iDEA-TECH Awards
Europe

Sanofi iDEA-TECH Awards Europe 2024-2025

Call for Pre-proposals

Description & Objectives

Sanofi is a global pharmaceutical company committed to improving access to healthcare and supporting the patients we serve throughout the continuum of care.

The Sanofi iDEA-TECH Awards initiative is designed to develop external innovations, with a focus on **cutting-edge digital and data tools and new technologies for R&D applications.** The goal is to:

- Identify **new projects** and help develop new approaches and translational technologies from key academic institutions and start-ups.
- **De-risk** ambitious projects with a real potential high value for R&D.
- Build strong **relationships** with new partners that can lead to **longer-term partnerships.**

Each selected investigator will receive **120 000€,** have a **dedicated Sanofi scientific expert assigned to the project** for 1-year and gain **privileged access to developing an extended collaboration**.

Sanofi's main objectives in creating the iDEA-TECH Awards program are to rapidly start one-year projects that maximize the opportunity to continue a collaboration of mutual interest.

Application Process

iDEA-TECH Awards 2024-2025 is open to **start-ups** across Europe and the **academic partners** listed below**:**

Region	Academic partner institutions	Support for start-ups
France	CEA CNRS Inserm Institut Pasteur Université Paris Sciences & Lettres	BioValley France Eurobiomed Genopole LyonBiopôle Medicen
Germany	Hamburg University Heidelberg University	BioRN
UK	University College London University of Oxford	/
Belgium	Vlaams Instituut voor Biotechnologie (VIB)	Flanders.bio
Spain	Fundacio Sant Joan de Deu	/
Switzerland	/	BioAlps

The projects must be submitted using the provided pre-proposal template via the following **link to the application platform**.

Before submitting, please work with your **Technology Transfer Office (TTO**) or **business office** to make sure that your pre-proposal is aligned with the scope and fulfills the application criteria of the call. Pre-proposals that are not validated by your institution TTO (for academic PIs) or do not fit with the guidelines (format, timeline, etc.) will not be evaluated. Please note that pre-proposals must not contain any confidential information or unpublished results and cannot include 3rd party collaborators other than those involved in the iDEA-TECH Awards initiative.

Selection process

Projects will be prioritized through a **2-step selection process**.

Step 1: The first step involves the evaluation of the 2-page pre-proposal form (provided template), which was designed to be easy to populate and review. Please note that there is no requirement around the level of maturity for each proposal at this stage. However, the Investigator must provide clear objectives and a concrete work-plan achievable within 12 months. Pre-proposals should also address one or several of the priority areas of interest described below under the "scope of the call".

Step 2: Selected pre-proposals will need to be developed further in the form of a detailed proposal (8 to 10-pages document) and reviewed for final selection by a Joint Scientific Steering Committee (JSSC), composed of both Sanofi and external experts, scheduled the week of May 12th, 2025.

Sanofi iDEA-iTECH Awards Europe timeline

Main steps	Due date
Call for Pre-Proposals	**November 4th 2024**
Deadline for Pre-Proposals submission	December 12th 2024
Call for detailed proposals	February 3rd 2025
Deadline for Detailed Proposals submission	March 7th 2025
JSSC meets to review Detailed Proposals	Week of May 12th 2025
Awardees annoncement	**June 2025**
Start of projects	October 2025

Should you have any further question regarding the initiative, application, selection process, scope, etc. please contact:

- For Academics: your TTO and/or Sanofi iDEA-TECH Awards email address (**EMEA_iTech-Awards@sanofi.com**)
- For Start-Ups: Sanofi iDEA-TECH Awards email address (**EMEA_iTech-Awards@sanofi.com**)

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Scope of the Call

iDEA-TECH Awards 2024-2025 Cycle

Project proposals must address in priority the following Therapeutics Areas:
Immunology & Inflammation, Oncology, Rare & Neurodegenerative diseases.

Evidence Generation and Decision Science (EGDS)

Artificial Intelligence/Machine Learning in Clinical Trials

- AI/ML methods to support clinical trial design and decision-making.
- AI digital twins, causal AI, and individualized treatment effect inference.
- AI methods to enhance patient inclusion and diversity in trials.
- Optimization of endpoint selection in clinical trials.
- Development and use of digital biomarkers.

Real-World Evidence (RWE)

- Real-world target trial emulation.
- Therapy Effectiveness and Indication Prioritization in real-world settings, including long-term follow-up.
- Disease modeling (progression and natural history).
- Prediction models to prioritize drug combinations using patient real-world data (RWD).
- Alternatives to knowledge graphs for drug repurposing.

Health Value Translation (HVT)

- Natural Language Processing (NLP) and AI algorithms to analyze Patient Experience Data (PED) from various sources like social media, patient forums, and electronic health records.

- Dynamic tools for sentiment analysis and PED from multiple sources, segmented by sub-populations (e.g., gender, age, race/ethnicity, country of origin) to visualize and translate insights into a structured patient journey, with a focus on immunological conditions like asthma, hidradenitis suppurativa, and osteoarthritis.

Precision Medicine & Computational Biology (PMCB)

Data- and AI-driven analytical and experimental frameworks to dissect cellular and molecular etiology of immune, immune-oncology and neurodegenerative conditions. These can include, but are not limited to:

- Analytical tools to gain biological insights through integration of single cell, spatial biology, and other orthogonal data types.
- Multi-omics and/or digital biomarkers of disease onset and longitudinal progression of diseases
- Multi-modal molecular characterization of immune conditions to develop biomarker-driven precision medicine strategies.
- Technologies linking different reads outs such as protein and RNA expression, functional readouts at single cell resolution.
- Parallel CRISPR-Based Genetic Perturbation Screening at Single-Cell Resolution (Perturb-seq), particularly for combinatorial perturbations in immune cells or immune-disease-relevant structural cells.
- Leverage digital pathology in IBD colon biopsies to develop predictive biomarkers for standard-of-care treatments.

Drug Metabolism and Pharmacokinetics (DMPK)

- Machine Learning/PK-PD modeling framework combining data-driven insights with mechanistic understanding to predict disease progression, treatment response and improve decision-making.
- ML-driven prediction of ADME enzyme liabilities and kinetic parameters to support mechanistic pharmacokinetic modeling.
- New scalable and applicable 3D/Microphysiological system (MPS) of Blood-Brain Barrier Organ-on-Chip Platform for the evaluation of brain penetration and toxicity of small molecule drugs and biologics.

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Integrated Drug Discovery (IDD)

- **RNA Targeting Small Molecules**
  - Cell screening and tool validation.
  - RNA-small molecule binding using structural biology and biophysics.
  - In-Silico Design of RNA-targeting molecules.
  - RNA-focused chemical libraries for RNA binders/modulators.

- **Structural Biology and Imaging**
  - Integrative structural biology to study drug interactions with membrane targets.
  - Use of Cryo Electron Tomography to understand target engagement and mechanisms of action.

- **AI and Machine Learning approaches**
  - Physics-based and ML methods to analyze biological macromolecule flexibility
  - Methods to explain AI-based models for multi-parametric optimization.
  - AI tools to develop biological assays.
  - Generative AI to enhance hit identification in drug discovery screens.
  - AI tools to identify mechanisms of action from cell painting assays.

- **Chemistry and Drug Design**
  - Design of chameleonic leads with improved ADME properties using novel chromatographic and spectroscopic methods.
  - Synthesis of new bioisosters and peptidomimetics for macrocyclic bioactive compounds and molecular glues.
  - New molecular glue compounds that regulate immunology target proteins through degradation assays or protein ternary complex formation.
  - High-yielding reactions with low equivalents of C-X building blocks, including CO2 or other surrogates.
  - Transition from peptide to ligand (drug) design.
  - Green chemistry options to reduce the use of DMF in drug discovery.
  - Translational human cellular 3D/microphysiological systems for high-throughput pharmaceutical compound characterization.

Large Molecule Research (LMR)

- **Oral Delivery of Biologics**: Technologies to enhance the bioavailability of biologics (e.g., antibodies, VHH, darpin) when taken orally, using active transport or formulation methods.
- **Intracellular Delivery of Biologics**: Methods to deliver biologics (e.g., antibodies, VHH, darpin) into the cytosol, including novel protein scaffolds, endosomal escape mechanisms, and cell-penetrating modules (excluding nucleic acid delivery).
- **Topical Delivery of Biologics**: Technologies, including computer-assisted strategies and formulations, for localized treatment of the skin, ensuring effective delivery of biologics to the appropriate skin layer.
- **Digital Technologies**: Computer-assisted methods to enhance the generation of biologics (e.g., antibodies, VHH) for targeting diseases in immunology, inflammation, rare and neuro diseases, and oncology. This includes in silico protein engineering, multiparametric optimization, de novo design, and rapid functional epitope identification.

Translational Models (TIMs)

- Development and validation of complex i3D-organoid in vitro models for human diseases.
- Use of multicompartmental human organ-on-chip and 3D organoids to test new therapeutic molecules and understand their mechanisms of action.
- Novel tissue expansion microscopy and super-resolution imaging for high-resolution spatial analysis of tissue samples in combination with antibody staining and biomolecule-specific fluorescent dyes to investigate specific targets, disease-driven tissue changes, and inflammation in complex tissues.
- New AI/ML tools for automated annotation and analysis of digital pathology and multimodal images (e.g., MRI, microCT, ultrasound).
- Application of large language models in digital pathology.

Pre-Clinical Safety (PCS)

- Gen-AI driven chatbot for intuitive and easy searching of preclinical safety data that can be adapted and tailored for Sanofi preclinical safety reports.
  - Capable of supporting searches of reports
  - Capable of drafting reports
  - Capable of mining study designs and extracting optimized parameters to enable better safety assessment and preclinical/clinical translation.
- In vitro 3D microphysiological system using neuronal human cells for understanding ADME and safety questions related to large and small molecule interactions with the blood brain barrier.
- In vitro dual organ model of liver and the immune system to study lipid nanoparticle interactions.

Vaccines

- **Use of Artificial Intelligence**
  - To develop virtual patient vaccination models.
  - To build on “Smart RNA vaccines” for regulated and cell-specific expression.
  - To streamline the sequence-to-mRNA vaccine process.
  - To design new vaccine antigens and analyze vaccine data.
- **Targeting and Disease-Specific Vaccines**
  - New targeting systems for cell-guided vaccines.
  - New technologies for vaccines against autoimmune diseases (e.g., IBD, MS, lupus) and allergies.
  - New biological approaches to prevent aging-related diseases.
- **New Vaccination and Administration Technologies**
  - Tolerogenic approaches for T cell vaccines, focusing on route, adjuvant, formulation, and design.
  - Improvement of mRNA vaccine delivery into the cytosol.
  - Alternative vectors and administration routes.
  - Develop controlled release mechanisms, eliminating the need for boosters.
- **Immunological Analysis and Evaluation**
  - Multiparametric immunological analysis on microsamples.
  - New technologies to assess mucosal immunology post-vaccination.
  - In-vitro and in-silico immunogenicity readouts of drug product formulations.
- **Vaccine Stability and Production**
  - Enhance the stability of RNA-based vaccines.
  - Protein Production with cell-free systems, scalable to GMP manufacturing.
  - Improved E. coli Strains combined with antibiotic-free selection systems for plasmid manufacturing.
  - Universal Liquid Formulation for thermostable vaccines.
- **Tests and Equipment**
  - Novel high-throughput multiplex biological assays.
  - End-to-end small-scale, automated, and high-throughput drug substance equipment.

Genomic medicine (GMU)

- Gene therapy delivery of antibodies.
- Non-viral gene therapy (RNA or DNA payloads) for CNS, ocular, or muscle delivery.
- Modulation of non-viral gene therapy -mediated immune responses.
- Development of novel cell internalization sequences, degradation motifs, or active sites to enable targeted immunotherapies.
- AI-driven discovery of novel, tissue-specific viral and non-viral delivery methods.
- Structural biology driven discovery of novel, tissue-specific viral and non-viral delivery methods (including synthetic protein-based delivery vectors).
- Hybrid viral-non-viral delivery tools.
- Discovery/identification of targetable human receptors to aid rational design of delivery vectors.
- Non-viral delivery platforms that are less than 35nm.
- Gene Regulation
  - Development of a compact, tunable alternative splicing platform for the co-expression of multiple proteins from a single RNA transcript.
  - Small molecule transcriptional modulators for gene regulation, enabling divergent/convergent regulation of two genes.
- Identification of DTS sequences for nucleus translocation of DNA payload post LNP-DNA delivery

Chemistry Manufacturing and Controls (CMC)

- **Gene therapy CMC**
  - Economic analysis for viral and non-viral gene therapy manufacturing process
  - Strategies for improving viral vector volumetric productivity and full capsid packaging.
  - PAT for viral titer and product quality (Empty/Full) inline measurement
  - In silico Process Development/modeling for USP and DSP viral production
  - Relationship between adenovirus and AAV packaging and identify virus replication modulators.
  - Non-viral gene therapy: Developability of antibody fragment lipid micelles for targeted LNP delivery
  - Developability and Process development of Nanobody lipid micelles for targeted LNP delivery

- **Drug Substance**

  Biologics
  - Process Intensification to reduce Cost of Development and Cost of Goods.
  - Understanding of CHO metabolism and regulation of signaling cascade to improve design of media.
  - High expression CHO host and vector technology development.
  - High Throughput Tools & Simulation/Modelling Tools to Increase Development Efficiency.
  - Novel sensors and analyzers for inline / online analysis of product quality attributes.
  - Process automation and digitalization for microbial processes.

  Synthetics
  - Predictive Solubility, Predictive Reactivity and automated reaction or formulation optimization.
  - AI/ML in chemical process definition from High Throughput Screening.
  - Self Driving laboratories.
  - Definition of a chemical mechanistic discrimination methodology using AI/ML in closed loop system.
  - Next Generation of biocatalysts: enzyme catalyzed CSP2-CSP2 bond forming reactions or cycloadditions.

- **Drug Product**

  Biologics
  - Stabilization of unstable/fragile proteins in liquid form at 5C and/or room temperature.
  - Very high concentration formulations: focus on protein power suspension-based formulation in non-aqueous vehicle compatible for subcutaneous delivery.
  - Device-formulation compatibility and optimization for novel routs of delivery (intrathecal, ocular, etc.)
  - Cryopreservation, cold denaturation, and freeze-thaw optimization of DS/DP (ultracold handling and shipping).

  Synthetics
  - Continuous Process for Drug Product manufacturing to reduce time to market & development cycle costs & ensure sustainable Eco-Design.
  - Development of Next generation of Process Analytical Tools (PAT) to support better quality in batch and/or continuous manufacturing.
  - In-vitro Predictive tool considering permeability.
  - Enabling technologies for BCS3/BCS4 compounds & macromolecules.
  - DS/DP Co-cristallisation.
  - Discrete Element Modelling (DEM) to optimize DP pharmaceutical design.
  - DP Tablet design to improve patient acceptability and processing.