



RESEARCH TOPIC CLI25

Uncover Molecular Mechanisms of Trastuzumab Resistance in HER2-Positive Breast Cancer

Research Area

Services Area

Clinical Unit name

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Abstract

Trastuzumab, a monoclonal antibody targeting the human epidermal growth factor receptor 2 (HER2), has revolutionized the treatment of HER2+ breast cancer (BC). However, the resistance to Trastuzumab remains a major clinical challenge. The primary objective of this project is to elucidate the molecular and cellular effects of HER2 inhibitor (HER2i) resistance in BC. We will employ an integrated approach involving genomic, transcriptomic analyses, patient-derived organoids (PDOs), and high-throughput drug screening to investigate the development of HER2i resistance and to uncover the underlying molecular mechanisms.

By utilizing PDOs derived from BC patients with HER2i resistance, we can closely mimic the patient's tumor biology and study the dynamic changes associated with HER2i resistance. Our genomic and transcriptomic analyses will identify genetic mutations, gene expression changes, and signaling pathways involved in resistance.

By integrating advanced molecular techniques with PDO models, our project aims to provide a deeper understanding of HER2i resistance and pave the way for more effective therapeutic interventions in HER2+ BC.

Scientific references

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Type of contract

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