice
- Statistical theory briefly
- Statistical tests in analysis of real-time PCR data

➤ *Practical training*

For the practical training participants shall bring laptops with MS Excel installed. They will be provided with demo versions of the GraphPad InStat and MultiD GenEx software for more advanced statistical testing.

➤ *Content of the practical training*

- Design experiment to test a hypothesis: Open discussion under supervision of the instructors. Existing situations are introduced by participants and solved in groups.
- Software-supported selection of internal standard genes
- Normalisation by internal reference genes
- Decomposition of complex studies into experimental designs based on testable hypotheses.
- Two-group tests
- Multiple-group testing
- Trend (time/dose-response) analyses
- Multivariate gene expression profiling
- Analysis of participant's data under supervision

The course date and location will be announced on www.tataa.com