

French start-up offers new generation of aptamer-based biosensors as alternative to antibodies through technical cooperation agreement

Summary

Profile type	Company's country	POD reference
Technology offer	France	TOFR20220701008
Profile status	Type of partnership	Targeted countries
PUBLISHED	Commercial agreement with technical assistance	• World
Contact Person	Term of validity	Last update
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General Information

Short summary

A French start up offers a new generation of aptamer-based biosensors for rapid tests as alternative to antibodies, identified in vitro and produced by chemical synthesis with reduced costs, ensured sourcing and thermostability. Such tools allow targeting, detecting, quantitating or capturing any chemical or biological species of interest in the fields of health sciences, pharma, agri-food safety and environment.

A technical cooperation agreement is sought. A manufacturing agreement is possible

Full description

Co-founded in 2016 by 2 PhD molecular biologists, one of them with over 26 year experience in the aptamer field, the French start-up develops biotechnological products. Its main activity is dedicated to the selection, characterization, optimization and functionalization of custom oligonucleotide aptamers, which are usually called nucleic acid antibodies. Very few companies in the world can develop such aptamer-based tools, in this emerging market. The French start-up employs engineers, PhDs and post-docs and already deals with foreign partners. More than 75 % of the company's turnover came from international sales in 2021. It is currently developing collaborative projects with academic laboratories and R&D departments of Pharmaceutical, Diagnostic and Agri-food companies worldwide.

Aptamers bind with high affinity to any target of interest: small molecule, protein, peptide, toxin, virus, cell, etc. They represent an alternative to monoclonal antibodies as diagnostic probes, analytical tools or therapeutic agents. In this way, aptamer-based tools allow the rapid detection, quantification or capture of chemical or biological entities as biomarkers, metabolites, drugs, pollutants, virus, cells, ...

Aptamers used by biologists and chemists can be developed by the French start-up either as DNA (Deoxyribonucleic acid), RNA (ribonucleic acid) or chemically-modified RNA (2'F) oligonucleotides. The start-up develops both: first generation aptamers identified through the standard SELEX procedure (Systematic Evolution of Ligands by Exponential Enrichment process), and second generation aptamers through its switching technology NOVAswitch. The aptamer-based tools obtained with the French SME method show the advantages of so-called "chemical antibodies" i.e. a strong affinity for their cognate ligand and a high specificity of recognition.

The French start-up is expanding fast and is looking for new partners worldwide, to collaborate on new or existing projects.

The French company collaborates with partners under different scenari:

TECHNICAL COOPERATION:

The French company provides its know-how and human and technical resources to co-develop an aptamer with the partner's R&D team. The collaboration is based on a technical cooperation agreement.

MANUFACTURING AGREEMENTS :

- The French company provides the aptamer-based solution according to the partner's specifications. It allows the potential partner to subcontract the aptamer production while designing a new product or service.
- The French company produces a turnkey solution, involving aptamer-based biosensors, to meet the potential partner's needs. The solution development is then entirely backed by the French company.

Advantages and innovations

The in vitro process for aptamer selection and their easy chemical production yields non-equivalent benefits compared to antibodies:

- no live material required for the selection process (Good Manufacturing Process with less constraint),
- specificity control,
- no biological material required for the production,
- no batch to batch variation of fonctionnality,
- ensured sourcing, stability over a long term period without need of cold chain, easy storage and transport, large scale production, reduced production costs, wide variety of chemical modifications.

Stage of development

Already on the market

IPR Status

Secret know-how

Sustainable Development goals

• **Not relevant**

Partner Sought

Expected role of the partner

The French start up is looking for partners in the fields of human and animal pharmahealth and diagnostics, biotech,

food and nutrition, environment, chemical industry or cosmetic industry:

- R&D/innovation departments of companies or private laboratories,
- R&D academic laboratories.

Under a technical cooperation agreement, the French start-up will provide its expertise and know-how to co-design custom aptamer-based tools meeting the partner's client needs. The partner will contribute actively to the technical cooperation, preferably over the long-term.

The French start-up also works with partners under a manufacturing agreement, according to the partner technical specifications. It can either be on fee for service basis for the design of an aptamer-based tool later integrated in the partner service offer to its market or on a turnkey basis, to develop on its own, custom turnkey products meeting the partners' technical requirements.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

- **Big company**
- **SME 11-49**
- **University**
- **SME 50 - 249**
- **R&D Institution**
- **Other**
- **SME <=10**

Dissemination

Technology keywords

- **06001005 - Diagnostics, Diagnosis**
- **06001012 - Medical Research**
- **06004 - Micro- and Nanotechnology related to Biological sciences**
- **06002006 - Synthetic Biology**
- **06001015 - Pharmaceutical Products / Drugs**

Targeted countries

- **World**

Market keywords

- **04002 - Monoclonal Antibodies and Hybridomas**
- **05001005 - Molecular diagnosis**
- **05001002 - In-vitro diagnostics**
- **05002005 - Other medical imaging**
- **05009003 - Animal health**

Sector groups involved

- **Bio Chem Tech**
- **Healthcare**

Media

Images



[The purple aptamer has captured the yellow target](#)

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