Dr Matt Segall, Optibrium, gave this presentation at the "Guiding Optimal Compound Design and Development Symposium" held in Cambridge, MA, USA on 19 March 2015.

Abstract

A high quality drug must exhibit a balance of many properties, including potency, ADME and safety. Multi-parameter Optimization (MPO) [1] methods guide the selection and design of compounds to identify those with the highest chance of success, while minimizing opportunities missed by inappropriately rejecting compounds. In drug discovery this is particularly challenging due to the complex, often conflicting nature of the property requirements, combined with uncertain data because of experimental variability or predictive error.

But, how do we know what the profile of property criteria should be for a specific project? The criteria will depend on the ultimate goal of the project, e.g. therapeutic indication and route of administration, and are typically chosen based on the subjective opinion of the project team. However, analysis of historical data, using methods called rule induction [2], can guide the determination of the most appropriate profile, which can then be used prospectively to prioritize new compounds.

In this presentation we will discuss practical approaches for deriving and applying multi-parameter property profiles to guide compound optimization, illustrated with applications to drug discovery projects.

References:

[1] M.D. Segall. Multi-Parameter Optimization: Identifying high quality compounds with a balance of properties. Curr. Pharm. Des. (2012) 18(9) pp. 1292-1310

[2] I. Yusof, F. Shah, N. Greene and M.S. Segall. Finding the Rules for Successful Drug Optimization. Drug. Discov. Today (2014) 19(5) pp. 680-687

You can download this presentation as a PDF .