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Oncolytic virotherapy - analysis, design, models

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ONCOLYTIC VIROTHERAPY

ANALYSIS, DESIGN, MODELS

Propositions

1. An ideal oncolytic virotherapy, inspired by Asimov's three laws of robotics, should demonstrate safety, efficacy and controllability.
This thesis, Chapter 1, 10
2. The approach determines the reliability of the outcomes. We need better-controlled trials to determine the efficacy of oncolytic virotherapy.
This thesis, Chapter 2
3. Engineering alphavirus-based replicons to encode cytokines ensures robust immune responses.
This thesis, Chapter 3
4. Alphavirus-based replicons reduce the immunosuppressive nature of tumor extracellular vesicles.
This thesis, Chapter 4, 5
5. Stromal cells and cancer cells are equally responsible for therapeutic resistance to virotherapy.
This thesis, Chapter 6,7
6. Sensitizing stromal cells for oncolytic virus infection or improving viral diffusion may improve tumor eradication but at a risk of healthy tissue toxicity.
This thesis, Chapter 7
7. Oncolytic virotherapy encoding potent and rapidly diffusing inflammatory signals promote anticancer T cell cytotoxicity throughout the tumor, resulting in tumor eradication.
This thesis, Chapter 8
8. Oncolytic virotherapy outcomes are not deterministic but stochastic.
This thesis, Chapter 7,8
9. "It takes a village." Various stakeholders active in the Dutch synthetic biology field should integrate in order to accelerate applications in areas of health, nutrition, and economy.
This thesis, Chapter 9 and African proverb
10. A river lacks control over its pace and path, yet it advances, and so should research.
This thesis, Chapter 10: Future perspectives