48Hour Discovery Reveals New Insight into Cellular Regulation: Breakthrough Discovery for Controlling Cell Activity

New peptide motif crucial for O-GlcNAc transferase (OGT) regulation discovered promises far-reaching implications for cell physiology and targeted therapies

48Hour Discovery is a leading peptide discovery company

EDMONTON, ALBERTA, CANADA, October 30, 2023 /EINPresswire.com/ -- 48Hour Discovery, a pioneer in the field of peptide discovery, has found a new key to understanding how our cells work. The secret lies within a cellular process called O-GlcNAcylation, which is essential for maintaining cell health. The discovery, in collaboration with Prof. David Vocadlo of Simon Fraser University, helped uncover a novel motif that plays a pivotal role in the regulation of O-GlcNAc transferase (OGT). The findings are detailed in a recent scientific paper published in the Proceedings of the National Academy of Sciences (PNAS) and promises to have far-reaching implications for cell physiology and the development of targeted therapies.

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> *Dr. Matthew Pratt, Professor at University of Southern California*

Understanding the regulation of O-GlcNAc transferase (OGT) is a subject of paramount interest within the scientific community. OGT is an important enzyme responsible for the modification of over a thousand proteins within your cells, maintaining their health and overall function. To delve deeper into this domain, the team at 48Hour Discovery joined forces in an academic collaboration with leading researcher Dr. Vocadlo that leveraged the company's extensive peptide libraries.

The scientists at 48Hour Discovery used their proprietary drug discovery technology to search for tiny pieces of proteins, known as peptides, that can interact with OGT protein. After rounds of

testing and exploration they unveiled a code, a specific sequence, that guides peptides to attach to OGT. When these peptides interact with OGT they can influence how it behaves. This is an exciting breakthrough because it provides us with a new way to control OGT and regulate the inner workings of our cells.

“These peptides, with their unique motif, could be leveraged to eventually develop new medicines and treatments for various health conditions. By understanding how OGT is controlled, we are moving closer to exploiting its functions to unlock new therapeutics.” Said Prof. David Vocadlo. “Understanding how OGT is regulated and discovering the specific motif that drives its interaction with peptides and protein partners is a significant breakthrough in the field.”

Dr. Matthew Pratt, Professor of Chemistry at the University of Southern California and leading expert in the field, highlights the significance of this discovery: “One of the long standing mysteries about O-GlcNAc is how it can modulate different cellular pathways when only one enzyme, O-GlcNAc transferase, is responsible for adding it to protein substrates. The display technology applied here brings us one step closer to answering this question by identifying a previously unknown interaction between O-GlcNAc transferase and potential substrates and therefore a new mode of substrate selection and regulation. This fundamental discovery will enable new research directions aimed at bridging this critical knowledge gap.”

This groundbreaking research highlights 48Hour Discovery's commitment to innovation and scientific excellence, showcasing their important role in advancing our understanding of fundamental biological processes and their potential impact on drug discovery. These findings not only enhance our understanding of biological processes but also opens doors to exciting possibilities in drug development.

“Our innovative phage display platform produced great results in this collaboration and demonstrates our ability to contribute to both fundamental and practical insights. Moving forward, we expect to collaborate with more scientists leveraging the versatility of our platform to unlock new discoveries across multiple fields.” Said Dr. Ratmir Derda, CSO of 48Hour Discovery.

For more information about this research or to access the complete scientific paper, please visit [https://www.pnas.org/doi/epdf/10.1073/pnas.2303690120].

About 48Hour Discovery
48Hour Discovery is a dynamic peptide discovery platform that has revolutionized drug discovery through its innovative approaches to peptide design. Leveraging cutting-edge technologies, the platform accelerates the identification and optimization of peptides with therapeutic potential, offering a novel pathway to addressing unmet medical needs. Established in 2017, the company has validated its technology platform securing partnerships with over 20

companies including global pharma and leaders in the radiopharmaceutical industry. For more information, visit www.48hourdiscovery.com

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