Hunter College of the City University of New York
Department of Biological Sciences
Fall 2025 Inga Richter Seminar Series

Urko del Castillo, PhD
Department of Pharmacology
Weill Cornell Medicine

Unconventional Strategies to Inactivate Oncogenic Receptor Tyrosine Kinase Fusions

Research Summary: My research focuses on developing innovative therapeutic strategies to overcome drug resistance in receptor tyrosine kinase (RTK) fusion-driven cancers, which represent critical oncogenic drivers across multiple malignancies. By targeting the oligomerization domains of fusion proteins, which are essential structural elements that enable constitutive RTK activation through protein clustering, rather than the kinase domains where resistance mutations typically accumulate, we have demonstrated selective oncogenic inhibition. Our multidisciplinary approach integrates structural biology, protein engineering, and cancer therapeutics to systematically identify minimal peptide sequences that effectively interfere with the oligomerization of fusion proteins. This novel strategy addresses the clinical challenge faced by thousands of patients who develop resistance to conventional kinase inhibitors, offering new options for durable responses in ALK, RET, ROS1, and NTRK fusion-positive cancers.

12:30pm, Monday, Sept. 15, 2025
Hunter College 926HN
Host: Andy Wolfe