

# Partnering Opportunity

Profile status : Published

## Research Development Request

### **HORIZON-EIC-2021-PATHFINDERCHALLENGES-01-03: experts in cell culture in bioreactors and in microvesicles characterization are sought for the development of a new cancer therapy based on the secretome of uterine cervical mesenchymal stem cells**

#### Summary

*A Spanish hospital is looking for partners for submitting a proposal to the call HORIZON-EIC-2021-PATHFINDERCHALLENGES-01-03: Emerging Technologies in Cell and Gene therapy. Public or private entities and experts in cell culture in bioreactor and experts in microvesicles characterization are sought for developing a new cancer therapy based on the secretome of human uterine cervical mesenchymal stem cells.*

Creation Date	20 August 2021
Last Update	25 August 2021
Expiration Date	27 September 2021
Reference	RDES20210810001
Public Link	<a href="https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/419aac40-2bf1-477d-a9a1-982a0ad8d3e7">https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/419aac40-2bf1-477d-a9a1-982a0ad8d3e7</a>

#### Details

##### Description

Although there have been unprecedented advances over the last decade in stem cells research, the challenge is still to reach a cost-effective therapy for the integrated treatment of aggressive cancers.

Ref: RDES20210810001

This project aims to develop a new cancer therapy based on the secretome of human uterine cervical mesenchymal stem cells. The specific aim is to complete the preclinical studies necessary to accomplish a clinical trial on the application of conditioned medium (MC) and microvesicles derived from mesenchymal stem cells of the uterine cervix (hUCESCs) as an innovative therapeutic approach in breast, ovarian and pancreatic cancer.

Triple negative and metastatic breast, ovarian and pancreatic carcinomas represent examples of tumors that require novel therapeutic strategies. The hUCESCs represent a population of mesenchymal stem cells which have been isolated and characterized from cytologies and hysterectomy surgical specimens by the project coordinator, and secretome shows a strong antitumor effect, including an action against pro-carcinogenic cell elements of tumor stroma such as fibroblasts and macrophages. The use of the stem cell secretome prevents the present detriments of cell therapy (immune compatibility, tumor formation, embolism, infection transmission, clinical management issues and high economic cost) and, in addition, provides the following benefits:

i) secretome may be better assessed in terms of safety profile, dose and potency, analogously to conventional therapeutic agents; ii) secretome can be stored without the application of potentially toxic cryo-preservative agents; and, iii) the use of secretome-derived products, such as the conditioned medium or the extracellular vesicles, is more cost-effective and convenient for clinical purposes. Therefore, the use of the secretome could avoid the time and costs associated with the expansion and maintenance of cells in culture, since secretome for therapies could be prepared in advance in large amounts and be available for treatments when necessary.

In this Project the expansion of hUCESCs in a bioreactor will be upgraded, testing different platforms and physical-chemical conditions, with the cardinal objective to acquire relevant quantities of products derived from their secretome with the maximum anti-tumor effect. These products will be tested in in vitro and in vivo models, evaluating their effectiveness in a range of applications (intraperitoneal or intravenously) as well as their biodistribution.

The specific objectives for which experts are sought are the following:

1. Achieve hUCESCs expansion in the bioreactor and MC production, resulting in maximum antitumor potency for breast, ovarian and pancreatic cancer cell lines. This will be done by exploring the structural platforms (microcarriers) for expanding hUCESCs into the bioreactor, as well as the optimal chemical conditions (pH and O<sub>2</sub>) or stirring.
2. Optimize the isolation and functional characterization of the microvesicles present in the MC leading to maximum antitumor effect. Furthermore, a phenotypic and molecular characterization of the different populations of microvesicles obtained from the secretome corresponding to the different experimental conditions of objective 1 shall be conducted.

The project will be submitted to the call "HORIZON-EIC-2021-PATHFINDERCHALLENGES-01-03: Emerging Technologies in Cell and Gene therapy." (maximum budget is 4 M€).

The project has duration of 36 weeks. Deadlines for the call and expressions of interest are 27th October 2021 and 27th September 2021, respectively.

The coordinator of the project has a strong expertise in mesenchymal stem cells. Research partners from public or private organisations are sought with expertise in expansion of adherent cells in a bioreactor and isolation and functional characterization of microvesicles.

## Stage of development

Proposal under development

## IPR Status

Secret Know-how, Patents granted, Copyright

## Keywords

### Technology

06001019

Stem cell Technologies

06002002

Cellular and Molecular Biology

### Market

04006

Cellular and Molecular Biology

04013

Stem cells and biobanks

05005014

Oncology

## Network Contact

### Issuing Partner

ZACHODNIOPOMORSKI UNIWERSYTET TECHNOLOGICZNY W SZCZECINIE

### Contact Person

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Open for EOI: **Yes**

## Dissemination

### Relevant sector groups

Healthcare

## Client

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### Type and Size of Organisation Behind the Profile

Other

### Year Established

0

### Already Engaged in Trans-National Cooperation

No

### Client Country

Spain

### Experience

The hospital leading the proposal has a broad expertise in the use of secretome of human uterine cervical mesenchymal stem cells for their application in cancer therapies.

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## Partner Sought

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### Type and Role of Partner Sought

Hospitals, companies, SMEs or university or technology centres who can contribute to two strategic aspects are sought:

-Expansion of adherent cells in a bioreactor.

A collaborator with experience and ability to culture adherent cells in a bioreactor for the development of medium-large-scale secretome production is sought.

Task to be developed: choice of the most suitable microcarriers, the controls of the cell culture conditions, such as pH, oxygen tension and agitation as well as the scale-up of the production of secretome at least until 10L.

-Isolation and functional characterization of microvesicles.

A collaborator with experience in functional characterization of microvesicles is sought.

Task to be developed: isolation, quantification, conservation, molecular and functional characterization of microvesicles, as well as know-how in their manipulation in order to load them with anti-tumor agents and increase their trophism capacity towards tumors.

### Type and Size of Partner Sought

SME 11-50, University, R&D Institution, SME <10, >500 MNE, 251-500, SME 51-250, >500

### Type of Partnership Considered

Research cooperation agreement

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## Program - Call

### Framework Program

H2020

### Call title and identifier

HORIZON-EIC-2021-PATHFINDERCHALLENGES-01-03: Emerging Technologies in Cell and Gene therapy.

### Submission and evaluation scheme

Single-stage

### Anticipated Project Budget

4 M€

### Coordinator required

No

### Acronym

Stem cells secretome based cancer therapy ONCOSTEMPY

### Duration

144 days

### Deadline for EOI

27 Sep 2021

### Deadline of the Call

27 Oct 2021

### Weblink to the call

[https://eic.ec.europa.eu/eic-funding-opportunities/european-innovation-ecosystems/calls-proposals/eic-pathfinder-challenge-1\\_en](https://eic.ec.europa.eu/eic-funding-opportunities/european-innovation-ecosystems/calls-proposals/eic-pathfinder-challenge-1_en)

## Attachments

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Publication related.