eatris
European infrastructure
for translational medicine

EIC Pathfinder Challenge Emerging Technologies in Cell & Gene Therapy

For breakthrough projects that propose novel concept-based technological solutions or technological platforms far beyond the current state-of-the-art with aim to tackling current bottlenecks from discovery to the manufacturing step towards clinical grade and thus, reinforce critical components of the European cell and gene therapy innovation-driven community.

Overview of EATRIS institutions' expertise

- Expertise in cell therapy and genome editing products in targeted cells and tissues (e.g., base editing, prime editing, talens, zinc-finger nucleases, CRISPR)
- Expertise in novel RNA-based therapeutics
- Expertise in in gene delivery vehicles using next generation AAV or other recombinant vectors
- Expertise in upscaling and GMP product development of advanced therapies in cell and gene therapies and vector production
- Clinical trial centres for phase I/II studies in conjunction with a university medical centre to foster interaction between clinicians and specialist scientists
- Support for trial design and GCP execution.
- Advanced technologies for disease specific research including cancer organoids, organ on a chip to test responses to different ATMPs
- Multimodal Imaging approaches to track cells to measure biodistribution and efficacy of immunotherapies including nanoparticle approaches, PET-CT, PET-MRI
- In vivo Imaging Technologies to Monitor the Immune System - Mass Cytometry Imaging (MCI), PET-CT, PET-MRI, US modalities for studies of the immune system response
- Data analysis centres manage the processing and integration of multi- modality data.
- Regulatory Services- Scientific Advice, TPP and IMPD development
- Access to 3D culture systems; patient-derived organoids; patient-derived xenografts, Spheroids and Multifluidic Devices for Immune surveillance in TME for ATMP products
- Epigenetics of immune cells to study genome-wide epigenetic changes including DNA methylation, histone modifications and non-coding RNAs expression
- Multiomics (epigenomic, transcriptomic, proteomic, metabolomics, study of the microbiome and virome, etc.) to assess functional characteristics of TME-tumour cell interplay within the primary tumour and/or metastases (e.g the underlying signaling, the transcriptional landscape, the cell-cell communication, the network regulation of immune cells, etc.), to identify candidate TME targets and to assess the activity of pathway-targeting agents
- Immune profiling – Systems level characterization of immune cells in human tissues (multi-parametric flow cytometry, mass cytometry [CyTOF], Helios) and Immune assays (in vitro functional immune assays, high-throughput multiplex immunoassay)
- Bioinformatics and Data Centre
- In vivo models:
  - Humanized mouse models (e.g., patient-derived xenograft; immuno-Avatar)
  - Immunocompetent and genetically engineered mouse models
  - Non-human primates and other species
- Development of adequate potency tests.
- Pre-clinical in vivo validation in disease specific animal models including primates
- Pre-clinical evaluation of ATMP immunogenicity, efficacy and toxicology.

- Access to collaborative network to provide a framework for hiPSC generation of hiPSC homozygous for frequent HLA haplotypes

If you are looking for partners for your EIC consortium, we invite you to make use of EATRIS Consortium-building service and submit your request here. Within a few business days, we will provide you with a list of matches found among EATRIS 114 member research institutions along with their contact information.