Multivariate statistical analysis of organ weight in toxicity studies

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Statistical models for standardized preclinical studies

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Technology management of the development of statistical methods and models for standardized preclinical studies.

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Continuous ecotoxicological data evaluated relative to a control response

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Projects:

**Consistency in Statistical Toxicity Testing**
Ph.D. Project no. 1214 Financier: ATV Ph.D. Student: Helle Andersen Development of models for consistent statistical methods in toxicity testing in pre-clinical experiments in the pharmaceutical industry. The work is aiming at the construction of a knowledge database containing information about selection of mathematical models and for example possible transformations, outlier tests and other statistical procedures for given types of studies.

Department of Informatics and Mathematical Modeling
Period: 01/11/1996 → 30/10/1999
Number of participants: 2
Project participant:
Andersen, Helle (Intern)
Project Manager, organisational:
Spliid, Henrik (Intern)

**Statistical methods and models for standardized toxicological and safety pharmacological studies.**
Project no.: 1214 Ph.D. project: ATV - Novo Nordisk A/S Ph.D. student: Helle Andersen During the last couple of years, a group of scientists at Novo Nordisk have developed a decision tree for the statistical analysis of toxicity data from studies with animals. Unfortunately the decision tree has been found to lead to inconsistencies as variables are often analyzed differently from study to study. Furthermore, it does not contain a test battery for the analysis of the dose-response relationship, or recommendations for the analysis of repeated measurements. An other shortcoming of the decision tree is that it does not contain recommendations for the statistical analysis of safety pharmacology data. My project has been initiated to overcome these problems. The purpose of the statistical work in the project is to evaluate existing basic experimental designs and matching statistical models in toxicological studies where statistical methodology has already been applied. The purpose of the statistical work is to establish a "knowledge data base" where experimental designs and empirical knowledge about biological variables determine the statistical model, and hence the statistical analysis. There is some empirical knowledge in the following areas (among others): - Transformation of data - Distribution of variables - Statistical tests for outliers - Statistical tests for homogeneity of variance - Statistical analysis of single and correlated variables - Statistical considerations of repeated measurements on individual animals In this way, variables will be analyzed identically from study to study, i.e. the statistical method will be identical for the same variable independently of study. But at the same time, statistical methods will be established to spot abnormalities (outliers) which could indicate some (important) adverse biological response.

Department of Informatics and Mathematical Modeling
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Number of participants: 1
Project Manager, organisational:
Andersen, Helle (Intern)

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**Statistiske metoder og modeller til analyse**
Department of Informatics and Mathematical Modeling
Period: 01/11/1996 → …
Number of participants: 2
PhD Student:
Andersen, Helle (Intern)
Main Supervisor:
Spliid, Henrik (Intern)

Financing sources
Source: Internal funding (public)
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