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Nanoparticle-based combination drug delivery systems for effective cancer treatment

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STELLINGEN

behorende bij het proefschrift

NANOPARTICLE-BASED COMBINATION DRUG DELIVERY SYSTEMS FOR EFFECTIVE CANCER TREATMENT

1. Through the remarkable optical properties of lanthanide elements, its integration in chemotherapy drugs enables the possibility of simultaneous optical imaging detection and cancer treatment in the NIR-II window. (this thesis)

2. Lipids can drive the conversion of tumor-associated macrophages in the tumor microenvironment to an anti-tumor phenotype, implying that studies exploring lipid-based cancer immunotherapies are valuable. (this thesis)

3. The use of PLGA nanoparticles loaded with adriamycin and palmitic acid shows great potential for effective and comprehensive treatment of breast cancer by inhibiting tumor cell growth and modulating the tumor microenvironment. (this thesis)

4. Nanoparticle-based skin cancer therapy research with the help of a 3D skin modeling platform allows for a more intuitive comparison and analysis of nanoparticle penetration and therapeutic efficacy. (this thesis)

5. Nanocancer immunotherapy can reprogram the tumor microenvironment by modulating immune cells, tumor stroma, cytokines, and enzymes, and is expected to enhance anti-tumor immune responses. From Ton et al., Science, 2015

6. Lipids themselves hold promise as anticancer drugs and as key components of nanomedicines and lipid-based therapeutic carriers. From Christopher et al., Nature, 2007

7. Tumor-associated macrophages act as a double-edged sword in the tumor microenvironment, exerting both tumor-promoting and immune-suppressive effects. From Xiang et al., Nature, 2021

8. 3D dermal-epidermal skin equivalents can provide an in vitro model that mimics the complexity of the tumor microenvironment and allows for the study of tumor cells, and their interactions with surrounding tissues. From Jessica et al., Nature, 2020

9. Difficulties are catalysts of growth, and positivity and optimism are the driving forces of the soul. Only through perseverance and self-confidence can we create infinite possibilities.

10. Life is like a journey; we must strive for the best in every day. It encourages seizing the present moment and making the most of every opportunity. (Chinese saying)