iDEA-iTECH Awards Europe

Sanofi iDEA-iTECH Awards Europe 2023

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-iTECH 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 and trustful **relationships** with new partners to identify research projects aligned with Sanofi's strategic areas of interest
- Spark **longer-term partnerships**

Each selected Investigator will receive **120k€,** 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-iTECH Awards program are to rapidly start one-year projects that maximize the opportunity to continue a collaboration of mutual interest.

Application Process

iDEA-iTECH Awards 2023 is open to **start-ups** across Europe and the **academic partners** listed below**:**

Region	Academic institution partners	Support for start-ups
France	CEA Université Paris Sciences & Lettres CNRS Inserm	Medicen Lyonbiopôle Eurobiomed Genopole
Germany	Heidelberg University Hamburg University	BioRN
UK	University of Oxford	/
Belgium	Vlaams Instituut voor Biotechnologie (VIB)	Flanders.bio
Switzerland	/	BioAlps

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The projects must be submitted using the enclosed *Pre-proposal template* and submitted via the *iDEA-iTECH website portal*. Before submitting, please work with your **Tech Transfer Office (TTO**) or **business office** to make sure that your 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 Please note that pre-proposals must not contain any confidential information or unpublished results and cannot include 3rd party collaborators other than those involved in the iDEA-iTECH Awards initiative.

The personal information collected by Sanofi are subjected to the regulation in force (see Privacy & Data Protection Notice below).

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 (enclosed 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 that 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 on May 12th 2023.

Sanofi iDEA-iTECH Awards timeline

Main steps	Due date
Call for Pre-Proposals	**November 3rd 2022**
Deadline for Pre-Proposals submission	December 16th 2022
Call for detailed proposals	February 1st 2023
Deadline for Detailed Proposals submission	March 15th 2023
JSSC meets to review Detailed Proposals	May 12th 2023
Awardees annoncement	**May 26th 2023**
Start of projects	October 2023

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

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

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Scope of the call

LMR - Large Molecules Research

• **Brain or tissue specific delivery of biologics:** technologies or strategies to increase brain or tissues-specific exposure of biotherapeutics including but not restricted to receptor-mediated transcytosis across BBB, pharmacological modulation of selected cell population in tissues, etc.
• **Intracellular delivery of biologics**: technologies to tackle intracellular targets or to deliver therapeutically relevant amounts of biologics intracellularly
• **Oral delivery of biologics:** technologies that improve the bioavailability and therapeutic window of large molecules administered orally.
• **Biologics based theranostics**: Theranostic approaches using Antibodies/VHHs based molecules combining the diagnostic (e.g. using radioisotopes) and therapeutic potential in particular in the oncology field, covering monospecific as well as bispecific biologics.
• **Topical delivery of biologics**: formulations, technologies or computer assisted strategies to allow the local treatment of an epidermal layer for an effective delivery of antibodies and other protein drug at the right skin compartment
• **Digital biologics***:* computer assisted technologies to improve process to generate antibodies or VHHs against interesting disease targets in the field of oncology, immunology and inflammation; methods for designing for function (e.g. agonism); methods for in silico protein engineering, multiparametric optimization and de novo design of biologics.

DDS - Data & Data Sciences R&D

AI/machine learning approaches, simulations, predictive modeling to support:
→ Pre-clinical safety, clinical operations, clinical supply chains, Pharmacovigilance
→ Personalized Medicine (biomarkers, patient stratification), Digital biomarkers, BioImaging

GMU - Genomic Medicine Unit

• Gene therapy delivery of nanobodies
• Non-viral gene therapy (lipids nanoparticles, polymer-based) for CNS and/or muscle delivery
• Gene editing (base editing, repair/insertion/deletion)
• Small molecule splicing modulators for gene regulation

RWE - Real World Evidence Development

• Prioritization of indications where an asset could drive differentiated outcomes
• Identify responder populations and bridge to disease endotypes
• Prediction models to prioritize drug combinations using patient RWD
• Model disease progression and correlations to clinical endpoints, RW outcomes.
• Selection of patient cohorts for trials

Sanofi Vaccines - Innovation and Emerging Science

• Small blood/sera volume sampling and readouts for Immunology testing
• Novel high throughput Multiplex biological assays to do more with a single sampling
• Development of targeting systems for guided cell targeting in vaccines development (mAb helped technologies, bi or Tri specific mAb)
• Improving live-attenuated vaccines by Targeted Protein Degradation (TPD) technologies (ex. PROTAC)
• Microbiome-mediated immunomodulation strategies

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IDD - Integrated Drug Discovery

- Drug discovery micro-laboratory for chemical synthesis and biological testing based on microfluidics technology
- Macrocycle screening of targets by phage display, arrayed libraries
- Build out a degrader library
- Development of optodroplet screening assay
- Boron containing heterocycles for medicinal chemistry optimization
- AI/Machine learning approaches for micro-laboratory to guide the optimization of chemical reactions
  → Modulated parameters: flow rate, pression, temperatures, reactants equivalent
  → Exploring Active Learning principle in "Low data" regime to propose optimized conditions in a minimum set of experiments
- New and efficient approaches to interpret Structure–Activity Relationships in Real-World Drug Design Data Sets Using Explainable Artificial Intelligence
- Biological evaluation, once new products are optimized
- Targeted Drug Delivery: antibody-/small fragment-drug conjugates, lipid nanoparticles, technologies enabling high drug loading for conjugates, new conjugation technologies, payload with new MoA

DMPK - Drug Metabolism and Pharmacokinetics

- Development of translational PBPK (Physiological Based Pharmacokinetic) model framework for ADC (Antibody Drug Conjugated) & NDC (Nanobody Drug Conjugated) to predict PK profiles in cancer patients
- Development of translational PBPK (Physiological Based Pharmacokinetic) model framework for conditional biologics to predict PK profiles in cancer patients, for guiding the design of molecules that will meet the target product profile

Different types of conditional biologics should be considered ie. XTEN masks, peptide conjugates, etc.

PMCB – Precision Medicine Computational Biology

- Single cell proteomics for novel target discovery in tumor infiltrated myeloid cells
- A machine-learning framework for symptoms-driven target discovery and drug positioning in rare disease
- Disease data- and AI/ML-driven approaches to discover disease endotypes and use them to stratify patients in immunology and neurodegenerative disorders
- Development of ML/AI frameworks on single cell transcriptomics to (1) establish gene programs driving clinical biomarkers and (2) stratify patients
- Digital biomarkers – physiological and behavioral measures collected via wearable digital devices in real-life setting and application to patient stratification/back-translation for target discovery
- A Digital pathology ML/AI driven tool to automatically segment and quantify all cell types from H&E Whole Slide Images of inflammatory tissues using either pathologist annotations or multiplex / highplex IHC images as ground truth

Precision Oncology

- **Methods for the analysis of high-dimensional spatial transcriptomic and proteomic datasets**.
Examples include: tumor-stroma segmentation, cell type and subtype identification, cell-cell interaction analysis
- **Identification of mechanisms of resistance to immunotherapy by analyzing patient tumor data**.
Prioritize projects involving single-cell and spatial analysis of patient tumor samples
- **Characterization of effects of targeted anti-tumor therapies on the tumor microenvironment**.
Focus on high-dimensional analysis of tumor samples collected after relapse on targeted therapies

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CMC - Chemistry Manufacturing and Control

- **Genomic Medicine Unit 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
  → Automation for cryobag/cryovial fill and finish for cell therapy applications
- **Drug Substance (Mammalian & microbial platform)**
  → 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
- **Drug Substance (Synthetics)**
  → Development of an efficient methodology using High throughput Experiments and 1st principal models to accelerate development and optimization
  → Artificial Intelligence / Machine learning in chemical route definition
  → Definition of a chemical mechanistic discrimination methodology using ML/IA in closed loop system
  → Sustainable Metals for cross coupling reactions in industrial processes for synthetic pharmaceuticals.
  → Recovery or Regeneration of active, soluble noble metal catalysts from industrial fluxes from fine chemicals manufacturing
  → Next Generation of biocatalysts: enzyme catalyzed CSP2-CSP2 bond forming reactions, enzyme catalyzed cycloadditions, general peptide and isopeptide bond forming reactions
  → Chemistry in and on water
  → Novel modes of activation for chemical reactions (photo, electrochemical etc).
- **Drug Product Synthetics**
  → Continuous Process applied to Drug Product manufacturing to reduce time to market & development cycle costs & ensure sustainable Eco-Design (https://doi.org/10.1007/s12649-012-9146-2)
  → Development of Next generation of Process Analytical Tools (PAT) to support better quality in batch and/or continuous manufacturing
  → In-vitro Predictive tool taking into account permeability
  → Enabling technologies for BCS3/BCS4 compounds & macromolecules
  → DS/DP Co-crystallization
  → 3D Printing of pharmaceuticals
- **Drug Product (BioDPD)**
  → Stabilization of unstable/fragile proteins in liquid form at +5°C and/or room temperature (can be bundled with room temperature stable biological products)
  → Very high concentration formulations: focus on protein powder suspension-based formulation in non-aqueous vehicle compatible for subcutaneous delivery
  → Oral delivery of mAbs
  → Lyophilization to improve RT stability of biological products
  → Lipase resistant surfactants
  → Highly stable D2O based biologics formulation

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Privacy & Data protection notice

SANOFI is committed to protect your personal data and your privacy and implements all relevant measures to ensure such protection, in accordance with applicable laws and the terms of its Global Privacy Policy.
This Privacy Notice explains the purpose(s) and the modalities by which SANOFI processes your personal data collected through this paper form.

WHO IS RESPONSIBLE FOR YOUR DATA?

The personal data is collected and processed under the control of SANOFI-AVENTIS RECHERCHE & DEVELOPPEMENT 1, avenue Pierre Brossolette - 91380 CHILLY-MAZARIN

WHY IS YOUR DATA COLLECTED/PROCESSED?

We collect Your personal data for the following reasons:

- Follow-up on the call for projects for the "Sanofi iDEA-iTECH Awards 2023"
- Make a selection among the projects,
- Follow the applications,
- Generate statistics to evaluate the impact of the project and improve it for future editions.

This treatment is mandatory to enable you to participate in the program. If you refuse to provide your personal data, we will not be able to record your participation and your project will not be selected. Your personal data will be retained for as long as their conservation is necessary in view of the aims pursued, and will then be deleted.

WHO WILL HAVE ACCES TO YOUR DATA?

For the purposes set forth above, SANOFI may communicate your personal data to the following entities:

- Entities of the SANOFI;
- Our service providers;
- Our partners involved in the project;
- Legal and administrative authorities when required to do so by applicable law.

INTERNATIONAL TRANSFERS

SANOFI is a multinational Group. As such, Sanofi may need to transfer your personal data to entities of its Group or to third-party partners outside of the Sanofi Group. Such Sanofi or non-Sanofi entities may be located outside the Economic European Area, in countries where personal data legislation does not necessarily offer the same level of protection or in countries not recognized as offering an adequate level protection.
In order to ensure an adequate level of protection of your data, those transfers are safeguarded in accordance with the requirements of the country of origin of such transfers, and in the present case, Standard Contractual Clauses of the EU Commission

WHAT ARE MY RIGHTS CONCERNING MY PERSONAL DATA?

In accordance with the rights granted to you by law, you are entitled to:

- access by simple request to your personal data – in which case you may request to receive a copy of your personal data, unless such personal data is made available to you directly;
- request a rectification of your personal data if such is inaccurate, incomplete or obsolete;
- obtain the deletion of your personal data in the specific cases provided for by law;
- obtain a limitation of the processing of your data in the specific cases provided for by law;
- if applicable, receive your data in a standard format for transmission to another controller;
- to lodge a complaint with your data protection authority, the Commission nationale de l'informatique et des libertés.

In accordance with French Data Protection Law, you have the right to send to us your instructions as to the management of your personal data regarding their retention, deletion and communication.

WHO TO CONTACT FOR QUERIES?

To exercise your rights as set out above, please go to this webpage.
For any other queries concerning the processing of your personal data, you can contact SANOFI's Data Protection Officer at this address: privacy-office-global@SANOFI.com.