



NINESIGMA<sup>®</sup>

# Healthcare innovation insight

NineSigma has been involved in collaborating with healthcare organisations across the industry and contribute to finding innovative solutions.

# What are NineSigma projects in the Healthcare?

## PRIZE CHALLENGE

GSK Bio-Manufacturing Omics  
Data Challenge

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## RFP I

Cell-Based Potency Assay for mRNA  
Influenza Vaccines

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## RFP II

Seeking Manufacturers of Ultra Thin,  
Flexible Tubes with Customized  
Mechanical Properties

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## RFP III

Novel drug targets/seeds related to  
cancer-neuron axis

Our mission is simple and impactful:

**We work with major global pharma and healthcare companies, serving them with publicized & anonymous tech scouting, technology landscaping & OI Council surveys.**



Why?

**Global demand for healthier living environment, health monitoring and disease prevention is driving companies from different industries into the healthcare domain. In this business transformation companies need new technologies and partners outside of their core competences**

# I. GSK Bio-Manufacturing Omics Data Challenge



GSK has a dataset of metabolomic, proteomic, transcriptomic analyses of fed-batch cultures of *E. coli*, producing two different fusion proteins under multiple bio-reactor conditions.

GSK was interested in novel approaches that integrate data across layers to give new insights: This might include, but is not limited to, models that allow:

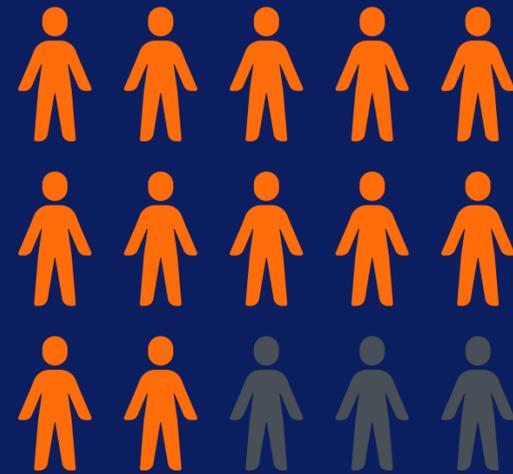
- Integrated modelling of the cell metabolism based on multiple layers of data (for example, metabolite concentration to gene expression)
- Systematic identification of the interaction between variables at the different layers
- Prediction of the phenotype based on the genotype

A panel of GSK subject matter experts reviewed the proposals and selected the winners based on: Unique approaches to combining data sets to generate new insights, applicability of approach to problems commercially relevant to GSK, and ability of proposal team to execute proposed approach

Selected applicants (both challenge winners and data users) could use the data under the Challenge Terms and Conditions. After the Terms and Conditions are agreed selected applicants will get access to the data via secure servers.

More information on the project: [Innovation Contest: GSK Bio-Manufacturing Omics Data Challenge](#)

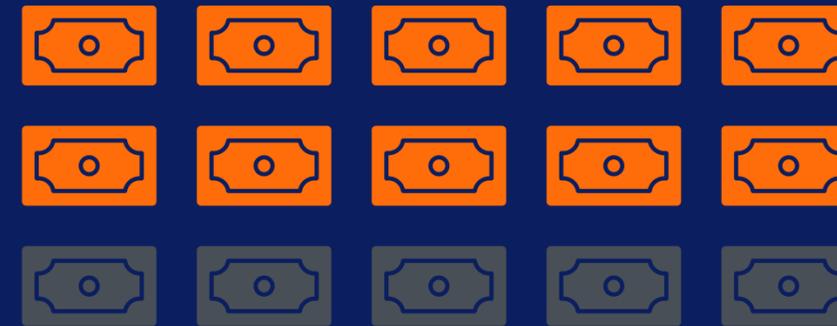
# Prize Challenge



**35+**

**submission**

PROPOSALS



**7000 €**

3 PRIZES OF  
7000€

## II. Cell-Based Potency Assay for mRNA Influenza Vaccines

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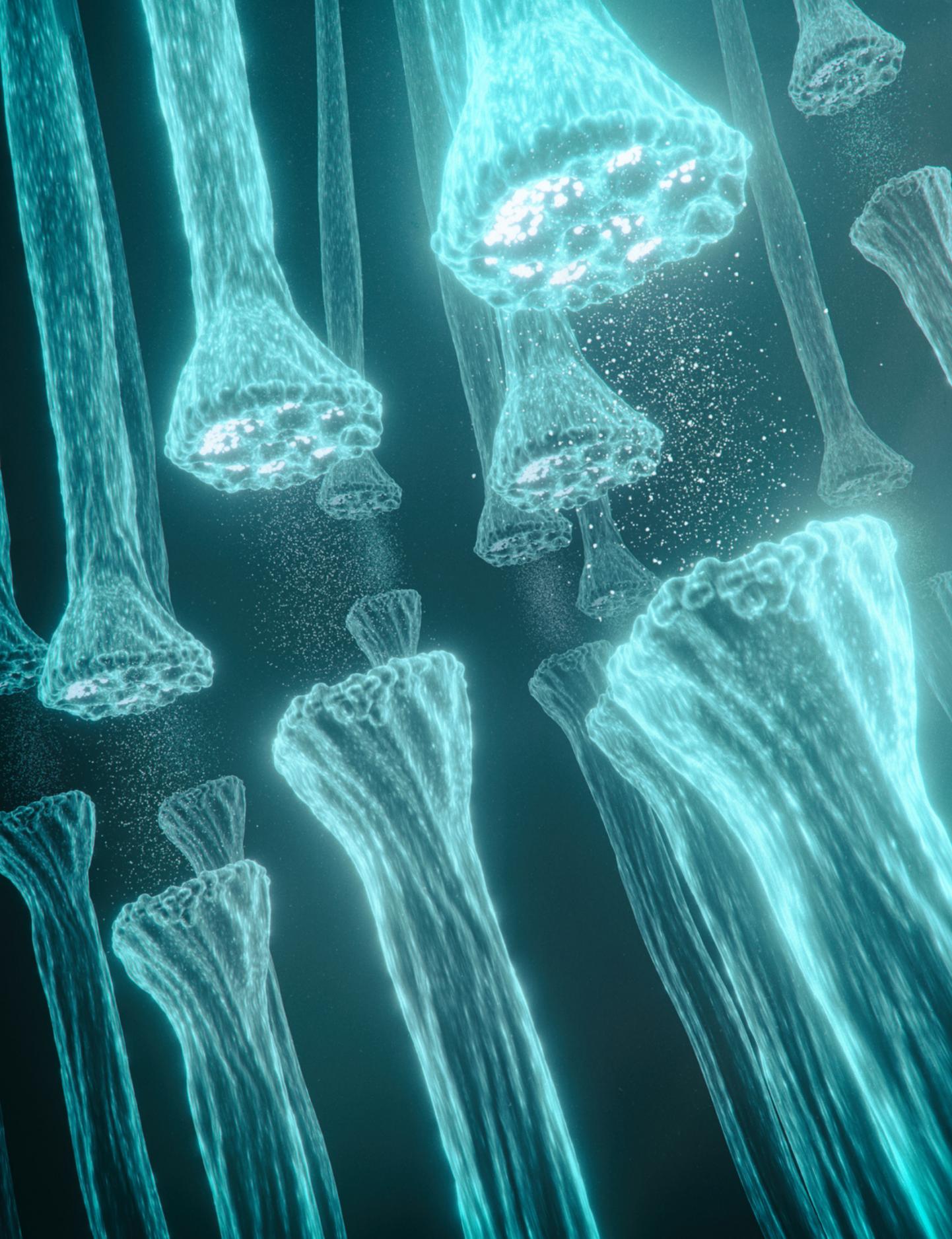
A global pharmaceutical company was developing a novel seasonal mRNA-based influenza vaccine. The vaccine is encapsulated in lipid nano-particles. They are developing a manufacturing process for the vaccine and need an assay to measure the biological activity of the vaccine they manufacture.

Our client was seeking a cell-based assay that can measure the biological activity of their future seasonal multivalent Flu mRNA based vaccine manufacturing lots.

Some key success criteria that have been highlighted for this project: In-vitro, cell based assay for mRNA influenza vaccines, uses mRNA delivery to human cells, a quantitative readout of the biological activity (potency) of the influenza vaccine, and works with mRNA vaccine encapsulated in lipid nano-particles.

Our client was open to all approaches that can fully or partially meet their requirements. Any relevant readout for example, but not limited to, the percentage of transfected cells, expression of the mRNA, quantification of antigen expression levels, antigen activity, etc. Any assay technology for example, but not limited to, flow cytometry, imaging, mass spectrometry, etc.

More information on the project: [Cell-Based Potency Assay for mRNA Influenza Vaccines](#)



## III. Novel drug targets/seeds related to cancer-neuron axis

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On behalf of [Daiichi Sankyo Co., Ltd.](#), they were seeking novel drug targets or seeds, which are related to cancer-neuron axis, an interaction between the nervous system and tumor.

Accordingly, the development of novel anti-cancer drugs targeting the nervous system as well as cancer cells or immune cells that interact with the nervous system has gained attention (Nature Biotechnology, 2020, Vol 38, 115-117).

Oncology is one of the focused research areas of the client. They are looking for innovative collaboration in order to develop cancer drugs targeting cancer-neuron axis that revolutionize the cancer therapy.

The key success criteria for this project was to look proposals for either drug targets or drug seeds, or both, by targeting Cancer cells.

The client reviewed the proposals (primary screening: approximately 6-8 weeks) and will possibly ask clarifying questions before selecting the most innovative proposal for collaboration.

More information on the project: [Novel drug targets/seeds related to cancer-neuron axis](#)

# IV. Seeking Manufacturers of Ultra Thin, Flexible Tubes with Customized Mechanical Properties for the year



A large European healthcare company, was seeking a partner to develop/produce ultra thin, thin-walled, flexible tubes. The tubes will be used for entering the human body in applications similar to urinary catheters or pipes used during minimally invasive heart surgery. NineSigma's client was expecting that these tubes are not available off-the-shelf and need to be custom made by the external partner to be able to meet our client's requirements - tube material, tube dimensions, tube's mechanical properties.

Some key success criterias that the manufacturing partners should have capabilities to **select the materials** that would allow them to manufacture tubes with the above listed requirements and capabilities to **prototype** very thin, flexible tubes in various dimensions with specific mechanical properties.

The potential partner could realize this with the following approaches, but are not limited to:

- Plastic extrusion (PEEK, Polyimide, PTFE, Polyamide, EVA, PU,...)
- Hybrid plastic extrusions
- Geometric transition extrusion
- Micro-extrusion

More information on the project: [Seeking Manufacturers of Ultra Thin, Flexible Tubes with Customized Mechanical Properties](#)

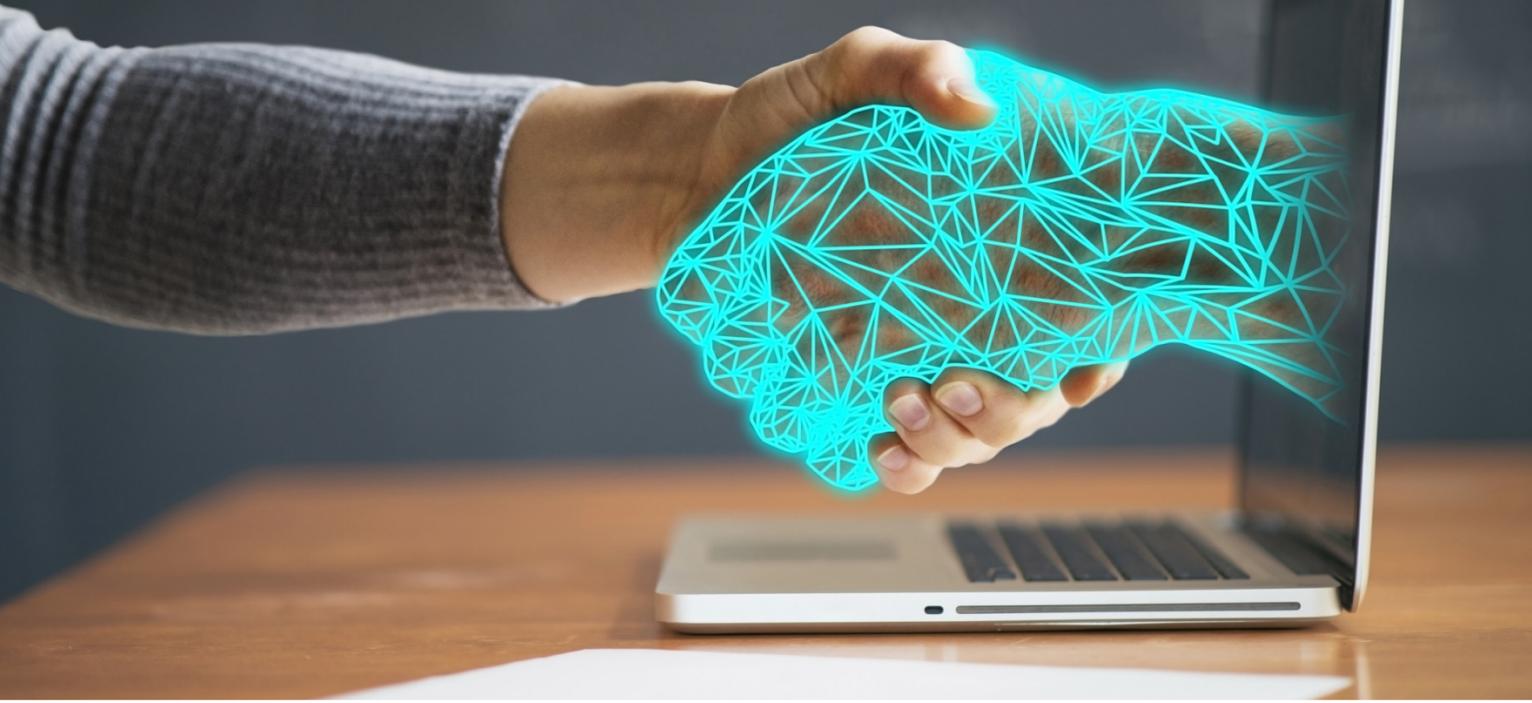
## Learn more about our projects

Discover more interesting  
topics in healthcare



## → Read more on our projects

- Controlled-release Formulation Technology for Oral Administration/Technology for Human PK Simulation
- Technology for the Concentration and Detection of Microorganisms in Complex Food and Beverage Matrices
- Versatile Platform for Genetic Engineering in Bacteria
- Manufacturers of Ultra Thin, Flexible Tubes with Customized Mechanical Properties
- Technology for the Concentration and Detection of Microorganisms in Complex Food and Beverage Matrices
- Food Materials, Food Ingredients, or Food Additives That Have Effects on Skeletal Muscles or Blood Vessels
- Controlled-release Formulation Technology for Oral Administration/Technology for Human PK Simulation
- Novel Formulation and Packaging for Single Dose Haircare Applications
- Technology for the in silico Prediction of Properties from Genomic Information
- Novel Drug Seeds for the Treatment of Intractable and Refractory Autoimmune Diseases
- Intradermal/Transdermal Drug Delivery Technology for Medium Molecular Weight Compounds



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We make innovation happen. We find, we connect. We help our Clients fulfill their strategic objectives.

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