Differences in form affect function for fruit fly hormone receptors

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Video Byte

Keywords: Cell Communication and Signaling, germ cell-expressed protein, intrinsically disordered proteins, bHLH-PAS transcription factor, C-terminus, protein-protein interactions, FTZ-F1, *Drosophila melanogaster*, GCE, juvenile hormone, Methoprene tolerant protein, ligand binding domain, molecular recognition elements, Fushi Tarazu factor-1, protein functionality, JH, growth, development, METC, GCEC

Posted Date: November 12th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-107385/v1>

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Abstract

This is germ cell-expressed protein (GCE). Across the scientific literature, GCE is treated as equivalent to Methoprene tolerant protein (MET) as both are hormone receptors that prevent the premature development of the common fruit fly. But a new study indicates that subtle structural differences between GCE and MET contribute to functional distinctions that should make each protein a unique object of research. These differences lie along the long C-terminal fragments of the proteins, dubbed GCEC and METC. Structural characterization experiments suggest that GCEC is a long, asymmetrical, and coil-like intrinsically disordered protein. Compared with METC, GCEC is less compact, contains more molecular recognition elements, and is more susceptible to folding. That, according to NMR data, enables GCEC to interact with the nuclear receptor FTZ-F1. which can force GCEC to adopt a more fixed structure and different function than METC. The differences in the structure and function of GCE and MET are critical to consider as they could enable an improved understanding of intrinsically disordered proteins and regions.