Bringing Chemistry to Life podcast series

Season 3: The 2021 C&EN's Talented 12
Episode 8: Drugging the undruggable

Episode abstract

Chemical biology is a relatively recent discipline that offers a new lens to observe, interact with, and alter biological phenomena. Chemistry opens the possibility to understand and alter biomolecules at the atomic level, ultimately influencing macroscopic biological phenomena.

Dr. Shanique Borteley Alabi has been thinking about how chemicals can influence humans ever since childhood observations of her grandfather at work in his pharmacy, in Ghana. She now uses chemistry to influence the interaction between cellular proteins by designing small molecules that work as "glues" for macromolecules.

She spent her PhD developing "proteolysis targeted chimeras" (ProTaC), the use of small molecules with affinity for both a specific protein target and for kinases that tag proteins to initiate their degradation. She now works on similar concepts to selectively initiate and promote the interaction between natural proteins with the objective of amplifying specific natural pathways to treat disease. This is the frontier of drug development, going beyond simple competitive inhibition and promising a way to develop drugs for undruggable targets.

About our guest

Shanique Borteley Alabi, PhD
Scientist at Monte Rosa Therapeutics

Shanique’s Recent Publications

- Major advances in targeted protein degradation: PROTACs, LYTACs, and MADTACs
- Androgen receptor degradation by the proteolysis-targeting chimera ARCC-4 outperforms enzalutamide in cellular models of prostate cancer drug resistance
- Mutant-selective Degradation by BRAF-targeting PROTACs
- Novel Mechanisms of Molecular Glue-Induced Protein Degradation

Shanique’s Content Recommendations:

- Sula (A book by Toni Morrison)
- The Bluest Eye (A book by Toni Morrison)
- This American Life (A podcast)
- The Hidden Brain (A podcast)
- King Promise (An Afrobeats musician)

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