PDXGhent: Patient Derived Tumor Xenografting Mouse Core Facility Ghent

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Need |

Preclinical models are a core component in every aspect of **translational cancer research**, ranging from the biological understanding of the disease, over biomarker detection to the development of new innovative treatments.

In vitro cultured cell lines and flank xenografting:
- Long time served as a **reference**
- Shows **high failure rate (>90%) in early clinical trials**[a]
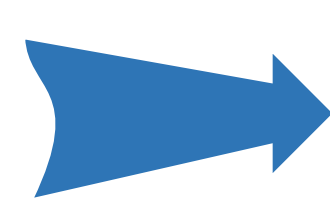
➤ **Urgent need for more predictive preclinical models** for rapid bench-to-bedside translation of investigational therapies.
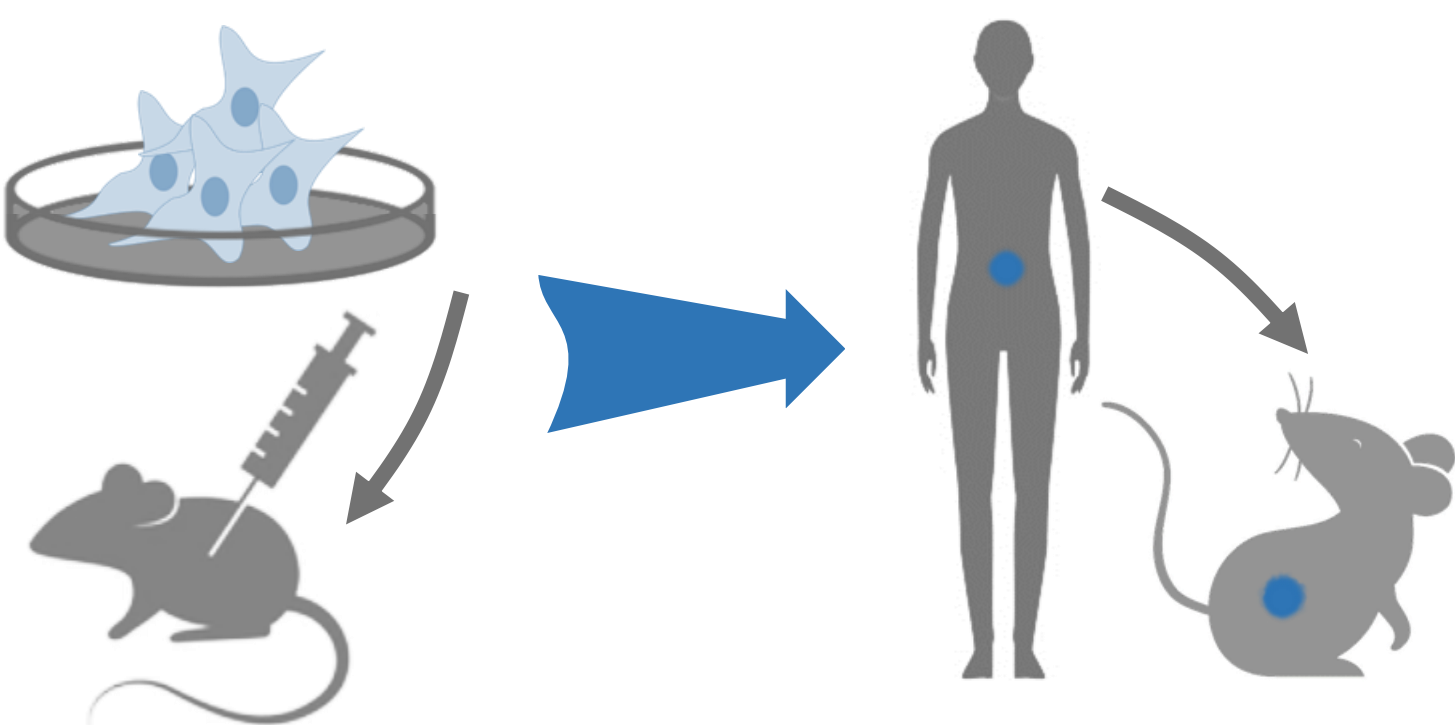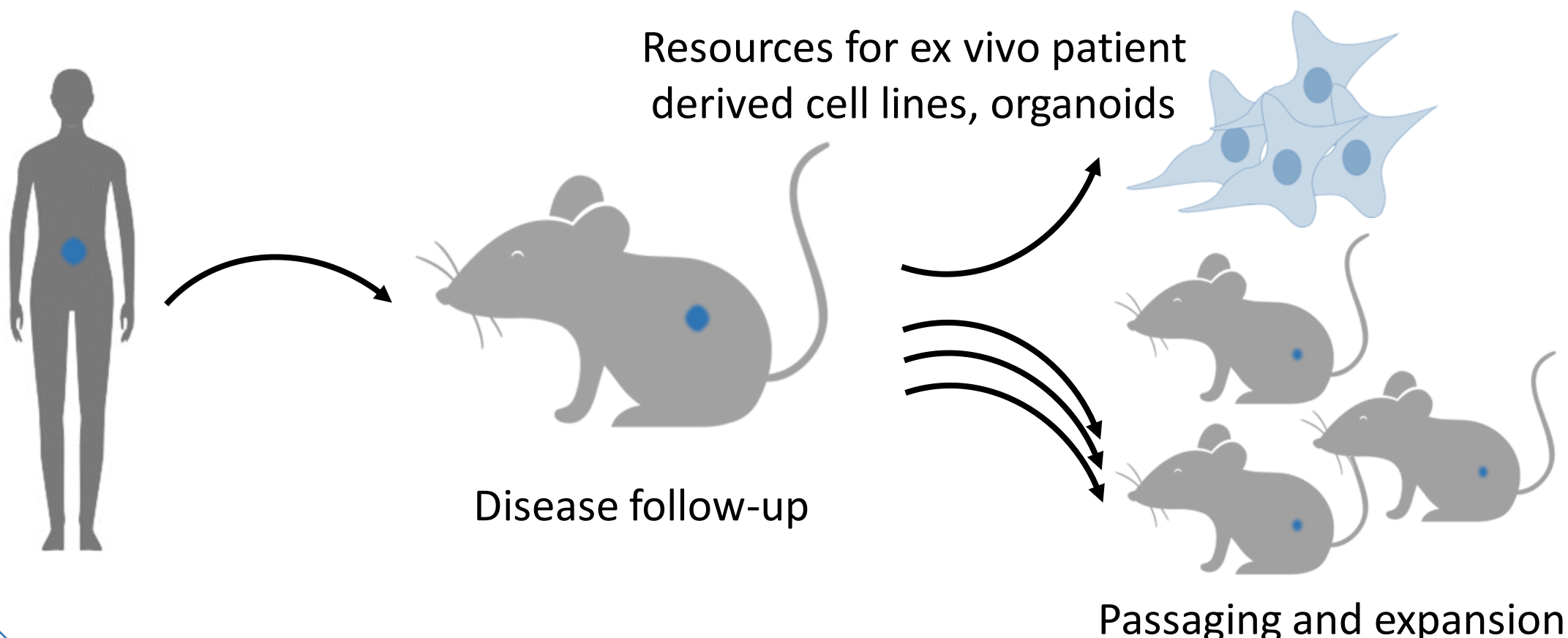
Patient-derived xenografting (PDX)[b,c]:
- More **clinically relevant**
- **More reliable** for drug screening and biomarker development
- Represents clinical tumor **heterogeneity, molecular diversity and original tumor architecture**
- Allows **personalized co-clinical trials**

(a) Koga et al, Cells 2019; (b) Tentler et al, Nat rev Clin Oncol, 2012; (c) Gengenbacher et al, Nat Rev, 2017.

Methodology |

Tumor fragments, surgically dissected from cancer patients or isolated tumor blood cells, are **directly transplanted** into immunodeficient mice.
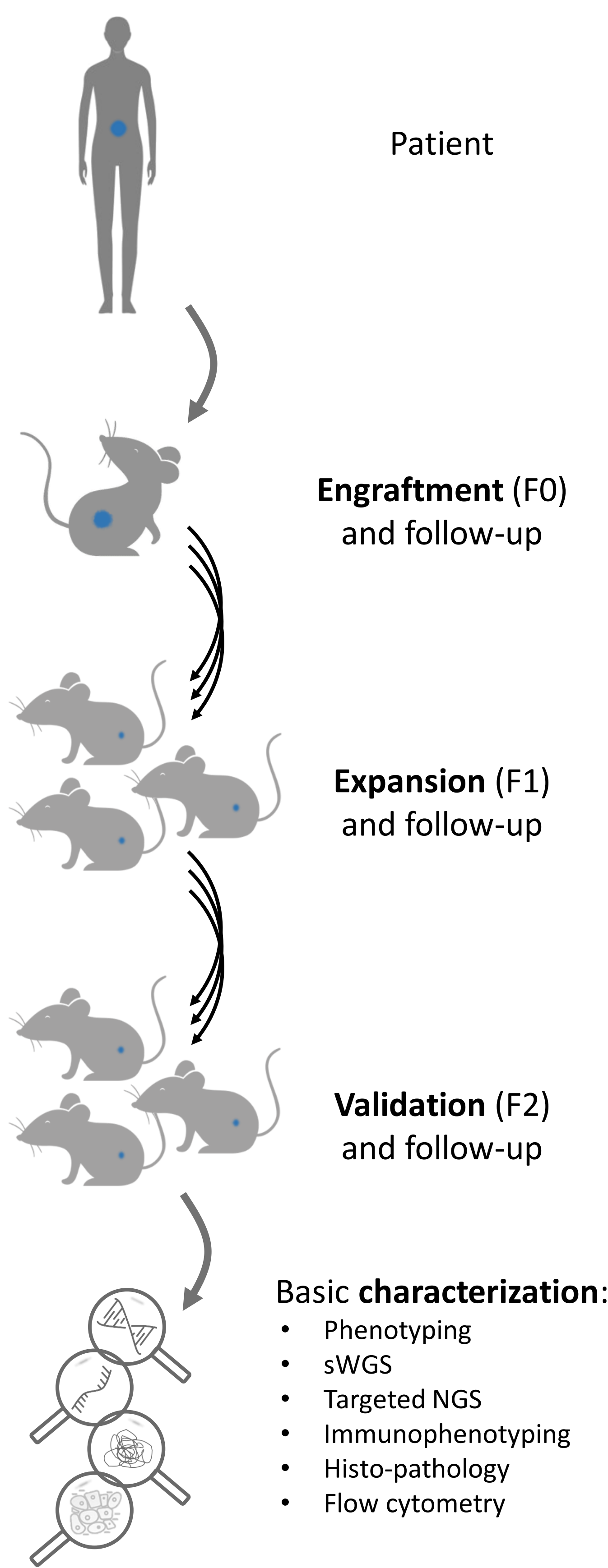
Resources for ex vivo patient derived cell lines, organoids

Disease follow-up

Passaging and expansion

CORE

PDX

Goals |

- **Centralized coordination** for **efficient and cost-effective** workflows and **dedicated trained personnel,** accentuating the 3Rs
- **Technical support** and **administrative support**
- Build a **PDX biobank**
- **Intensify interactions**
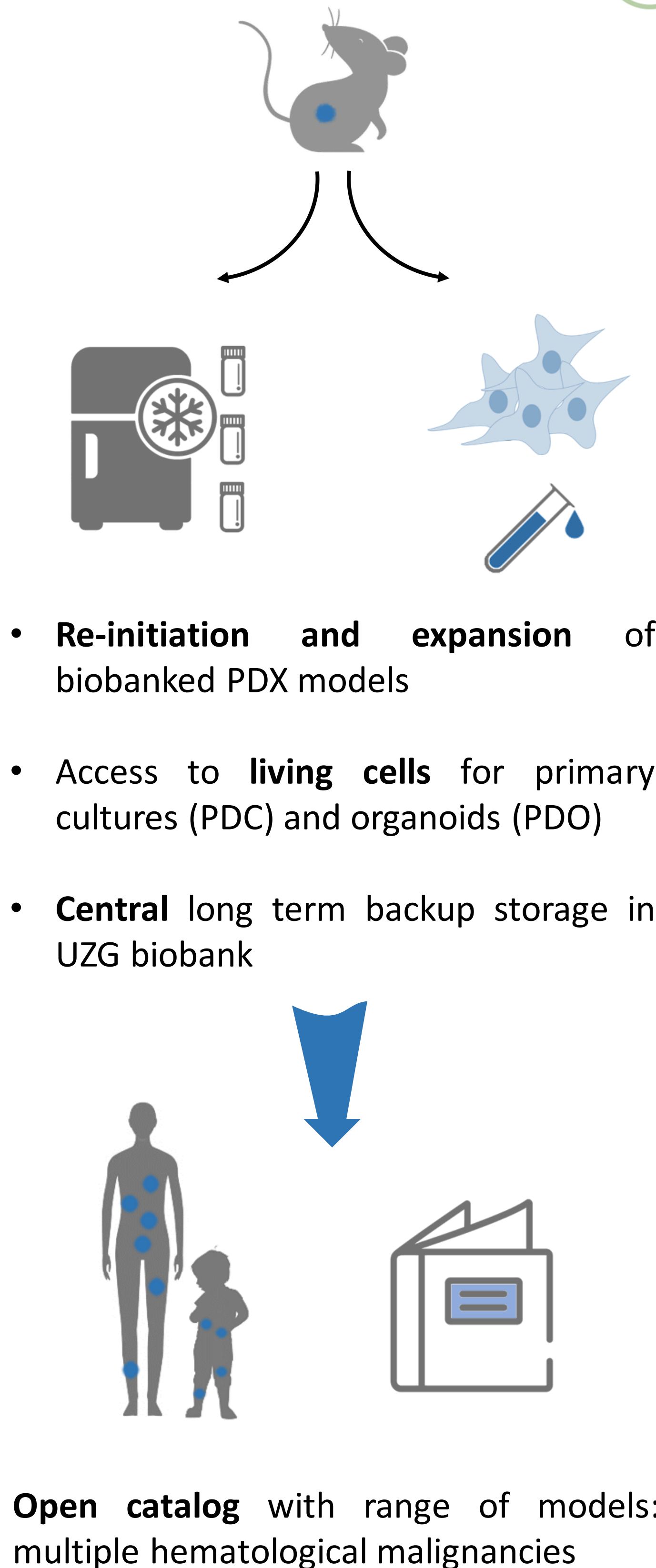- **Stimulate top level cancer research**

Services |

It is our goal to **support and educate** researchers, deliver **high-quality characterized PDX models** and perform **therapy efficacy studies**, available in a timely fashion without excessive administrative burden for researchers.
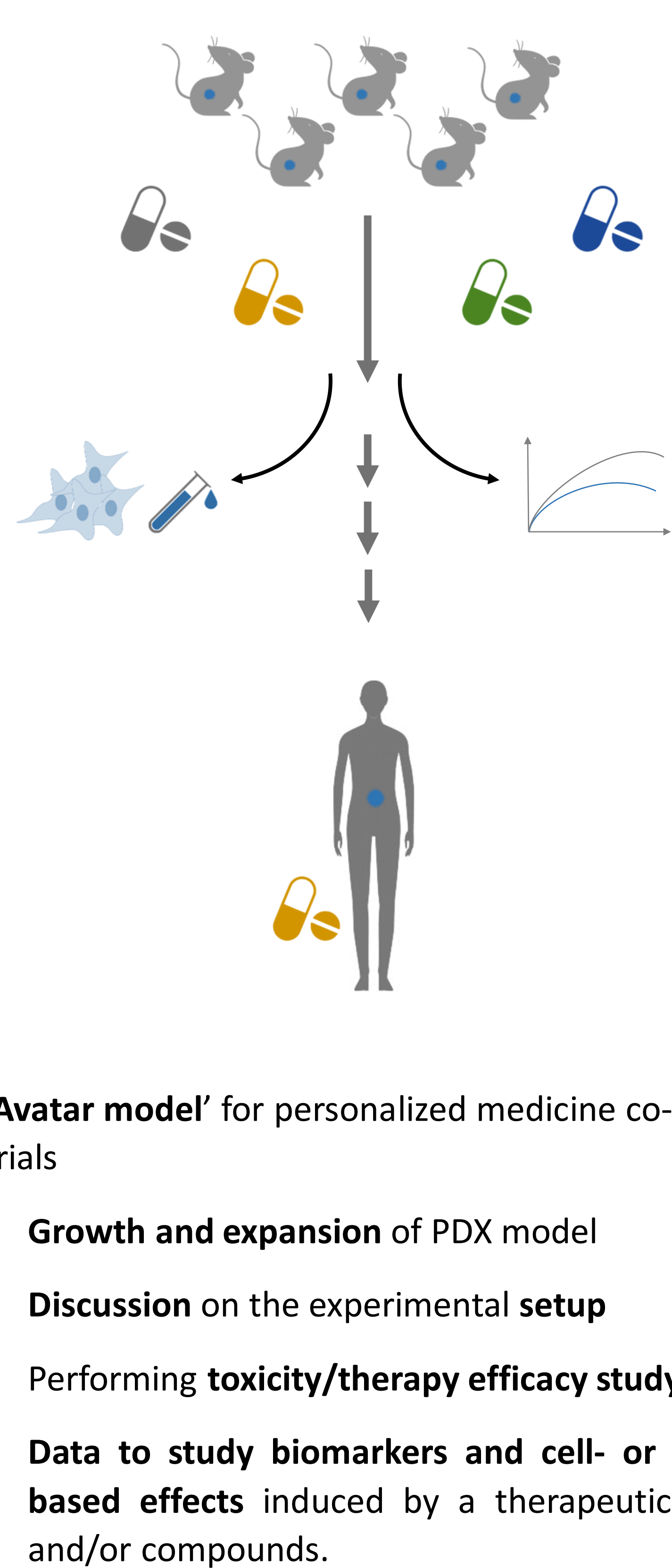
PDX Generation |

Patient

Engraftment (F0) and follow-up

Expansion (F1) and follow-up

Validation (F2) and follow-up

Basic **characterization**:
- Phenotyping
- sWGS
- Targeted NGS
- Immunophenotyping
- Histo-pathology
- Flow cytometry

PDX Biobank |

- **Re-initiation and expansion** of biobanked PDX models
- Access to **living cells** for primary cultures (PDC) and organoids (PDO)
- **Central** long term backup storage in UZG biobank

Open catalog with range of models: multiple hematological malignancies

Therapy Efficacy |

'**Avatar model**' for personalized medicine co-clinical trials

- **Growth and expansion** of PDX model
- **Discussion** on the experimental **setup**
- Performing **toxicity/therapy efficacy study**
- **Data to study biomarkers and cell- or tissue-based effects** induced by a therapeutic agent and/or compounds.

Core Facility | CORE FACILITIES

The PDXGhent core facility:
- **embedded within both UGhent Core Facilities and UZGhent**
- ensures **access to essential technology platforms**
- facilitates **access to patient materials and associated data**, fostering collaborative translational research endeavors between academia and clinical settings.

CORE PDX

CORE BIOANALYTICAL TOOLS & TECH.

CORE CTC² Clinical Tissue & Cell Culture

FLOW CYTOMETRY CORE

Animal Facilities Radiological Techniques Histology CORE

Zebrafish Facility Ghent CORE

TECHTRANSFER

UZ GENT — UZ Gent Biobank