

IN-SILICO TRIALS, ENRICHMENT, AND AUGMENTATION: METHODS AND APPLICATIONS

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MINI-SYMPOSIUM PROPOSAL

Keywords: *In-silico trials, Enrichment, Augmentation*

As in-silico modelling of biomedical devices and processes continues to advance, increasing attention is now developing towards their utility to aid clinical trials. The central themes are that some forms of in-silico assessment can aid clinical trials by: i) replacing some patients with virtual counterparts; ii) providing tighter confidences in the outcomes of the trials; and iii) specifically assessing either a wider range of population or specific subpopulations. The question of how such in-silico assessment is to be deemed credible and subsequently be used in augmenting the clinical trials remains, however, unanswered. This mini-symposium invites presentations that address methodological developments, frameworks, and bright ideas towards this research question, along with applications in any form and area of biomedical modelling. Topics of interest include, but are not restricted to, the following:

- Methodological frameworks for in-silico trials.
- Approximating population response through in-silico populations.
- Approaches to assess model credibility for the purpose of in-silico trials.
- Enrichment and/or augmentation of clinical trials through in-silico assessment.
- Mapping in-silico model outputs to clinical trial end-points and assessing equivalence between real and virtual patients.
- Creation of virtual populations and associated validation.
- Design of clinical trials (for. eg. Bayesian approaches) that combine in-silico and real patient assessment.
- Methods for statistical quantification of in-silico population response (MCMC, Stochastic collocation, etc.).
- Regulatory aspects of in-silico trials.
- Applications in any area of biomedical engineering/sciences.