

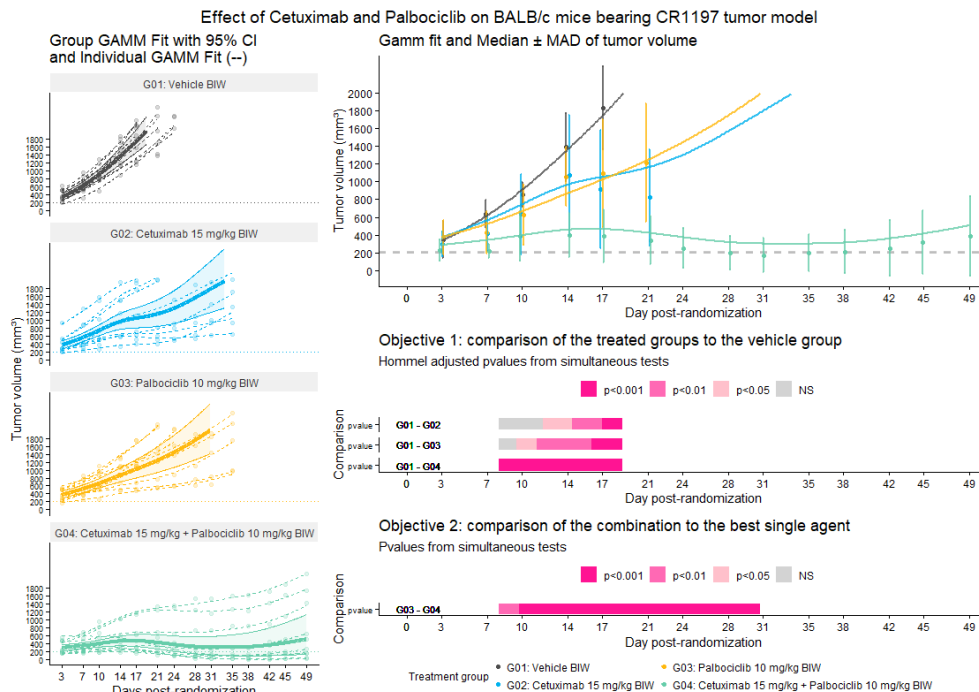


**TITLE: Flexible Modeling of Repeated Tumor Volume Data Using Generalized Additive Mixed Models.**

**SPEAKER:** Odile Coudert Berthion

**ABSTRACT:** Generalized additive mixed models (GAMMs) provide a unified and flexible framework for modeling repeated data. By combining fixed and random penalized splines, they allow the modeling of diverse growth patterns without making assumptions on their functional form. This presentation illustrates the application of GAMMs to repeated tumor volume measurements from a preclinical oncology study evaluating the combination of Cetuximab and Palbociclib in a colon patient-derived xenograft mouse model [1]. Practical aspects of model implementation and interpretation in R using the mgcv package are discussed. Statistical inferences are addressed through the use of simultaneous confidence intervals and their associated probabilities, enabling evaluation of treatment effects over time.

*Illustrations of Gamms' use*



[1] Data from : Binchen Mao, Sheng Guo; Statistical Assessment of Drug Synergy from In Vivo Combination Studies Using Mouse Tumor Models. Cancer Research Communications 2 October 2023; 3 (10): 2146–2157. <https://doi.org/10.1158/2767-9764.CRC-23-0243>

**BRIEF SPEAKER BIO:** Odile Coudert Berthion holds an MSc in Biostatistics from ISUP and an MSc in Public Health and Health Management from Université Paris Diderot. She is a non clinical statistician supporting the Research and Translational Science teams at Ipsen, with over 15 years of experience in preclinical statistics. Her expertise includes the application and training of mixed models and non-parametric analyses to address complex research questions.