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Development of Antibody Drug Conjugates

Abstract: Antibody-drug conjugates (ADCs) represent a rapidly advancing class of biopharmaceuticals that combine the targeting precision of antibodies with the potent cytotoxic effects of chemotherapy agents. These engineered molecules are designed to selectively deliver therapeutic drugs directly to cancer cells, thereby minimizing collateral damage to healthy tissues and enhancing treatment efficacy. The development of ADCs is an inherently interdisciplinary endeavor that requires a deep understanding of chemistry, biology, and pharmacology. In this talk, we will explore the fundamental principles behind ADC design and function, with a particular focus on the chemistry of linkers that connect the antibody to the drug payload, as well as the variety of cytotoxic agents employed to induce cancer cell death. Additionally, we will examine the challenges that arise in the development of ADCs, including the optimization of stability, overcoming off-target toxicity, and addressing mechanisms of drug resistance that can limit therapeutic success. Finally, we will discuss recent breakthroughs and emerging strategies aimed at improving ADC performance, as well as the future potential of this innovative therapeutic approach in treatments beyond oncology.

Meet the Speaker
Seminar

2:15 pm, King 159
3:45 pm, King 159