New frontiers for peptide drug discovery in diabetes and obesity

Soren Ostergaard, Co-Author(s)

Novo Nordisk A/S, Global Research Chemistry, NNovo Nordisk Research Park, 2760 Maaloev, Denmark
sq@novonordisk.com

In recent years, advances in the synthesis of peptides and chemical biology have enabled the discovery and design of novel peptides with much improved pharmacokinetic and pharmacodynamic properties. In particular, the extension of the half-life of peptides has shown to be utmost importance that has unlocked unforeseen therapeutic potential of notably endogenous peptides within diabetes and obesity. Furthermore, dual agonist peptides are becoming a class of biologic drugs that can activate two or more different receptors in the body simultaneously, leading to even better efficacy. While endogenous peptides are playing an important role in the current pharmaceutical landscape and will do so for many years to come, there have been several exciting developments in the field of peptide display libraries that are expanding the scope and capabilities of these libraries. Also, strategies to combine mass spectrometry and quantification of binding affinities against peptide arrays are emerging as powerful tools within quantitative protein-protein interactions. In this presentation an overview will be given of the current peptide pharmaceutical landscape and, in particular, within diabetes and obesity. The opportunities and challenges of half-life extension technologies[1] that power this development will be presented and exemplified by case stories.

[1] P. Kurtzhals, S. Ostergaard, E. Nishimura, T. Kjeldsen, *Nat Rev Drug Discov* **2023**, *22*, 59–80