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A tale of introducing optimal design to preclinical experimentalists

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To make the optimization of the preclinical experimental design a standard workflow in the compound selection studies, we have worked closely with preclinical experimentalists at AstraZeneca R&D in Mölndal. As a result, we have created a standalone software PopED lite to make optimal design accessible to the preclinical experimentalists. In this talk, we will share the challenges we have faced on introducing the idea of optimal design to actual experimentalists and explain how we have designed the software to overcome these challenges.

To design PopED lite, we have first assessed the necessary flexibility of the software for the use in preclinical experiment so that the software can be as simple as possible. Also we have investigated the level of accuracy needed for the practical use so that the software can suggest an optimal experimental design as fast as possible. Then, lastly, we have considered the background technical knowledge of a typical preclinical experimentalists so that the interface of the software is intuitive to users.

In order to demonstrate the use of PopED lite, we have conducted two retrospective analyses of already ran preclinical experiments, and demonstrated that by employing PopED lite, we could have reduced the use of animals, duration of experiment, and compound used while increasing the estimation accuracy of the compound potency. As a result, the preclinical experimentalists are more comfortable with the use of optimal design and now PopED lite is used to design preclinical experiments and has been contributing the accurate understanding of the compounds during the compound selection studies.

PopED lite is available from the following URLs:

<https://itunes.apple.com/us/app/poped-lite/id836277613?mt=12>

http://www.bluetree.me/PopED_lite.html