



**TITLE: Dynamic Borrowing for Virtual Control Groups: Adapting Robust Meta-Analytic Priors to Reduce Control Size and Enhance Precision**

**SPEAKER:** Andreas Schulz

Sanofi, Non-Clinical Efficacy and Safety Statistics, Frankfurt, Germany

**ABSTRACT:** Dynamic borrowing via a robust meta-analytic prior (rMAP) is investigated for adaptation to Virtual Control Group (VCG) analysis when a limited number of concurrent control group (CCG) animals is available. The objective is to evaluate whether this approach can effectively combine historical and concurrent data while accommodating between-study heterogeneity in historical control data, and whether it provides robust and reliable inference in settings with limited CCG sample sizes.

This methodology directly supports the Reduction principle of the 3Rs by enabling statistically rigorous non-clinical studies with fewer concurrent control animals, thereby advancing both scientific excellence and animal welfare.

This presentation is part of the VICT3R initiative, a European public–private partnership funded by the Innovative Health Initiative. The VICT3R project aims to reduce the use of laboratory animals in toxicology research by developing and implementing Virtual Control Groups based on historical control data, advanced statistical methods, and artificial intelligence.

**BRIEF SPEAKER BIO: Andreas Schulz** is a Non-Clinical Statistician Expert Leader at Sanofi in Frankfurt, Germany. He brings over 15 years of experience in biostatistics, data analysis, and R development. Andreas specializes in translating complex tasks into robust workflows that support informed decision making. He is currently working on AI implementation initiatives in the non-clinical domain, aimed at modernizing analytical workflows and strengthening data-driven processes in preclinical research.