

## **The Role of Biostatistics in the Development and Validation of Alternative Methods**

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The technological advances to monitor the state and activity of cellular systems offer new possibilities for improving accepted alternative methods and for establishing new alternatives to animal testing. The selection from a multitude of potential toxicological endpoints, and the demand for an enhanced predictive power and high-throughput screening, represent a challenge for biostatistics. Biostatistical methods play an important role during all phases of the development and validation of alternative methods. Main targets of biostatistical support include the optimization of experimental design, the automated data processing, the data quality control (reduction of data variability), the analysis of dose-response curves, the selection of suitable endpoints for predicting toxicity, and the establishment of appropriate prediction models (Holzhütter et al., 1996, ATLA 24, 511–530). The visualization of experimental data, analytical procedures, and statistical results is an important aspect in providing a “common language” between the biostatisticians and experimental toxicologists. The present talk will give a brief overview on the application of biostatistical methods to ongoing research projects at ZEBET.