

A journey towards PROTACs: A New Frontier in Targeted Protein Degradation for Disease Treatment

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Epigenetics plays a crucial role in shaping how our genes are expressed without altering the underlying DNA sequence.

A fascinating example of its importance is how genetically identical honeybee larvae can grow into either queens or worker bees depending on their diet, showcasing how environment and epigenetics can create vastly different outcomes from the same genetic blueprint.

Epigenetic regulation is essential for controlling gene expression, and its disruption is often linked to cancer and other diseases.

Two important pairs of proteins involved in these processes are CBP/EP300 and BAZ2A/BAZ2B, which play distinct roles in regulating how DNA is packaged and accessed in cells.

This lecture highlights the development of Proteolysis Targeting Chimeras (PROTACs), an innovative class of molecules designed to selectively degrade these proteins. PROTACs are a groundbreaking tool in modern medicine.

They work by hijacking the cell's natural protein-disposal system, redirecting it to target specific proteins for degradation.

By effectively and precisely degrading CBP/EP300 and BAZ2A/BAZ2B in cellular models, our group has contributed to the development of novel strategies to tackle the harmful effects of these proteins in diseases like cancer.