



## OSE Immunotherapeutics Publishes New Data on FR104, CD28-Antagonist Immunotherapy

FR104 shows immune tolerance superiority over CTLA4-Ig in humanized skin transplant model  
FR104 efficacious in graft-versus-host reaction in bone marrow transplant model

**NANTES, France, 19 October 2017, 18:00 p.m. CET – OSE Immunotherapeutics SA** (ISIN: FR0012127173; Mnémo: OSE), today announces the positive results of two preclinical studies evaluating FR104, an anti-antagonist antibody of CD28, a receptor which controls the activity of effector T lymphocytes. The first study, conducted in collaboration with the University of Oxford, was published in the *JCI Insight* (Journal of Clinical Investigation) <sup>(1)</sup>. The second study was conducted in collaboration with the Children's Cancer Research Institute (Washington) and the University of Vienna, and was published in *Frontiers in Immunology*<sup>(2)</sup>.

The research conducted in collaboration with the University of Oxford demonstrated the efficacy of FR104 in a humanized human skin transplant model, which is recognized as representative and predictive of clinical situations. In this model, FR104 significantly prolonged allograft survival compared to an immunosuppressant control product, CTLA4-Ig. The differential advantage provided by the selectivity of FR104 is to significantly reduce the activation of T lymphocytes, while sparing the activity of regulatory T lymphocytes. This is a further demonstration of the ability of FR104 to promote immunological tolerance.

A separate study conducted in collaboration with the Children's Cancer Research Institute and the University of Vienna focused on the control of the graft-versus-host (GVHD) reaction that can follow a bone marrow transplant. The results demonstrated that FR104 blocked the alloreactivity of T-cells, allowing a control of the reaction of the GVHD, without compromising their control of anti-infectious immunity.

Bernard Vanhove, COO of OSE Immunotherapeutics, Head of R&D and International Scientific Collaborations, commented: *"These new preclinical FR104 data are indicative of the vast expertise of our R&D team and that of the Nantes teams of the Center for Research in Transplantation and Immunology (Joint Research Unit of INSERM and the University of Nantes) in transplantation and immunology. Their research has been conducted with multiple international partners, including the Universities of Oxford and Vienna."*

Following positive Phase 1 clinical results, OSE Immunotherapeutics announced Janssen Biotech, Inc. exercised its option to further develop FR104. In exchange for this exclusive worldwide license, OSE Immunotherapeutics is eligible to receive up to €155 million, plus royalties.

*"Our research in immunology and transplantation has led to a multitude of significant immune system-related findings, and provided OSE Immunotherapeutics with a number of new product development opportunities in immuno-oncology, especially on suppressive myeloid cells where original targets and products are under development"*, concluded Dominique Costantini, CEO of OSE Immunotherapeutics.

<sup>(1)</sup> Selective blockade of CD28 on human T cells facilitates regulation of alloimmune responses

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<sup>(2)</sup> CD28 Blockade *Ex Vivo* Induces Alloantigen-specific Immune Tolerance but Preserves T-Cell Pathogen Reactivity

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## ABOUT OSE Immunotherapeutics

### Our ambition is to become a world leader in activation and regulation immunotherapies:

OSE Immunotherapeutics is a biotechnology company focused on the development of innovative immunotherapies for immune activation and regulation in the fields of immuno-oncology, autoimmune diseases and transplantation. The company has several scientific and technological platforms: neoepitopes, agonist or antagonist monoclonal antibodies, ideally positioned to fight cancer and autoimmune diseases. Its first-in-class clinical portfolio offers a diversified risk profile.

#### In immuno-oncology:

- **Tedopi<sup>®</sup>**, 10 combined neo-epitopes to induce specific T activation in immuno-oncology – Phase 3 trial in advanced NSCLC; follow-up of patients included ongoing after temporary pause of new patient accrual end of June 2017.  
Phase 2 with Tedopi<sup>®</sup> in combination with an immune checkpoint inhibitor planned in advanced pancreatic cancer, in collaboration with GERCOR, a cooperative group of clinical research.
- **OSE-172** (Effi-DEM), new generation checkpoint inhibitor targeting myeloid cells via the SIRP- $\alpha$  receptor - In preclinical development for several cancer models. Clinical program planned end of 2018.
- **OSE-703** (Effi-3), cytotoxic monoclonal antibody against the alpha chain of IL-7R - Under a research collaboration with Memorial Sloan Kettering Cancer Center, New York.

#### In auto-immune diseases and transplantation:

- **FR104**, CD28-antagonist in immunotherapy - Phase 1 trial completed – For the treatment of autoimmune diseases and for use with transplantation - Licensed to Janssen Biotech Inc. to pursue clinical development.
- **OSE-127** (Effi-7), interleukin receptor-7 antagonist - In preclinical development for inflammatory bowel diseases and other autoimmune diseases. Clinical phase planned end of 2018. License option agreement with Servier for the development and commercialization.

The portfolio's blockbuster potential gives OSE Immunotherapeutics the ability to enter global agreements at different stages of development with major pharmaceutical players.

Immunotherapy is a highly promising and growing market. By 2023 Immunotherapy of cancer could represent nearly 60% of treatments against less than 3% at present \* and the projected market is estimated at \$67 billion in 2018 \*\*. There are more than 80 autoimmune diseases that represent a significant market including major players in the pharmaceutical industry with sales towards \$10 billion for the main products. The medical need is largely unmet and requires the provision of new innovative products involved in the regulation of the immune system.

\*Citi Research Equity

\*\*BCC Research

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***Forward-looking statements***

This press release contains express or implied information and statements that might be deemed forward-looking information and statements in respect of OSE Immunotherapeutics. They do not constitute historical facts. These information and statements include financial projections that are based upon certain assumptions and assessments made by OSE Immunotherapeutics' management in light of its experience and its perception of historical trends, current economic and industry conditions, expected future developments and other factors they believe to be appropriate.

These forward-looking statements include statements typically using conditional and containing verbs such as "expect", "anticipate", "believe", "target", "plan", or "estimate", their declensions and conjugations and words of similar import.

Although the OSE Immunotherapeutics management believes that the forward-looking statements and information are reasonable, the OSE Immunotherapeutics' shareholders and other investors are cautioned that the completion of such expectations is by nature subject to various risks, known or not, and uncertainties which are difficult to predict and generally beyond the control of OSE Immunotherapeutics. These risks could cause actual results and developments to differ materially from those expressed in or implied or projected by the forward-looking statements. These risks include those discussed or identified in the public filings made by OSE Immunotherapeutics with the AMF. Such forward-looking statements are not guarantees of future performance.

This press release includes only summary information and should be read with the OSE Immunotherapeutics Reference Document filed with the AMF on 28 April 2017 under the number R.17-038, including the annual financial report for the fiscal year 2016, available on the OSE Immunotherapeutics' website.

Other than as required by applicable law, OSE Immunotherapeutics issues this press release at the date hereof and does not undertake any obligation to update or revise the forward-looking information or statements.