# Partnering Opportunity

**Profile status : Archived**

## Technology Offer

# Determination of steroid hormones in river waters.

## Summary

*A Romanian research institute, active in the research and development of new methods in the analytical chemistry field, has developed a method for the determination of steroid hormones (estrone and β-estradiol) in water samples from rivers, with useful applications in environmental protection and bio-agriculture. The institute is looking for partners to conclude commercial agreements with technical assistance (engineering and technical assistance).*

| | |
|---|---|
| **Creation Date** | 07 June 2018 |
| **Last Update** | 26 May 2020 |
| **Expiration Date** | 26 May 2020 |
| **Reference** | TORO20180523001 |
| **Public Link** | https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/eb27dab7-5f88-4fdf-8693-4ec78ffd9c45 |

## Details

### Description

The Romanian research institute is specialized in analytical chemistry, applied in three main directions: Environment and Health, Instrumental Analytical Chemistry, Bioenergy and Biofuels. The institute has a remarkable endowment that allows approaching projects from research stage up to prototype realization and technology transfer.

Scientific studies show that, in order to accelerate the growth rate of animals, farmers are presently using animal feed doped with hormones, that may cause both reproductive disorders and abnormal development in wildlife as well as the reduced fertility of human males. The transfer of these toxic compounds from animal feed to the edible products of these animals (meat, organs, milk, eggs) determines human exposure to these contaminants. On the other hand, through the discharges from the sewage treatment stations, various quantities of steroid hormones

(estrone and β-estradiol) are released in the aquatic environment, especially in rivers. These facts may put in danger the human health, as river waters are used as a source of drinking water in many countries.

A careful analysis of these steroid hormones is mandatory, in order to respect the water pollution control legislation. In this context, the Romanian institute has developed an extremely sensitive analytical method for the determination of steroid hormones (estrone and β-estradiol) that may exist in river waters.

As compared to other existing methods based on the extraction of steroid hormones from water by using chemicals, the method developed by the Romanian institute does not use any chemicals being, therefore, an environmentally friendly one. The method has two stages:
• solid-phase microextraction - SPME procedure, where the steroid hormones are extracted by their absorption on fiber;
• steroid hormones identification and quantification, by using high-tech equipment - gas chromatography coupled with mass spectrometry (GC-MS).
Thus, the method is very sensitive and precise because it can determinate the steroid hormones at trace and ultra-trace level from the river water samples tested.

The Romanian research institute is looking for partners abroad such as environmental analysis laboratories or water polluting SMEs/large companies. The considered partnership refers to commercial agreements with technical assistance (engineering and technical assistance) in the method transfer and implementation on the partner's equipment, as well as staff training.

## Advantages and innovations

The developed method is:
- sensitive and precise, allowing the determination of very low concentrations (ng/l) of estrogenic compounds from river water samples;
- innovative, by: 1) making use of a single step extraction, 2) determining the steroid hormones at trace and ultra-trace level, and 3) using the solid phase microextraction (SPME) procedure (a unique sample preparation technique that requires neither solvents nor complicated apparatus).

## Stage of development

Available for demonstration

## IPR Status

Patents granted

## Comment Regarding IPR status

Patent granted by the Romanian State Office for Inventions and Trademarks.

## Profile Origin

COSME

# Keywords

**Technology**

| | |
|---|---|
| 05001001 | Analytical Chemistry |
| 05004002 | Extraction |

**Market**

| | |
|---|---|
| 08004004 | Other pollution and recycling related |

**NACE**

| | |
|---|---|
| M.72.1.9 | Other research and experimental development on natural sciences and engin |

## Network Contact

**Issuing Partner**

INSTITUTUL NATIONAL DE CERCETARE DEZVOLTARE PENTRU OPTOELECTRONICA INOE 2

**Contact Person**

Balgaradean Cristina-Maria

**Phone number**

0040 264 420590

**Email**

*cristina.balgaradean@icia.ro*

## Open for EOI: No

## Dissemination

**Relevant sector groups**

Environment

## Client

**Type and Size of Organisation Behind the Profile**

R&D Institution

**Year Established**

1992

**Turnover**

<1M

**Already Engaged in Trans-National Cooperation**

Yes

**Certifications Standards**

ISO 9001:2008
ISO 17025:1999

**Languages Spoken**

Romanian
English

**Client Country**

Romania

**Experience**

Certification Standards: SR EN ISO/CEI 17025:2005

## Partner Sought

**Type and Role of Partner Sought**

Type of partner sought:
- Environmental analysis laboratories accredited in water testing and analysis, interested to use the method for monitoring steroid hormones in river waters.
- Water polluting SMEs /large companies, active in different fields of activity, that have to comply with the legislation in force regarding the admissible water pollution levels.

In the commercial agreement with technical assistance, the sought partner is expected to implement the method for the determination of steroid hormones.
The Romanian Institute will support the partner with technical consultancy regarding the use of appropriate equipment and/or its purchase as well as with the know-how transfer of the method and staff training.

**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**

Commercial agreement with technical assistance

## Attachments