NINESIGMA

Request for Proposal

NineSigma – Connecting technology seekers with solution providers around the globe

REQUEST RFP_2019_ 0095

Drug Delivery Technology to Target Muscle

RESPONSE DUE DATE: September 13, 2019

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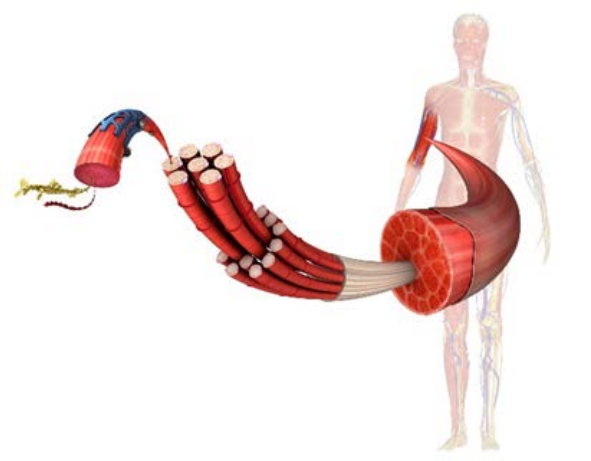
Opportunity
Joint research, licensing

Timeline
Feasibility study: Approx. 6 months to 1 year
Joint research: Assuming about 1 to 3 years after feasibility study, but not limited to this.

Financials
Up to USD 200,000 per year
(Details open to discussion based on proposals)



DESCRIPTION

NineSigma, representing a **major pharmaceutical company** in Japan, seeks a **drug formulation or drug delivery system (DDS) to effectively deliver any of antibodies, low molecular weight compounds or mRNA to target muscles (mainly skeletal muscles)**.

Delivery technology requirements
The Client seeks a drug formulation or DDS meeting the following requirements:

- Delivered compounds (active pharmaceutical ingredients (API)): Low molecular weight compounds, proteins (including antibodies) or mRNA.
- Delivery site: Target muscle (mainly skeletal muscle)
- Administration route: Systemic administration, for example, intravenous injection, subcutaneous injection, or oral administration.

[Formulation profile]

- After systemic administration, it should be able to be delivered to the target site efficiently.
  - In the case of subcutaneous injection, it can be delivered to targeted muscles widely, not just the administration site
- After delivery, it should be able to let API remain in the muscle at a high concentration.
  - In the future, it should be able to let API remain in the site for one week at a concentration of two to five times more than the case of administration API alone.
  - The drug should not accumulate in sites other than the target muscle or there should be no toxicity even if it does.
- Preferably, the effects of proposed formulation have been verified *in vivo*.

[Modification of API]

- A technology that does not modify the API is preferred.
- A technology that is applicable universally, rather than one that can only be applied to a single specific API.
  - Preferably, it can be applicable to two or more drugs.

BACKGROUND

The Client gives myopathy as one of the key areas of research and development and aims at innovative drug discovery for diseases with high unmet medical needs. If this proposed project is successful in combining the Client's candidate compounds with a formulation or DDS technology that can be delivered

effectively to the target site, it can help further accelerate/promote the research and development of new drugs.

POSSIBLE APPROACHES

The Client expects technologies such as the following, but is open to others that meet the requirements stated above:

- Artificial carrier technology adding targeting function and cellular permeability to drug carrier.
- Delivery technology using external stimulation with potential of practical application in clinical settings.

APPROACHES NOT OF INTEREST

The following approaches are not of interest:

- Gene delivery using viral vectors.
  (However, tools with potential of delivering low molecular weight compounds or antibodies into cells or enabling them across the specific organ vasculature (vascular endothelial) will be accepted for consideration.)

ANTICIPATED PROJECT PROCESS

After the submission due date, the client will review all submitted proposals. NineSigma will send the review results to each proposer 6-8 weeks after the due date. The client possibly asks clarifying questions before selecting the most suitable candidates for collaboration. The client will select best candidates through evaluations. During the selection process, the client may execute non-disclosure agreement (NDA) with selected respondents, seek further information disclosure, and discuss specific development targets or potential opportunities.
The client will execute necessary agreements with the selected respondents and move to the advanced development phase. Specifics of any collaboration will be determined through consultation with the concerned parties.

ITEMS TO BE SUBMITTED

Please include the following items in your proposal:

- Outline of proposed technology (e.g., principle, characteristics, uniqueness)
- Relevant data (data that are currently available: e.g., data on applicable drugs and drug delivery rates)
- Current development stage
- Intellectual property issue with reference to the proposed technology
- Other (e.g., requests regarding collaboration)

Please submit your proposal via NineSights, the platform of NineSigma's Open Innovation community, which allows you to manage your proposal draft and your past proposals. Please contact the Solution Provider Help Desk phd2@ninesigma.com for assistance about registration and proposal submission.

NOTES ON RESPONSE

Proposal shall have clear points and should not include confidential information. Supplemental files may be submitted in addition to the proposal.

RESPONSE EVALUATION

The client will evaluate all responses with the following criteria.

- Overall scientific and technical merit
- Approach to proof of concept or performance
- Economic potential of concept
- Realism of the proposed plan (action items, timeline, roles, deliverables, cost estimation)
- Potential for proprietary position
- Respondents' capability and related experiences