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A short Review of Human Epidermal Growth Factor Receptor 2

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Abstract

Human epidermal growth factor receptor 2 (HER2), also known as ErbB2, is a transmembrane protein that belongs to the epidermal growth factor receptor family. It plays a crucial role in regulating cell growth, division,

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Fluorescence in situ hybridization (FISH): FISH is a molecular technique used to detect HER2 gene amplification in tumor samples. By labeling specific DNA sequences, researchers can identify and quantify gene amplification, a hallmark of HER2-positive cancers [4, 5]. Preclinical studies often involve the use of animal models, such as mice with HER2-driven tumor xenografs. These models allow researchers to evaluate the efficacy of HER2-targeted therapies and gain insights into tumor biology.

Molecular biology techniques: Techniques like polymerase chain react8.9y anr5tr(p)o6(q)trlhnarmploe t5es5t HE(r)]T850 Tw TmRNy aprqtl.5(e)-l(h a)3wah aloyin5resi(e)nimalina c(B)(les.)]T0950 Tw TT(lo)n8(

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approaches that maximize treatment e cacy while minimizing side e ects for patients with HER2-negative tumors. Research has shed light on the mechanisms of resistance to HER2-targeted therapies, revealing challenges in the long-term management of HER2-positive cancers. Understanding these mechanisms is vital for developing strategies to overcome treatment resistance and improve patient outcomes.

Structural and molecular understanding:

Structural and molecular studies have provided detailed insights into the architecture of the HER2 receptor and its interactions with therapeutic agents. is knowledge has facilitated the design of new HER2 inhibitors and deepened our understanding of the complex signaling pathways involved. In essence, the exploration of HER2 has not only revolutionized the treatment landscape for HER2-positive cancers but has also enriched our knowledge of cancer biology and the intricacies of targeted therapy. As research in this eld continues to evolve, it holds the promise of further re ning treatments, discovering novel therapeutic targets, and ultimately enhancing the lives of patients a ected by HER2-driven malignancies. e journey from HER2's discovery to the development of precision therapies underscores the remarkable progress achieved in the realm of cancer research and treatment.

Acknowledgment

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Con ict of Interest

None

References

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