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EUROSTARS GRANTS PROJECT FUNDING FOR IMMUNOMONITOR CONSORTIUM

A multi-million grant for the clinical validation of an immunosequencing analysis solution for monitoring of treatment responses to cancer vaccines

's-Hertogenbosch, The Netherlands, July 5, 2018 – A total grant sum of EUR 2 million has been awarded to a multidisciplinary EUROSTARS consortium. The EUROSTARS project is titled "Treatment Response Monitoring for Cancer Immunotherapies Using Immune Repertoire Analysis" and named IMMUNOMONITOR. This European consortium consists of five collaborating partners: ENPICOM (Netherlands), a bioinformatics and software engineering company; Biomax Informatics (Germany), a knowledge management solution company; Ultimovacs (Norway), a pharmaceutical company developing innovative vaccines for treatment of cancer; the lab of Prof. Binder of the University Medical Center Hamburg-Eppendorf or UKE (Germany); and OSE Immunotherapeutics (France), a biotechnology company developing innovative immunotherapies for immune activation and regulation in the fields of immuno-oncology and autoimmune diseases.

ENPICOM develops a T-cell/B-cell receptor (TCR/BCR) repertoire immunosequencing data analysis platform to support the development, patient stratification and treatment monitoring of immunotherapies. The goal of the IMMUNOMONITOR project is to validate the data analysis and visualization software solution for treatment response monitoring of cancer vaccines based on a unique approach to over-time immune repertoire sequencing data analysis.

While a growing number of immunotherapies have been approved, no adequate diagnostic tests are available to capture the desired immune response and to monitor if the therapy is effective in an individual patient. The consortium is addressing this unmet medical need with a software solution to capture and monitor a patient's dynamic immune response over time using blood samples. Advances in Next-Generation Sequencing (NGS) allow taking 'snapshots' of a patient's immune response by sequencing DNA or RNA from the patient's immune cells (i.e. immune repertoire). The enormous diversity of immune repertoires results in a staggering amount of data, which cannot be handled by existing tools for NGS data analysis.

In the IMMUNOMONITOR project, advanced bioinformatics algorithms will be developed using NGS big data analysis to generate an 'immune status fingerprint' for monitoring cancer vaccines. The clinical validation studies will include two cancer vaccines tested in pancreatic cancer, lung cancer and malignant melanoma developed by OSE Immunotherapeutics and Ultimovacs, respectively.

Jos Lunenberg, CEO of ENPICOM, comments: "The collaboration will officially start today with a kick-off meeting in the Netherlands. We are extremely excited and happy to be working with this dedicated and highly motivated group of experts. This project is a great example of how a multi-disciplinary approach to healthcare can accelerate the process of translating technological innovation faster to patient benefits." Professor Mascha Binder (UKE) is very pleased too and adds: "TCR/BCR repertoire data analysis is a new and powerful technology to analyze the immune status of patients and guide immunotherapies. Within this project we aim to prove its true value in treatment responses to cancer vaccines".

The EUROSTARS program is a funding and support program, aimed at R&D-performing SMEs that wish to exploit the benefits that come with international collaboration. EUROSTARS applications pass through a highly-competitive selection process, being scrutinized by a panel of international research and business experts, to ensure that only the best business ideas and strongest partnerships get the support they need. It has been repeatedly shown that EUROSTARS helps businesses grow their teams, discover new expertise – and attract private investors. Within two years of completion the product of research should be ready for market introduction. The IMMUNOMONITOR consortium built and led by ENPICOM ranked number 52 in a total of 375 submissions.

About EUROSTARS

EUROSTARS is a joint program between EUREKA and the European Commission, co-funded from the national budgets of 36 EUROSTARS participating states and partner countries and by the European Union through Horizon 2020. Between 2014 and 2020, its public budget totaled €1.14 billion. EUROSTARS is dedicated to supporting international innovative projects, and supporting the development of rapidly marketable innovative products, processes and services, that help improve the daily lives of people around the world.

About ENPICOM

ENPICOM, a spin-off of the Free University Amsterdam, is a young, dynamic and rapidly expanding bioinformatics software development company. Originally set up in 2015 as a service organization building tailored solutions in the broad field of bioinformatics, since 2017 ENPICOM is also on a mission to bring to the market innovative products in the field of immunogenomics. Its first product in the pipeline is an innovative T-cell receptor and B-cell receptor repertoire analysis platform, to support the development, patient stratification and treatment monitoring of immunotherapies. For more information, visit: www.enpicom.com.

About OSE Immunotherapeutics

OSE Immunotherapeutics is a biotechnology company focused on the development of innovative immunotherapies for immune activation and regulation in the fields of immuno-oncology and autoimmune diseases. Neoepitopes innovation (Tedopi®) is today in Phase 3 in advanced lung cancers (NSCLC) after checkpoint inhibitors failure (anti PD-1 and anti PD-L1). A global license and collaboration agreement was signed in April 2018 with Boehringer Ingelheim to develop checkpoint inhibitor OSE-172 (anti-SIRPa monoclonal antibody), for the treatment of advanced solid tumors. An option to license was exercised in July 2016 by Janssen Biotech to continue clinical development of FR104 (an anti CD28 mAb) in auto-immune diseases after positive phase 1 results. A 2-step license option was signed in 2016 with Servier Laboratories to develop OSE-127 (monoclonal antibody targeting the CD127 receptor, the alpha chain of the interleukin-7 receptor) to develop the product up to the completion of a phase 2 clinical trial planned in autoimmune bowel disease and Sjogren's syndrome. 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.

About Ultimovacs

Ultimovacs (est. 2011) is developing novel immunotherapies against cancer. The company's leading product is the therapeutic cancer vaccine UV1. The aim of the vaccine is to generate a specific immune

response against cancer cells, regardless of type of cancer. The vaccine may provide a platform for other immuno-oncology drugs that require an ongoing T cell response for their mode of action. The target of the vaccine is telomerase (hTERT), the enzyme making limitless numbers of cell divisions possible for cancer cells. The UV1 vaccine is a second-generation peptide vaccine developed through long term studies of immune responses in patients with advanced malignant disease surviving several years after vaccination with an hTERT based therapeutic cancer vaccine. UV1 has been investigated in three clinical trials, two trials documenting safety and the vaccines ability to activate the immune system against cancer cells expressing hTERT in prostate cancer and lung cancer respectively and a third clinical trial combining UV1 with ipilimumab in patients with malignant melanoma. A phase I/II clinical trial combining UV1 with a PD-1 checkpoint inhibitor in patients with advanced malignant melanoma is ongoing. For more information please visit www.ultimovacs.com

About UKE

Knowledge – Research – Healing through Shared Competence: The UKE

The UKE is one of Europe’s most modern clinics. Here specialists from all fields of medicine are brought together under one roof. State-of-the-art medical technology, innovative information technology, and architecture created with the provision of medical care at the forefront, all with the aim of optimally supporting doctors, nursing staff, and therapists. The ideal conditions for the interlinkage between modern medicine, research, and teaching are found at the UKE. 11,000 employees work around the clock with the singular aim of providing the best medical care to our patients.

About Biomax

Biomax Informatics AG provides computational solutions for better decision making and knowledge management in the life sciences. They help customers generate value by integrating information from proprietary and public resources. Biomax’s worldwide customer community includes companies, clinics and research organizations that are successful in healthcare, drug discovery, diagnostics, fine chemicals, food and plant production, and synthetic biology. For more information, visit www.biomax.com.

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