48Hour Discovery Pioneers Late-Stage Peptide Reshaping to Advance Drug Discovery

New Research Led by 48Hour Discovery Scientists Enables Efficient Conversion of Macrocycles into Bicyclic Peptides

EDMONTON, ALBERTA, CANADA, April 22, 2025 /EINPresswire.com/ -- A recent study published in the Journal of the American Chemical Society and highlighted in Nature Reviews Chemistry introduces a powerful new method for late-stage peptide reshaping, allowing macrocyclic peptides to be efficiently converted into bicyclic structures. This research, co-authored by scientists at 48Hour Discovery, including Founder & CSO Dr. Ratmir Derda, represents a major advance in expanding the chemical diversity and therapeutic potential of peptide-based drugs.

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> *Dr. Ratmir Derda*

Key Advances from the Study & Implications for Drug Discovery:
-A New Late-Stage Peptide Reshaping Strategy: Developed by Dr. Derda and colleagues, this approach uses a C□-symmetric linchpin KYL to precisely reshape macrocycles into bicycles, expanding molecular diversity.

-Bridging Phage Display and Chemical Modification: The method enables structural refinement of peptides after selection, overcoming limitations of traditional phage display techniques.

-Expanding Beyond Cyclization – Linker and Chelator Modifications: In addition to reshaping the peptide backbone, this approach enables late-stage installation of chelators, linkers, and other functional payloads to fine-tune peptide properties for imaging, targeted delivery, and therapeutic performance.

-Faster & More Scalable Optimization: The entire process requires only two days of hands-on work, making it one of the most efficient techniques for refining peptide therapeutics.

-A Transformative Approach for Drug Discovery: Late-stage reshaping identifies peptides with retained or enhanced binding properties, accelerating the development of optimized drug candidates.

This breakthrough aligns with 48Hour Discovery’s mission to push the boundaries of peptide drug discovery and optimization. By integrating this late-stage chemical reshaping into its proprietary phage display platform, 48Hour Discovery is further enhancing its ability to deliver novel peptide therapeutics.

"This work demonstrates how chemical reshaping can dramatically expand the diversity of peptide-based drugs," said Dr. Ratmir Derda, CSO of 48Hour Discovery. "By applying this method, we can not only improve existing peptides but also open entirely new possibilities for drug discovery."

The ability to chemically refine peptide libraries at a late stage provides a powerful tool for improving binding, stability, and therapeutic properties, offering new opportunities for pharmaceutical and biotech companies developing peptide-based therapies.

About 48Hour Discovery

48Hour Discovery, headquartered in Edmonton, is a pioneering biotechnology company that specializes in rapid drug discovery through its revolutionary peptide platform. By harnessing state-of-the-art technologies, the company quickly identifies and optimizes drug candidates providing an innovative approach to tackling unmet medical needs. Founded in 2017, 48Hour Discovery has validated its technology through strategic partnerships with over 25 companies, including global pharmaceutical leaders. Discover more about our groundbreaking initiatives at www.48hourdiscovery.com.

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