

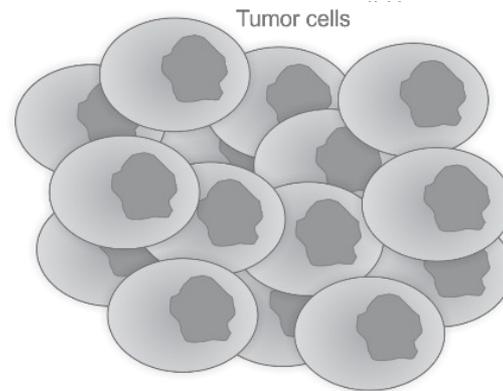
3D Tumor Models for Immuno-Oncology Assays

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Supported by: Fund Jean René Maisin

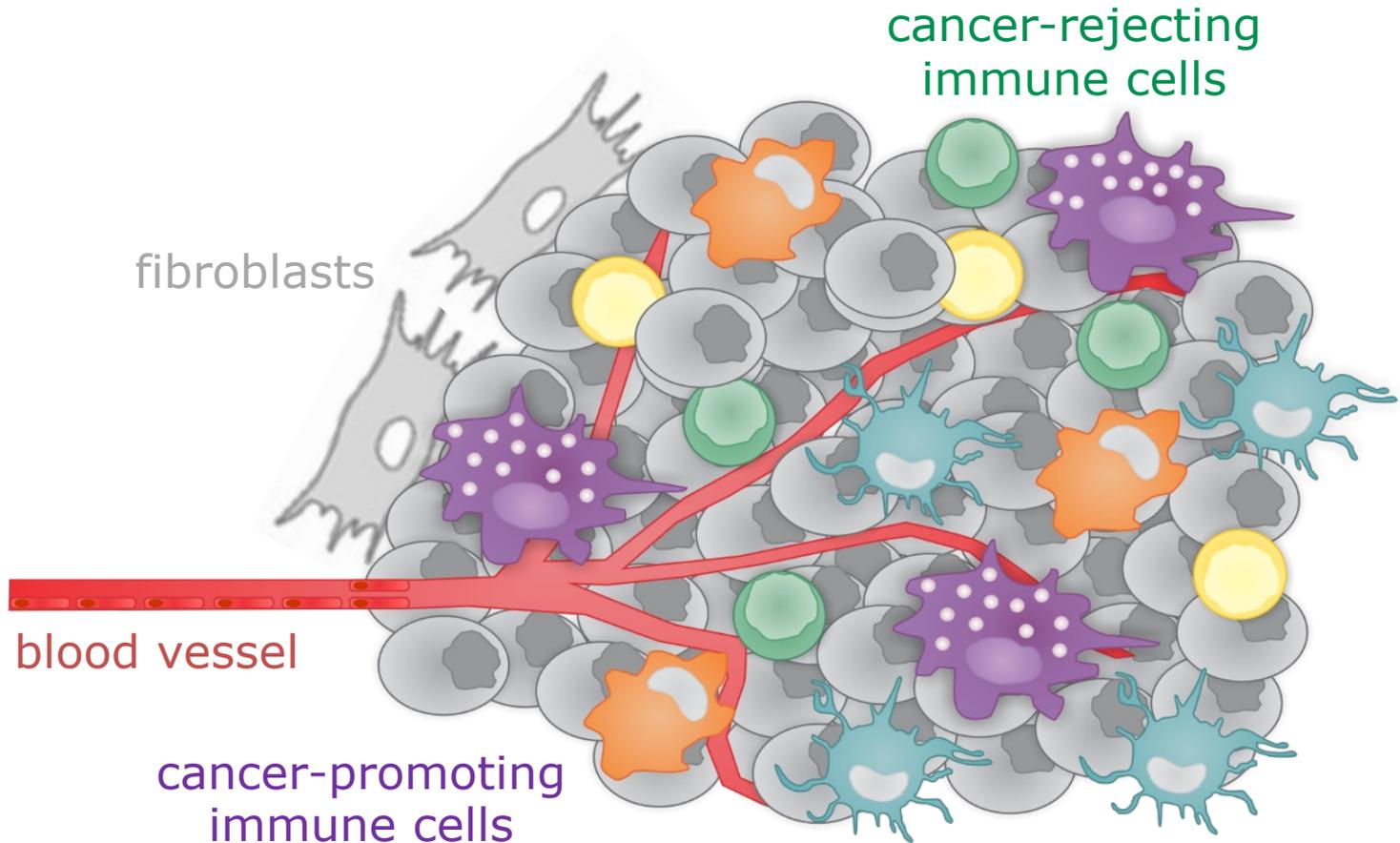
Tumors

complex tissues that interact with host cells

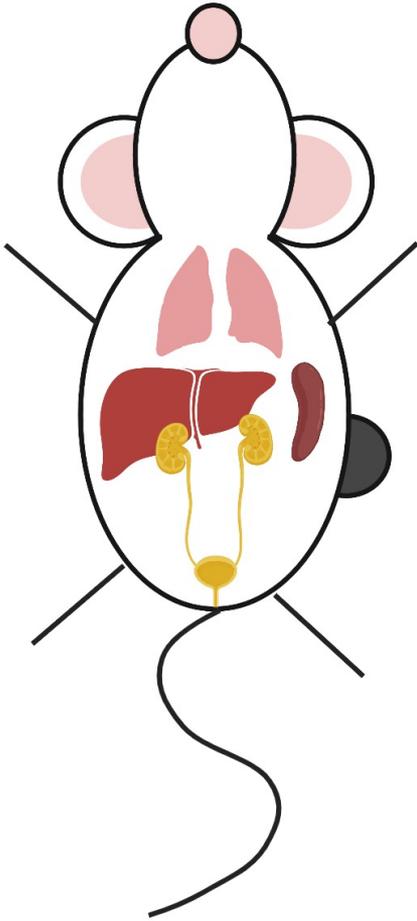


Tumors

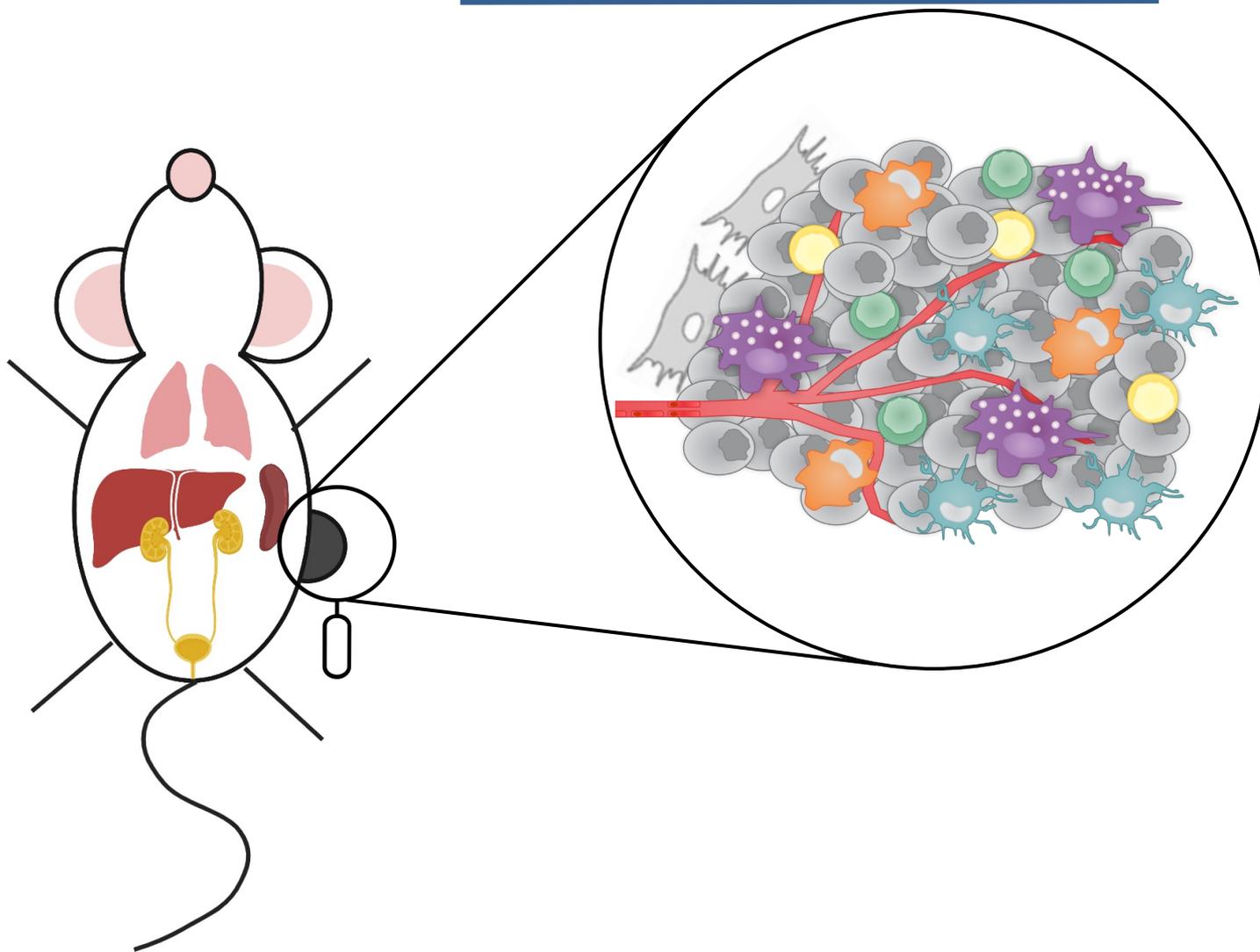
complex tissues that interact with host cells



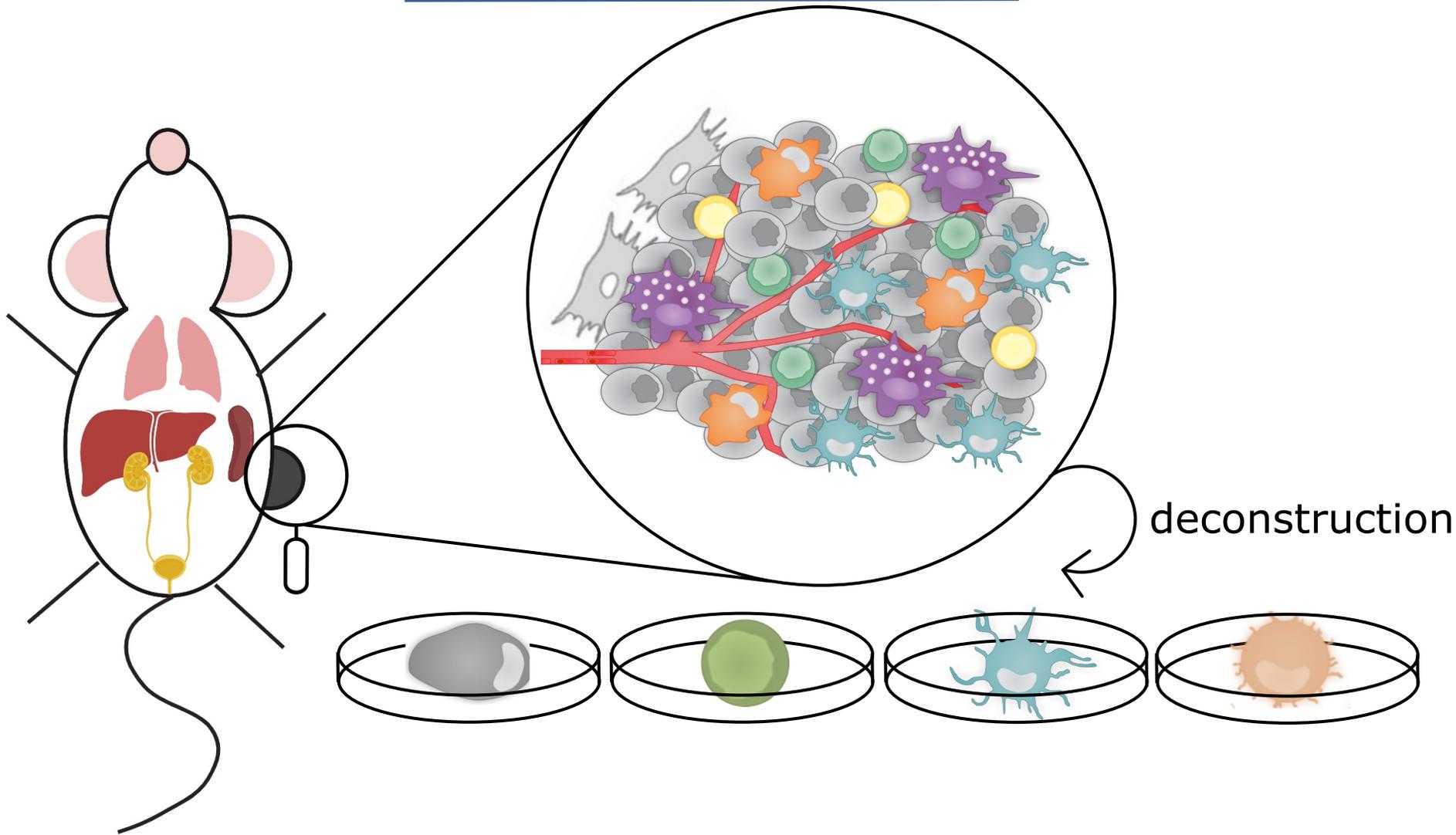
Immune-oncology research models



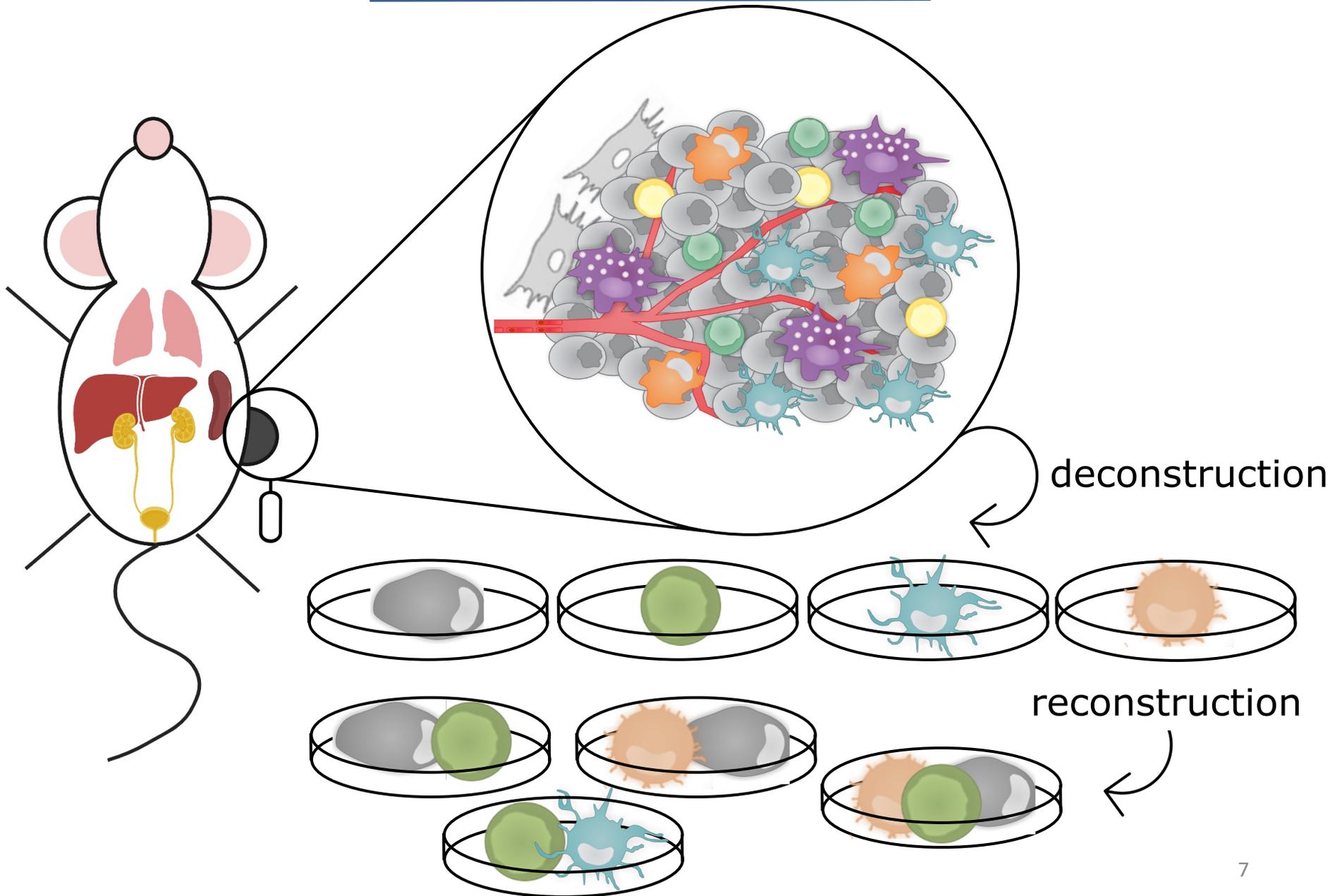
Immune-oncology research models



Immune-oncology research models

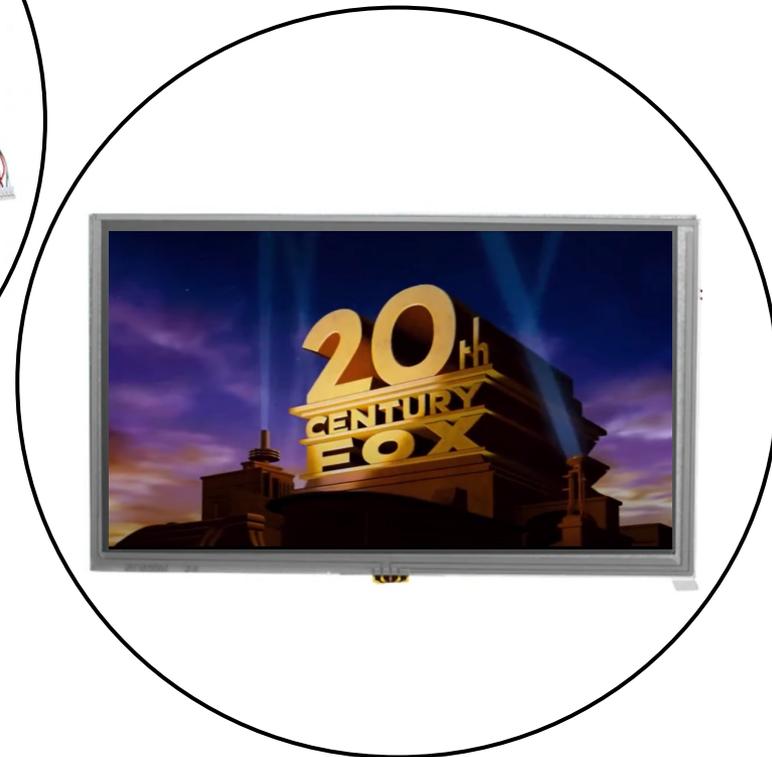
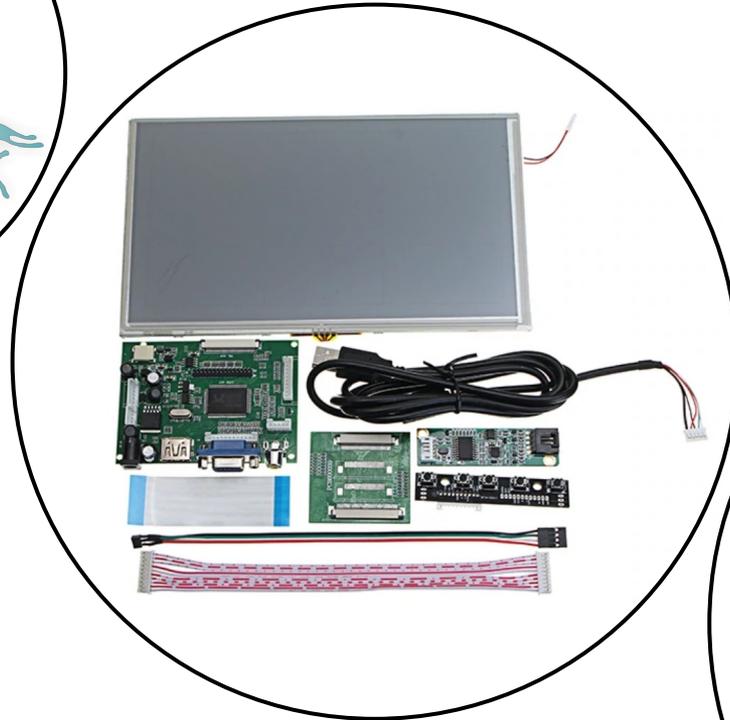
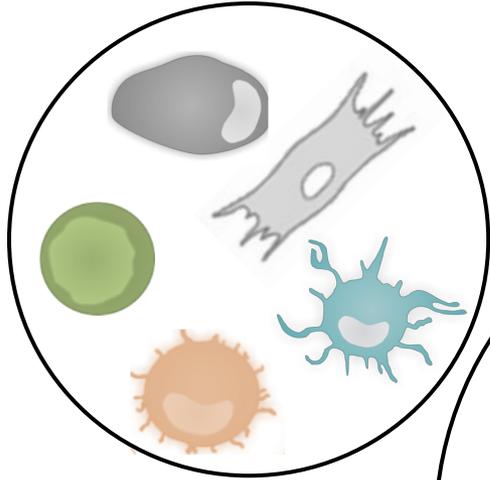


Immune-oncology research models



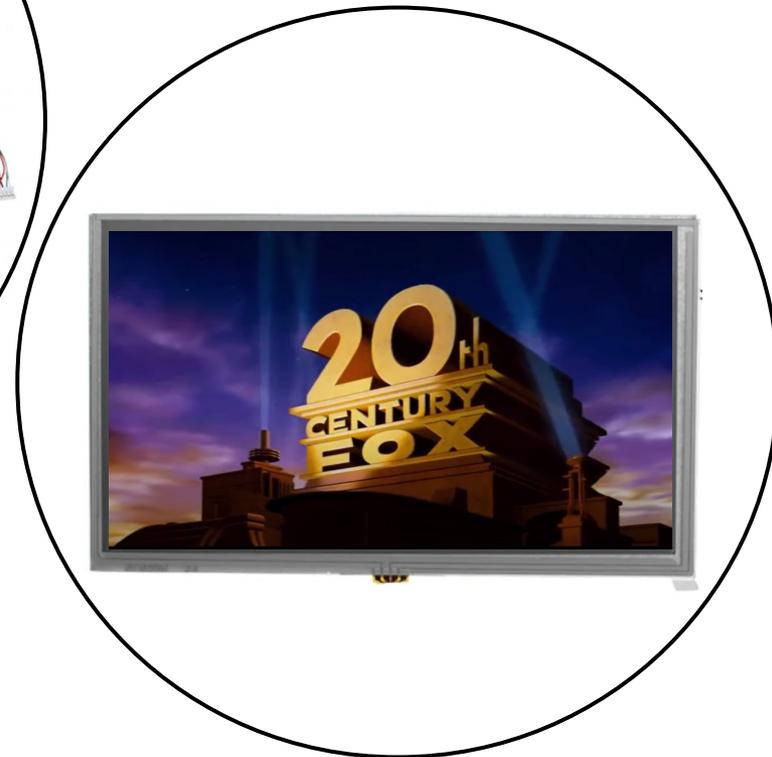
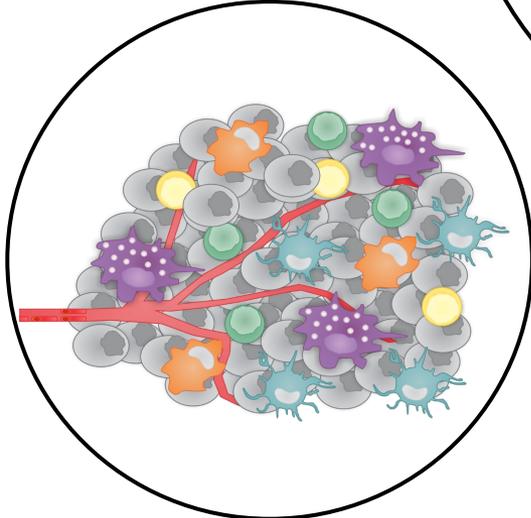
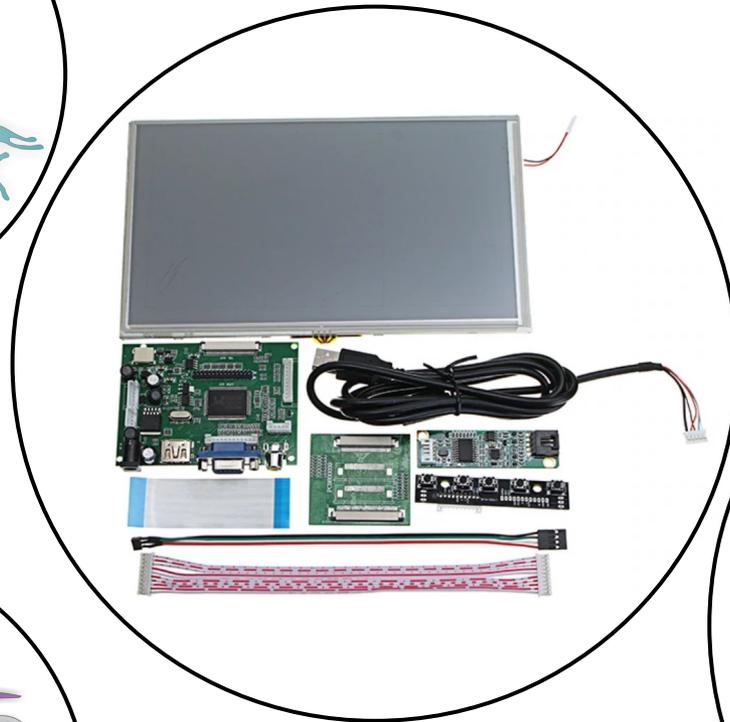
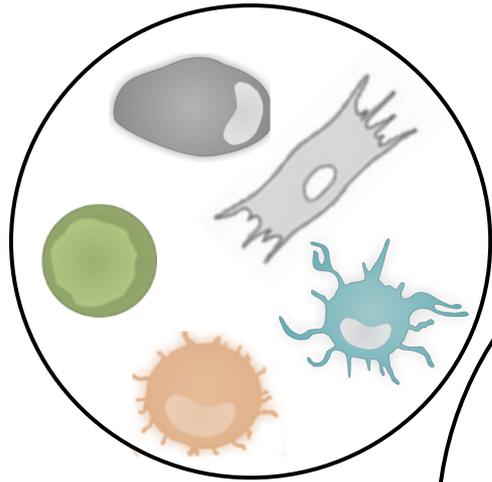
Immune-oncology research models

3D models



Immune-oncology research models

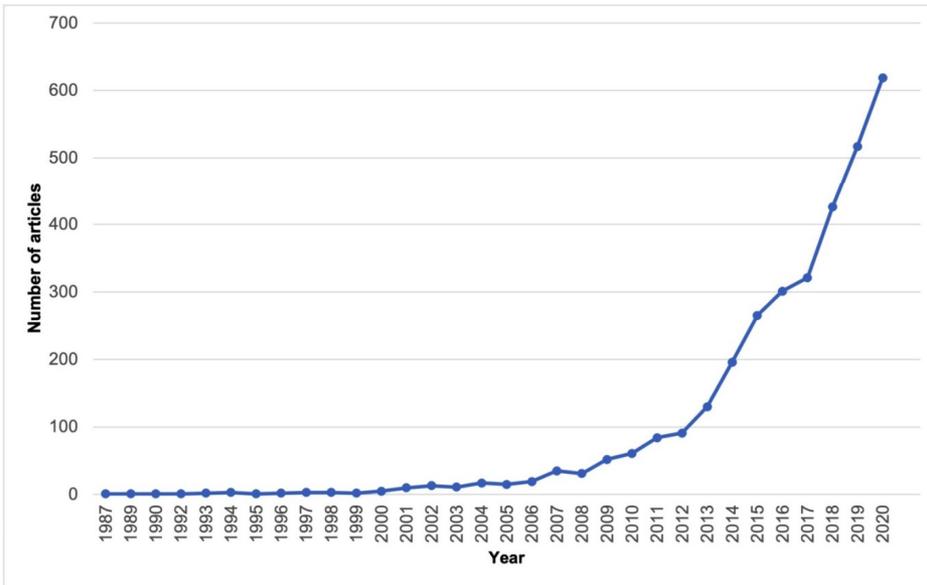
3D models



Immune-oncology research models

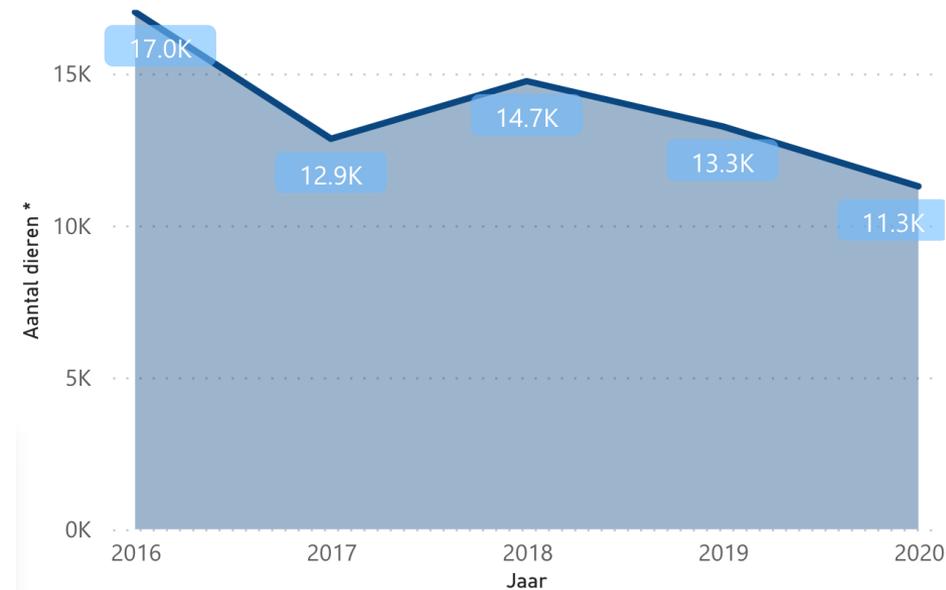
3D models are earning their place

Papers published on 3D in vitro tumor models



Martinez-Pacheco, Cancers (Basel), 2021

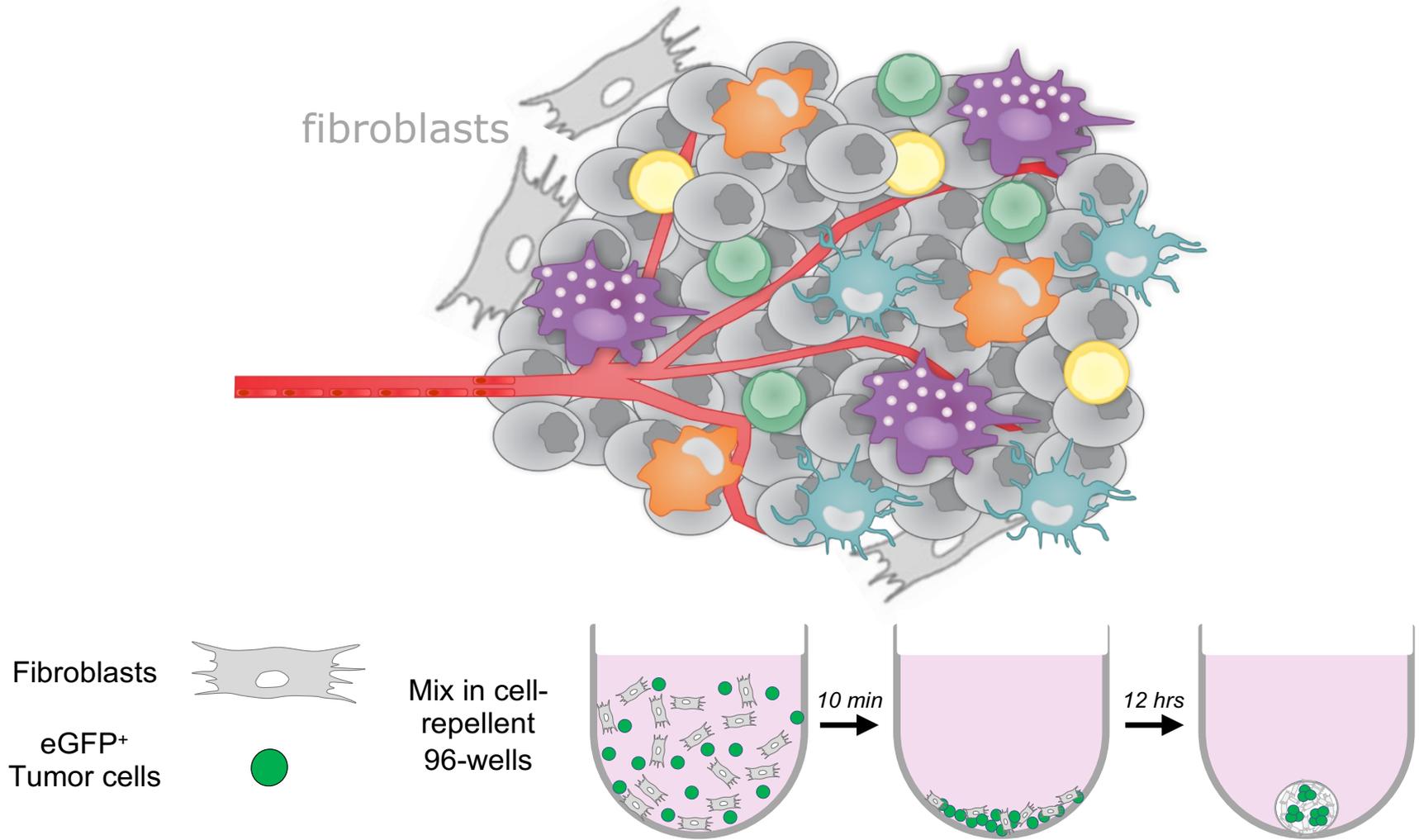
Use of laboratory animals



<https://dierproeven.vub.be/nl/cijfers>

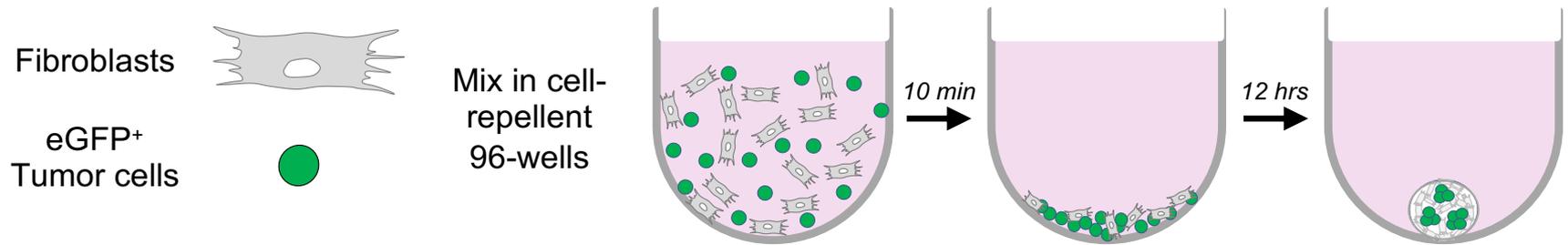
3D lung tumor model

Recapitulating the stromal tumor architecture



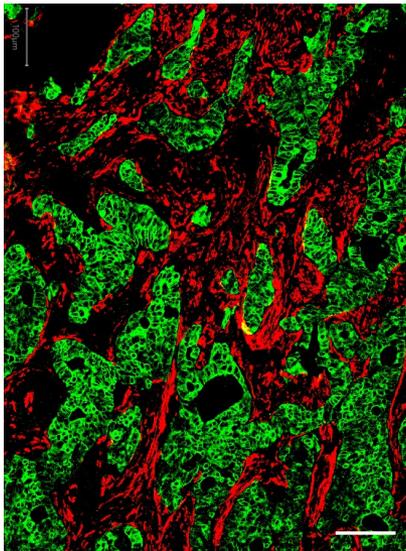
3D lung tumor model

Recapitulating the stromal tumor architecture

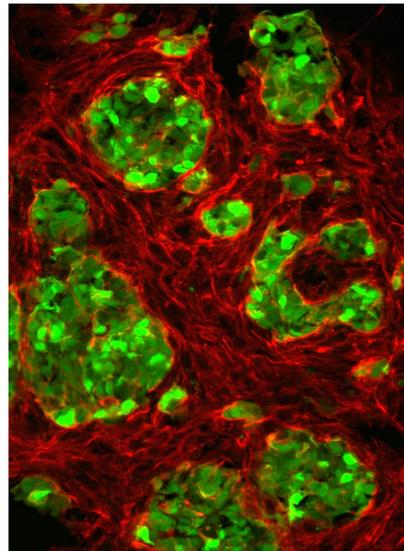


Confocal microscopy

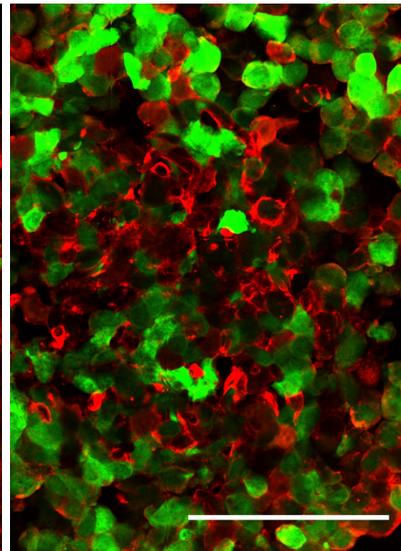
NSCLC patient biopsy



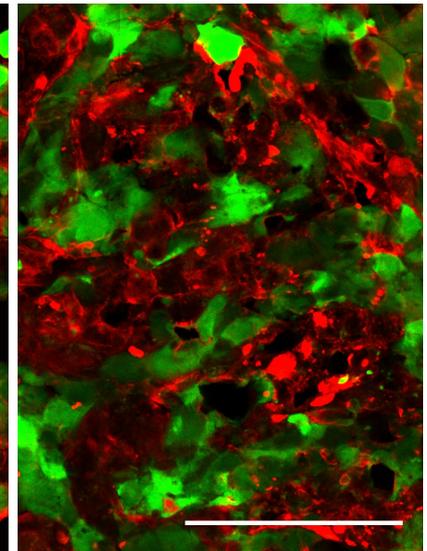
Murine KP spheroid



Murine LLC spheroid



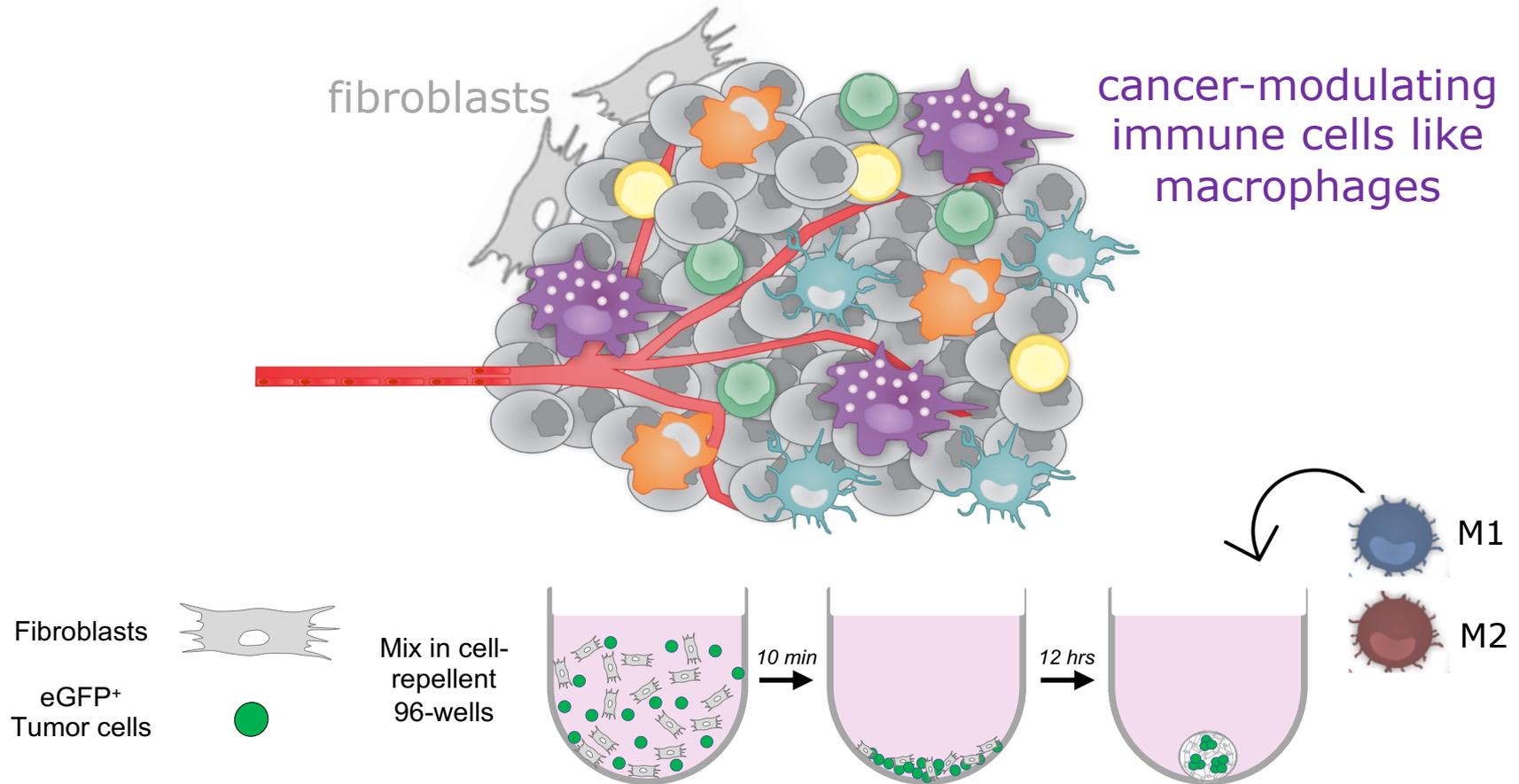
Human H1650 spheroid



3D lung tumor model

Applications in immune-oncology research

Infiltration of macrophages



3D lung tumor model

Applications in immune-oncology research

Infiltration of macrophages

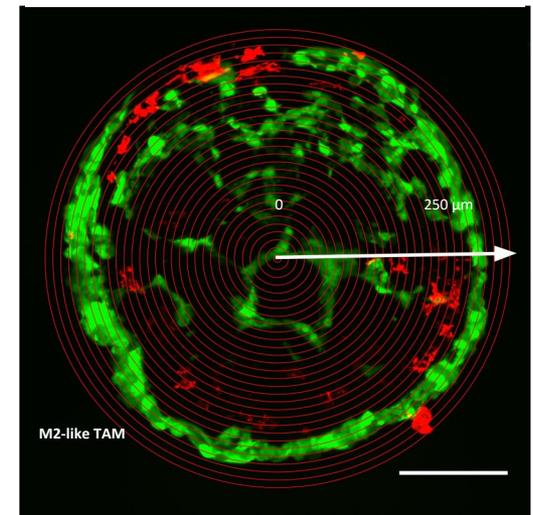
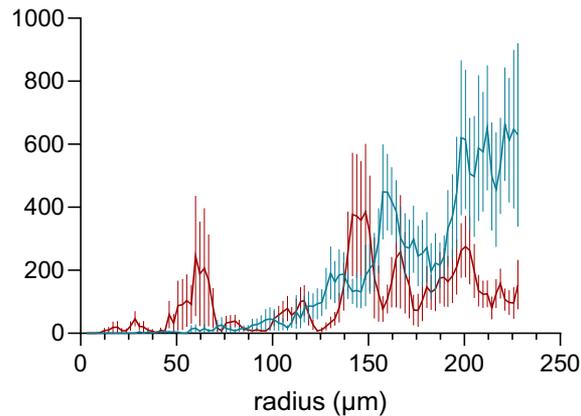
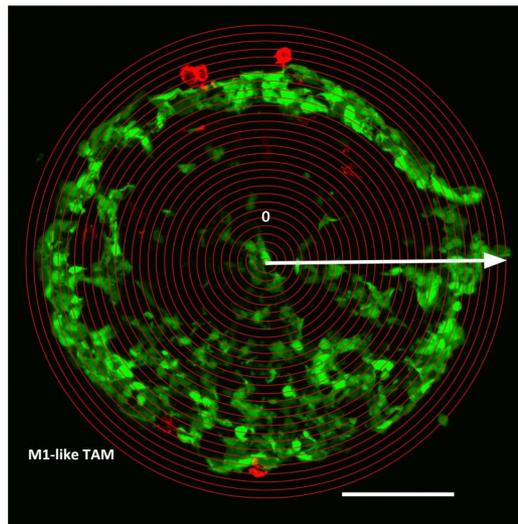


M1 macrophage



M2 macrophage

Confocal microscopy

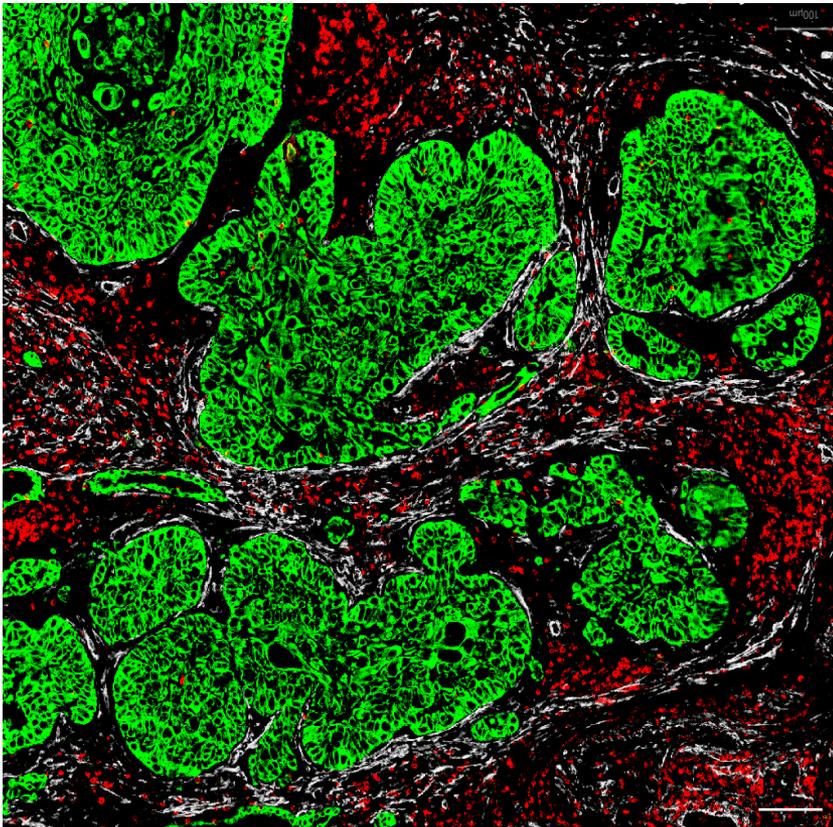


3D lung tumor model

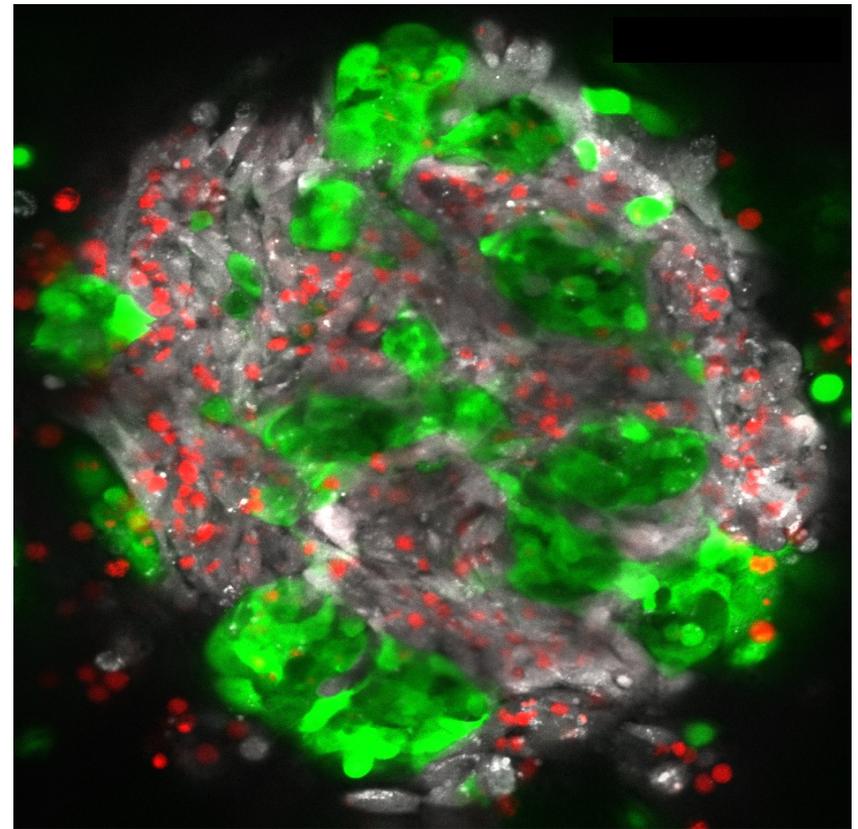
Applications in immune-oncology research

Infiltration and killing by cytotoxic T cells

NSCLC patient biopsy



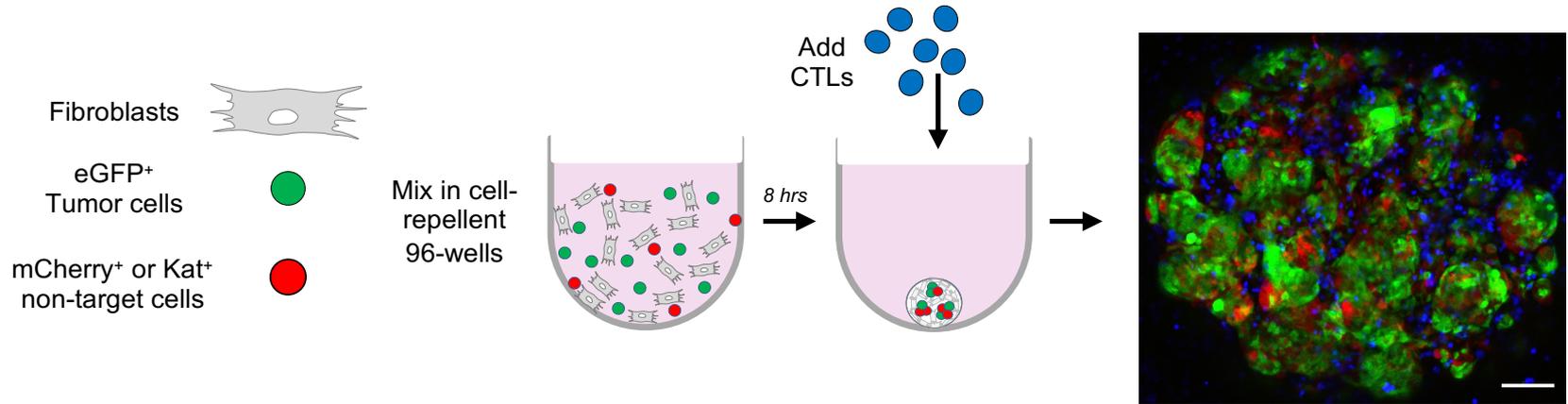
Murine lung tumor spheroid



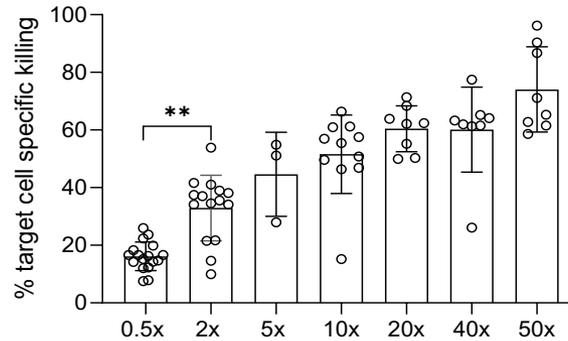
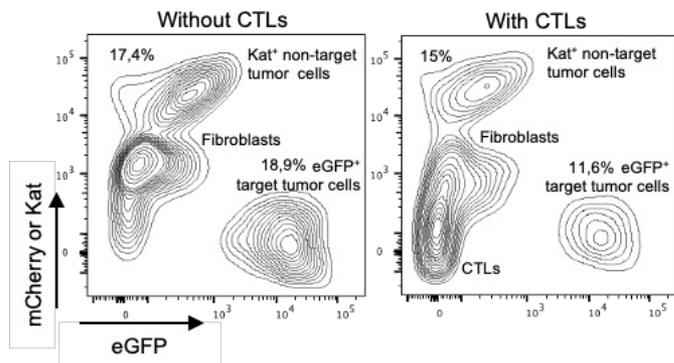
3D lung tumor model

Applications in immune-oncology research

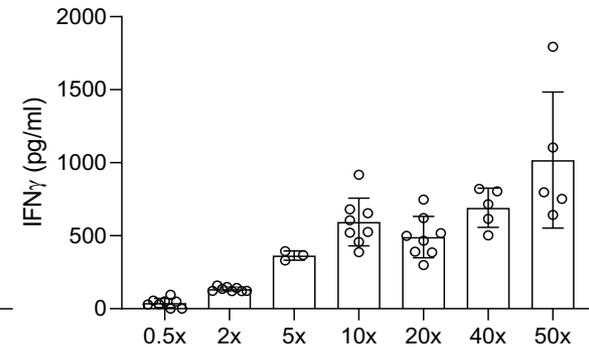
Target antigen specific tumor cell killing by CTLs



Flow cytometry



ELISA

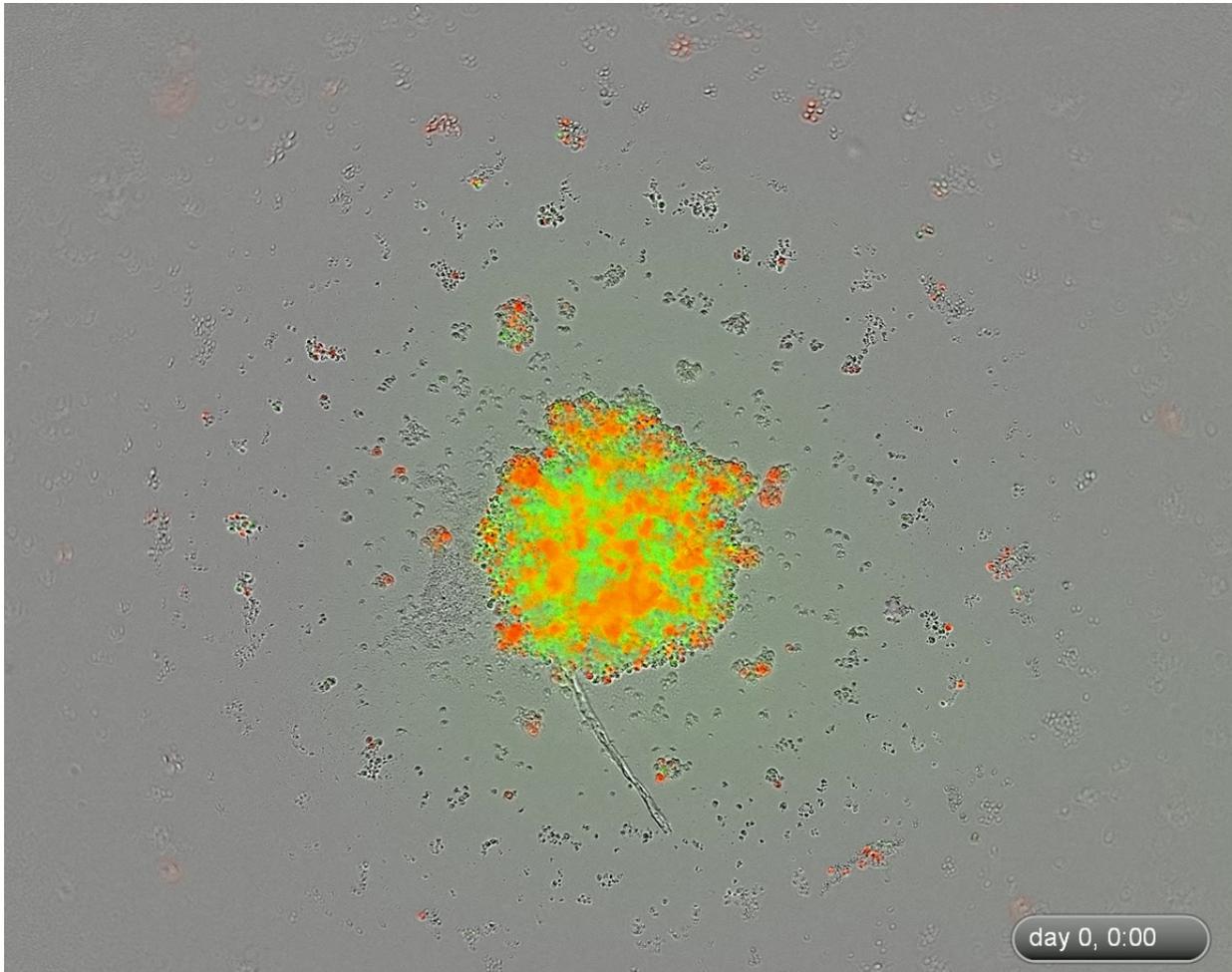


3D lung tumor model

Applications in immune-oncology research

Spheroid growth follow up

Incucyte live
cell imaging



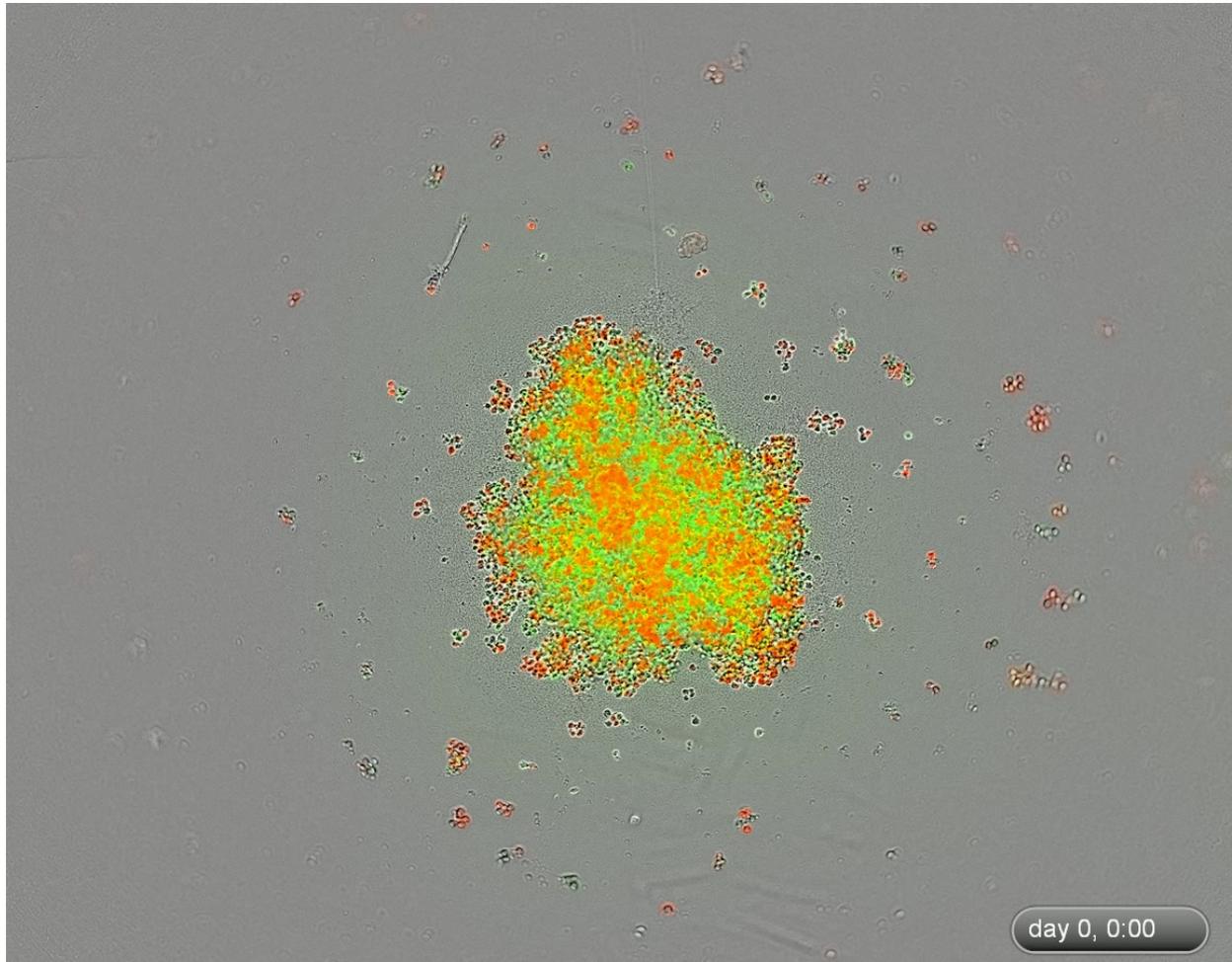
day 0, 0:00

3D lung tumor model

Applications in immune-oncology research

Target antigen specific tumor cell killing by CTLs **without** treatment

Incucyte live
cell imaging



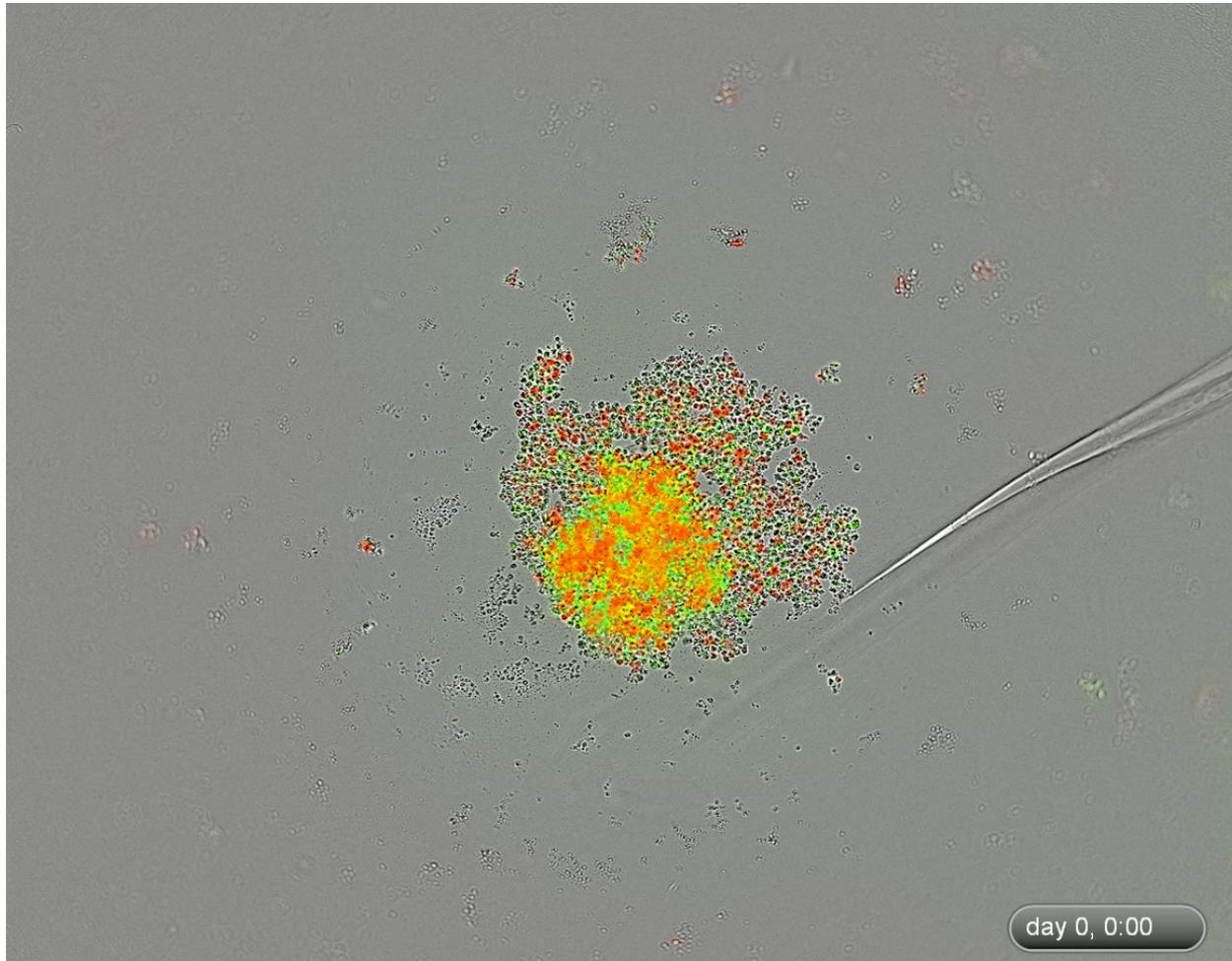
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3D lung tumor model

Applications in immune-oncology research

Target antigen specific tumor cell killing by CTLs **with** treatment

Incucyte live
cell imaging



3D tumor modelling

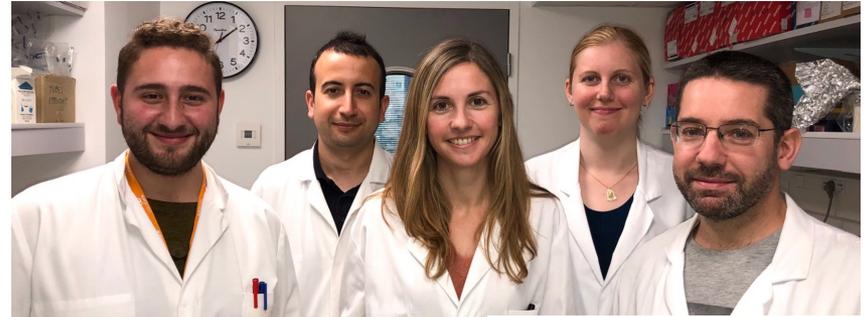
Take home messages

- ✓ Straightforward **murine and human** multicellular lung tumor spheroid platform
- ✓ **Recapitulates** characteristic tumor islet - stroma architecture
- ✓ Suitable for macrophage and T-cell **infiltration** studies
- ✓ Suitable for **spatiotemporal tumor cell-specific killing** evaluation
- ✓ **96-well format** allows high-throughput gene/cell/drug screenings on conventional imaging instruments
- ✓ Can serve as a **blueprint for other solid cancer types**
- ✓ Recently added to the [RE-Place](#) database

Acknowledgements



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RESEARCH GROUP



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