

Pear Bio is a London-based computational biology company discovering predictive biomarkers to guide cancer treatment for better patient outcomes. Pear Bio uses 3D cell cultures of primary tumors, live-cell microscopy and computer vision analysis of time-lapsed 3D image data to quantify *ex vivo* cancer progression against potential treatment options. By comparing therapies side-by-side outside of the patient, Pear Bio tests enable oncologists to make more informed decisions for effective treatment. Pear Bio has validated their platform on tumor samples from over 300 patients across 9 solid tumor types, with multiple ongoing clinical research studies.

Clinical Workflow



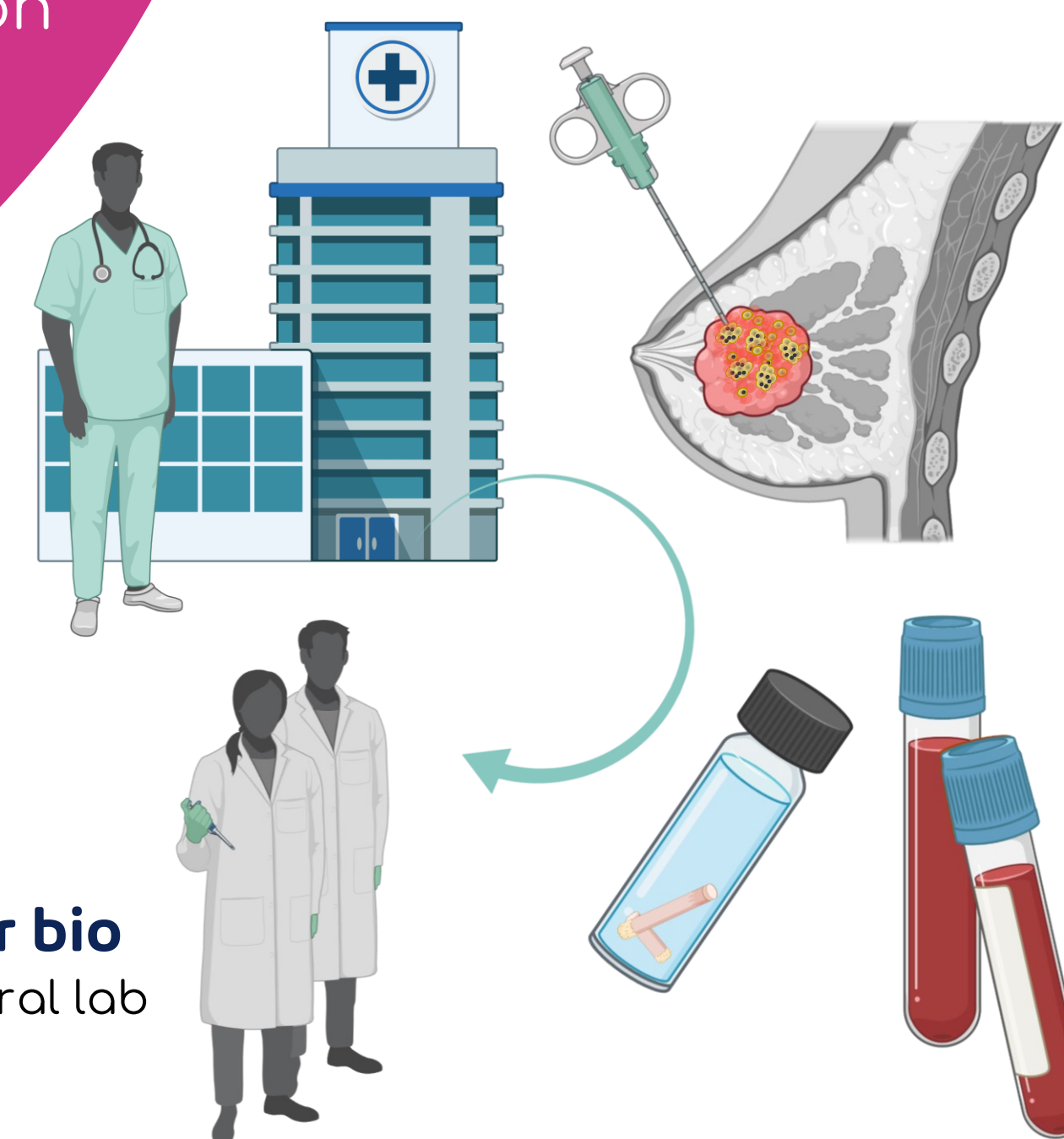
Cancer Model Engine

For more detail about our workflow take a look at our presentation or come talk to us at AACR booth #2612

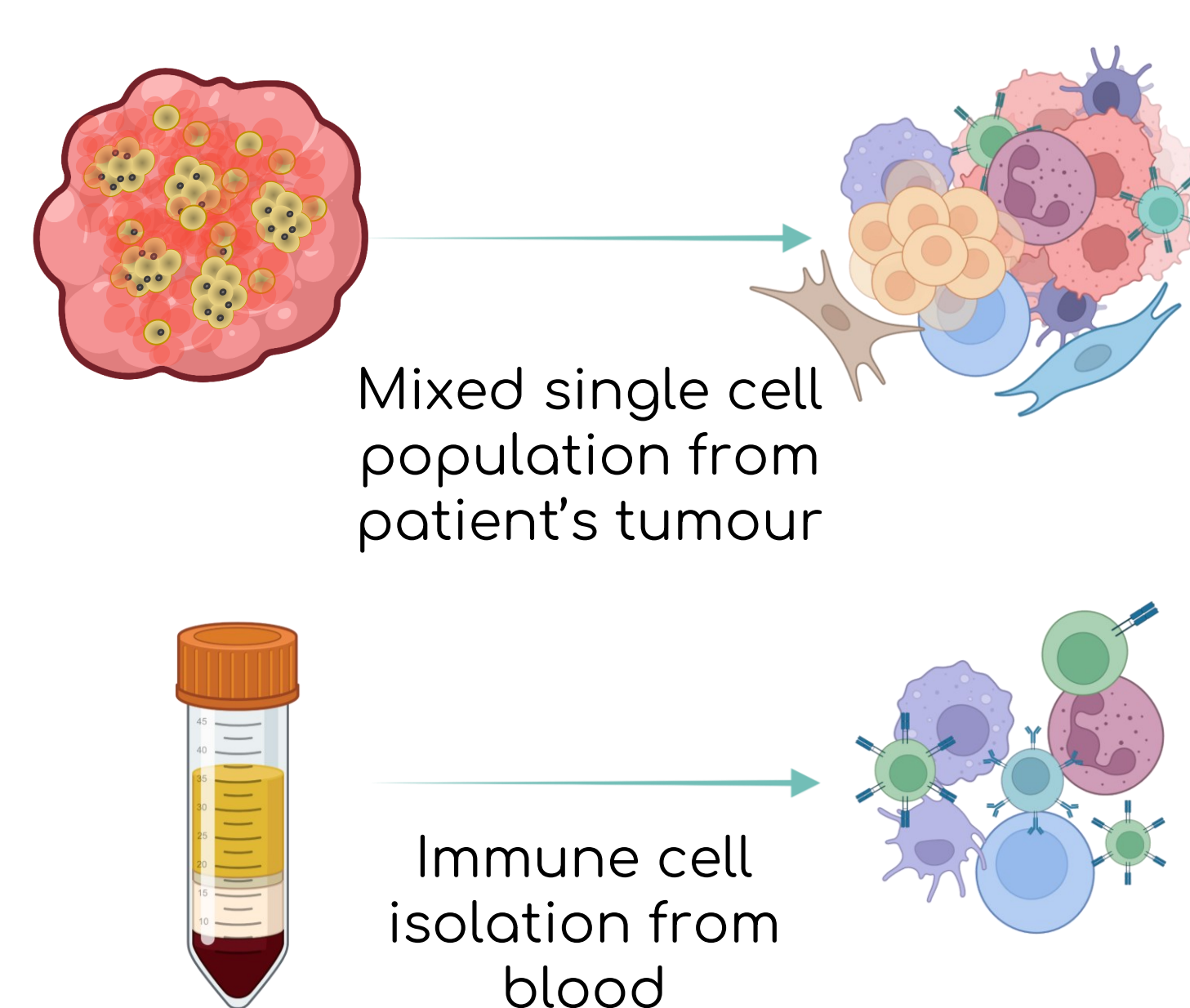


Day -1 (setup)

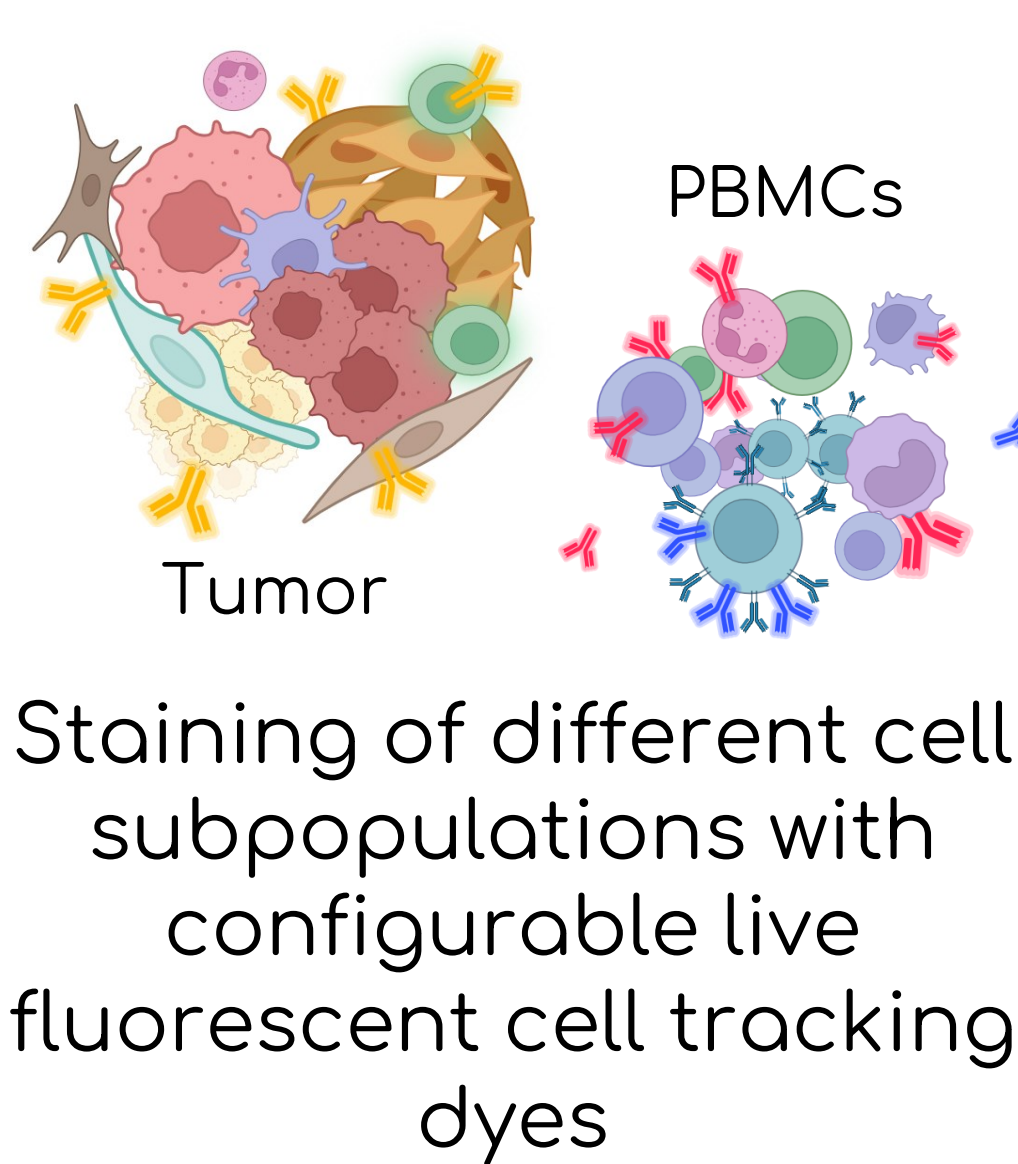
- 1 Sample collection
- 2 Digestion & cell isolation
- 3 Live-cell tracking dyes
- 4 Hydrogel encapsulation
- 5 Plate setup



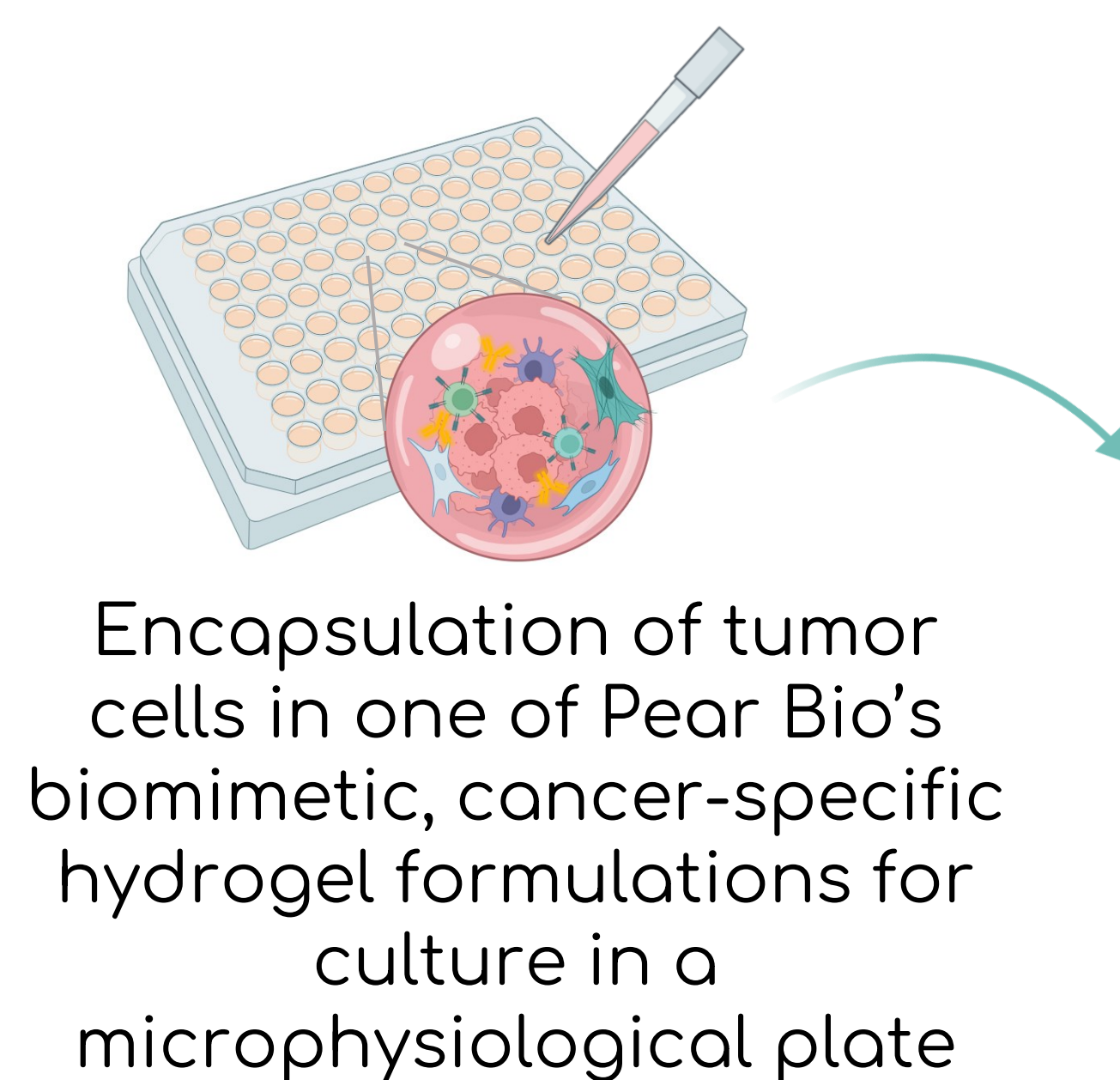
Collection of fresh surgical resections or core needle biopsies after surgery alongside whole-blood vials and patient history data. Shipping to Pear Bio's central laboratories



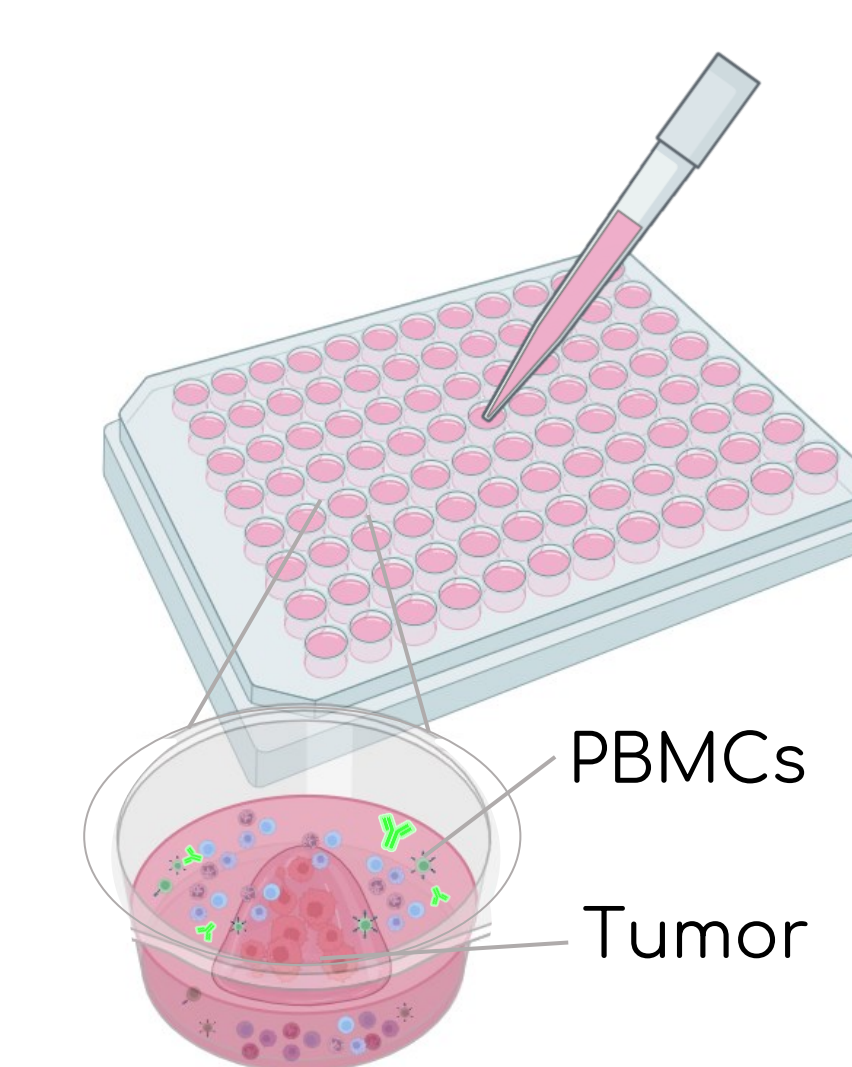
Isolation of viable single cell suspension from patient tissue of peripheral blood mononucleated cells (PBMCs) from blood



Staining of different cell subpopulations with configurable live fluorescent cell tracking dyes



Encapsulation of tumor cells in one of Pear Bio's biomimetic, cancer-specific hydrogel formulations for culture in a microphysiological plate

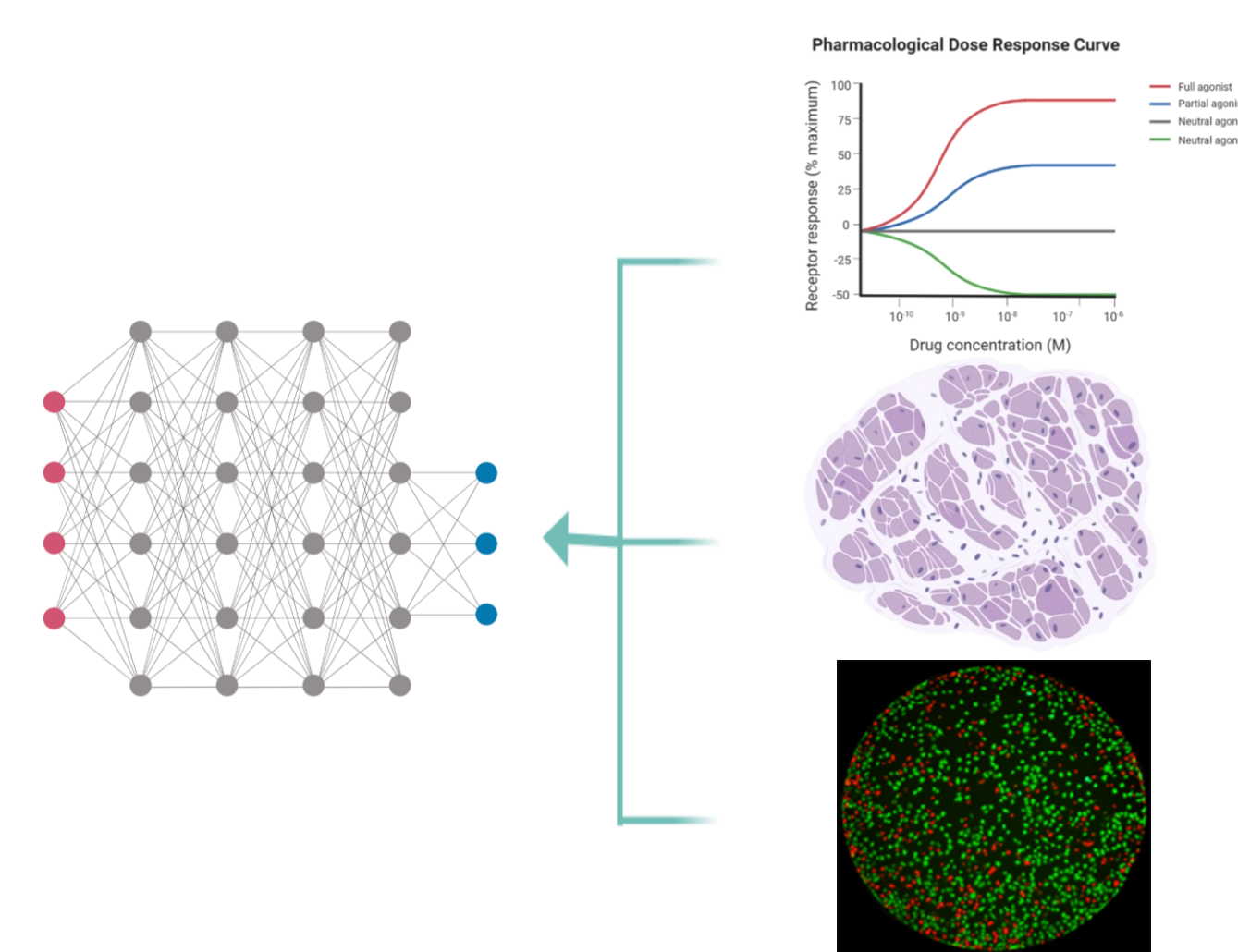


Add immune cells and dead dye cocktail to the culture to generate 3D immune-microtumour cultures

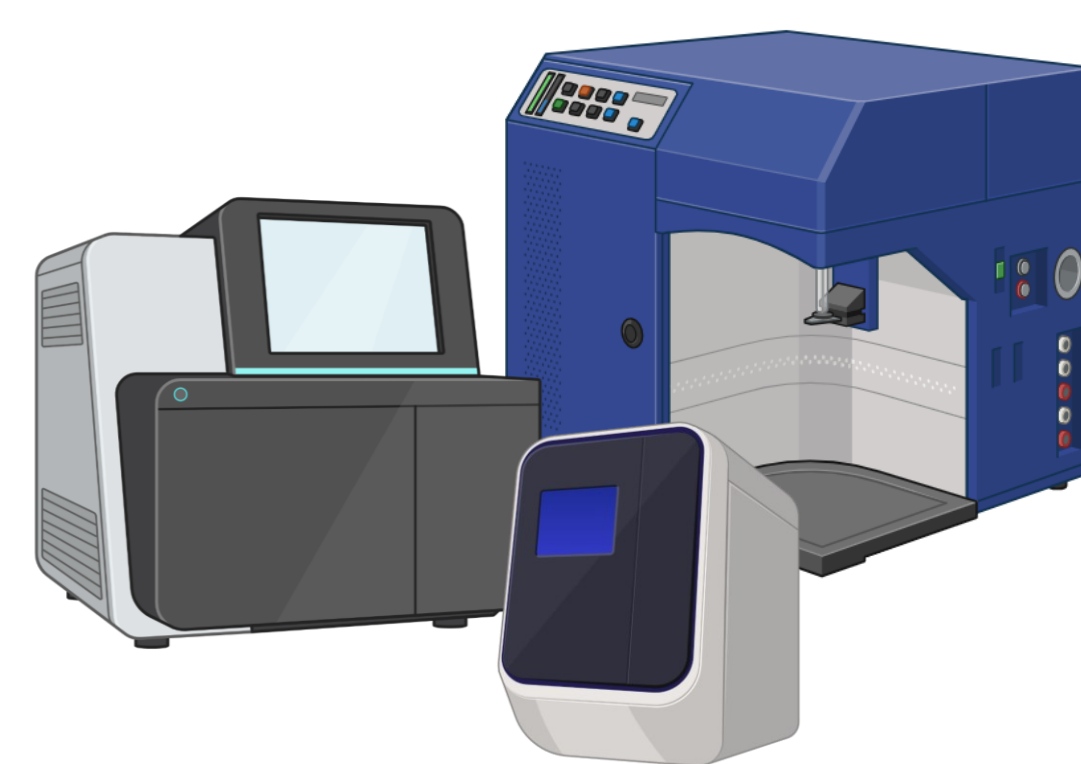
Assist clinical decision-making



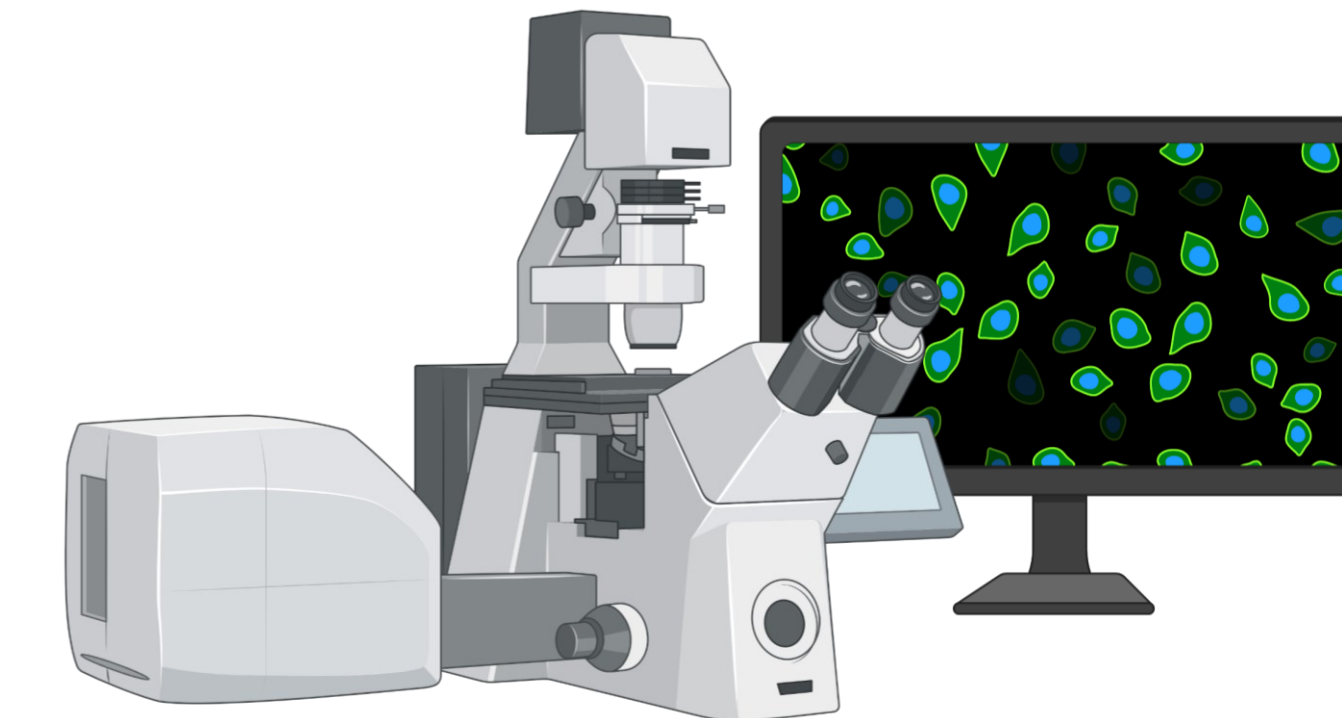
Data analysis and report generation on computer vision pipeline



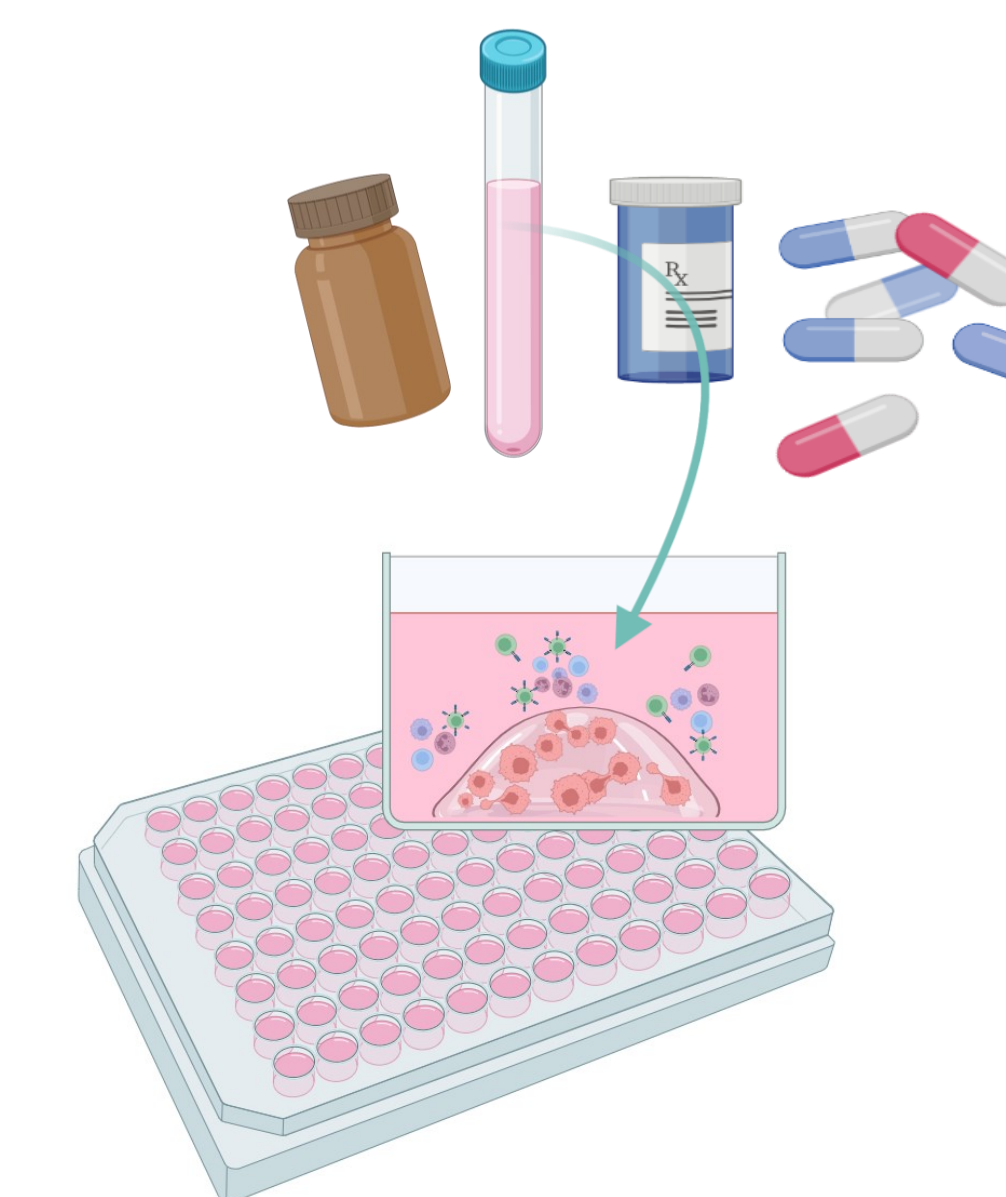
Integration of multi-omics and computer vision readouts. Optional biomarker analysis



[Optional] Conduct additional assays on leftover cells such as flow cytometry, RNAseq, IF, Luminex, TMB/MSI, etc.



Daily confocal imaging of 3D immune-microtumour cultures



Conduct drug dosing w/ and w/o approved regimens (monotherapies and combination therapies)

- 10 Generate report comparing treatment options
- 9 Image processing using computer vision
- 8 Additional omics analysis
- 7 Daily imaging
- 6 Drug dosing & clearance

Day 5+ (analyze)

Day 0-4 (test)

