Advancements in cancer imaging: receptor-targeted approaches for enhanced precision and therapy guidance

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STELLINGEN

behorende bij het proefschrift

Advancements in Cancer Imaging: Receptor-Targeted Approaches for Enhanced Precision and Therapy Guidance

1. Receptor-targeted imaging significantly improves the specificity and sensitivity of cancer detection compared to non-targeted modalities. (this thesis)

2. The integration of receptor-targeted imaging into theranostic platforms can personalize cancer treatment and monitoring in real-time. (this thesis)

3. Nanoparticle-based drug delivery systems offer superior control over pharmacokinetics, biodistribution, and tumor specificity compared to conventional chemotherapy formulations. (this thesis)

4. Receptor-targeted fluorescence imaging using GRPR and CCK2R-specific agents will enhance intraoperative tumor detection and support personalized image-guided surgery in rectal cancer. (this thesis)

5. Strong alignment between preclinical model systems and patient tumor biology including molecular and tumor microenvironment features is vital for reducing clinical trial failure rates in oncology drug development. From (Alexander Honkala et al., Nature review, 2022).

6. Nanoparticle delivery systems have shown significant promise in clinical applications, improving drug accumulation at tumor sites and reducing side effects; however, challenges such as biological barriers and scalability continue to limit their widespread success in routine cancer treatment. From (Zhang, Q., et al., J*ournal of Controlled Release*, 2023)

7. Cancer research continues to oscillate between simplifying frameworks and overwhelming complexity, yet the central challenge remains translating this biological knowledge into durable clinical outcomes. From (Weinberg, R. A, Cell, 2014).

8. The currently dominating experimental cancer research strategy is incomplete, while not necessarily incorrect it must be supplemented with novel approaches grounded in cancer's complexity. From (Anders Bredberg, Frontiers in Oncology, 2025)

9. Although researchers cannot control all challenges they encounter, they can actively shape their responses to obstacles, a principle highlighted by Angelou (2009); such adaptive strategies are essential for sustaining progress, fostering innovation, and achieving reliable outcomes across scientific disciplines.

10. Precision is not just for science; it's a way of thinking that means being clear, thoughtful, and responsible in everything we do.

11 Great science doesn't happen alone, teamwork turns ideas into breakthroughs.