Profile View

Details

Title: Korean start-up company developing bio-medical micro-robot system using electromagnetic field for interventional treatment is looking for partners who have the ability to carry out pre-clinical studies and clinical trials under a subcontracting agreement

POD Reference: BRKR20210924001

Summary:

The Korean company, established in 2019, has been developing a bio-medical micro-robot system using electromagnetic fields for the treatment of vascular diseases. The company is looking for partners amongst companies, research institutes, hospitals and other organizations with capabilities to carry out pre-clinical studies (i.e. animal tests) and clinical trials for validating the company's bio-medical micro-robot system under a subcontracting agreement.

Description:

Company's medical microrobot system is composed of magnetic guidewire-microrobot, current control unit, user interface software, and electromagnetic coils. Electromagnetic coils which are fixed under patient bed, are designed to be compatible with conventional medical image equipment such as X-ray according to the clinicians' feedback. This allows the medical team and the operator to easily approach the patient when in need. These coils can be uninstalled/unfixed after use, and kept secured separately. Once the equipment has been removed, the surgery room is ready to be used for other general procedures. Hence, there is no need for an exclusive surgery room.

The company is prioritizing medical microrobot system for interventional treatment. However, its applicable in the field of active target therapy. With the identical principle, different types of microrobots could deliver therapeutic agents to a specific lesion inside the body using 3D magnetic field control system.

Conventional methods of drug treatment include oral intake and injection. These methods face major weakness which the drug also affects the normal tissues simultaneously. As result, the amount of drug delivered to target area is often inadequate, along with risk of side effects on unwanted areas. With magnetic microrobots and 3D magnetic field control system for its manipulation, it is able to deliver drugs to specific lesion for full efficiency.

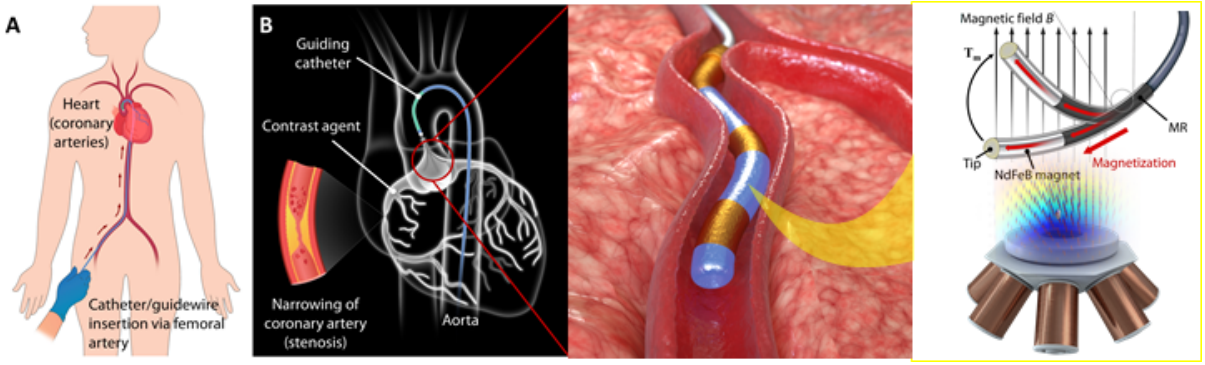
The company is one of the leading entrepreneurs in developing medical microrobot system. Core members have the largest number of patents applied for the past 5 years, with more than 10 years of experience in microrobot research and for its use as medicine. Research papers are one of the top influential papers in the world with publications in Science Robotics, Science Advances, Advanced Materials, Soft Robotics, Micromachines and more.

Company is looking for partnership with any organization, research institutes, hospitals, and others that are interested in utilizing microrobot as the next generation medical device. Partner should be able and willing to carry out preclinical studies and clinical trials under a subcontracting agreement.

Advantages and Innovations:	The conventional method for interventional treatment is to manually manipulate the guidewire inside the patients' body by hand. This limits active steering of the guidewire and is highly dependent on the experience of the operator, which potentially leads to varied success rate of the procedure. Manual manipulation takes longer procedure duration, since the steering guidewire fully depends on operator's skills, hence increasing the amount of radiation exposure for both patient and operator. In addition, the manual manipulation limits the accessible blood vessels. The Korean company suggests magnetic guidewire microrobot and 3D magnetic control system for its manipulation for precise interventional treatment, and is seeking to overcome the limits of conventional methods and maximize the efficiency and success rate. Electromagnetic field generated by electromagnetic coils is harmless to the human body, and allow active steering of guidewires inside the complex blood vessels. This allows the operator to deliver the guidewire and other necessary medical equipment to targeted lesion with more safety, precision, and quickness. The Korean company's product has the following advantages: - Faster, more precise guidewire manipulation with stable magnetic field using electromagnetic coils - Faster manipulation allow reduced time for procedure, less radiation exposure for the patient - Less dependent to highly experienced operator with conventional manual manipulation - Expect to reduce procedure time down to average 30min, from current average of 30-280min - Expect to improve success rat
Technical Specification or Expertise Sought:	The company is seeking partnership with European hospitals, research institutes, and related companies through subcontracting contracts. The partner is expected to have the ability to conduct not only preclinical studies such as animal studies but also clinical trials for validation of the company's bio-medical microbot system for further research and development. Partnered organization is expected to carry out preclinical studies including middle size animal tests such as mini-pigs, followed by clinical trials under a subcontracting agreement. The Korean company expects the partnered company to gather information and data based on the test results including guidewire steering inside blood vessels, duration to reach the targeted lesion, whole procedure duration, etc

Stage of Development:	Prototype available for demonstration
IPR status::	Patents granted

Attachments



The microrobot

Keywords

Technology Keywords:	06001012 Medical Research 06001013 Medical Technology / Biomedical Engineering
Market Keywords:	05003002 Surgical instrumentation and equipment
NACE Keywords:	C.32.5.0 Manufacture of medical and dental instruments and supplies

Partner Sought

Type and Role of Partner Sought:

The Korean company is looking for partnership with hospitals, research institutes, and companies of related field in the European region under a subcontract agreement. The partnered company is expected to have the capacity to carry out preclinical study (i.e. animal test) and clinical trials for validating the company's medical microrobot system for further development and improvement.

Company's partner shall carry out preclinical studies including animal tests (e.g. mini-pigs) and clinical trials. Under a subcontracting agreement, partner organization is expected to collect according information and data. Analytic results/data from the tests and trials should include steering of guidewire-microrobot inside the test subject's blood vessels, time consumed to reach the desired lesion, time consumed for the completion of procedure, amount of radiation exposure from radioactive equipment, etc.

Type and Size of Partner Sought:	>500 >500 MNE 251-500 R&D Institution SME 51-250 University
Type of Partnership Considered:	Subcontracting

Client

Type and Size of Client:	Industry SME <= 10
Year Established:	2019
Turnover (euro):	<1M
Already Engaged in Trans-National Cooperation:	Yes
Languages Spoken:	English
Client Country:	South Korea

Dissemination

Relevant Sector Groups:	Healthcare

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