

## Press Release

### **The Medical University of Innsbruck is coordinating the EU research project on personalised cancer immunotherapy**

- **The “APERIM” project will start on 1 May: Precision medicine for cancer treatment**
- **Cancer immunotherapy: Pioneering and targeted tumour treatment**
- **Only EU project on personalised medicine coordinated in Austria**

**In future, cancer immunotherapy is to improve treatment of tumours. For this purpose, bioinformatics specialists at the Medical University of Innsbruck are developing a new treatment platform together with immunotherapy experts. The “APERIM” EU project is the only research project coordinated in Austria from the Horizon2020 Calls in the area of personalising health and care (H2020-PHC-2014).**

Innsbruck 14/04/2015: On 1 May, the Medical University of Innsbruck will start an innovative research project to implement modern, personalised cancer immunotherapy: Univ.-Prof. Dipl.-Ing. Dr. Zlatko Trajanoski, Director of the Innsbruck Division of Bioinformatics, is coordinating the APERIM “Advanced bioinformatics platform for PERSONALISED cancer IMMUnotherapy” project. Eight academic partners and three companies are working on practical implementation of immunotherapy specifically for unique tumour mutations of individual patients. “We are creating the conditions needed to better treat cancer with state-of-the-art precision medicine in future,” explains Trajanoski, the project coordinator. “Many research papers have shown that cancer immunotherapy is suitable for successfully treating cancer.”

The researchers will receive three million euros in funding via the Horizon 2020 EU Grant Programme. Univ.-Prof Trajanoski from Innsbruck Biocenter is the only Austrian project coordinator in the “Personalising health and care” funding pool.

#### **Immune system against cancer: Analysis of “next generation sequencing” data**

The immune system protects the human body not only against foreign pathogens, but also against tumour cells. Cancer cells can escape the control of the immune system in various ways. However this reduced defensive reaction can be stimulated therapeutically, as numerous research papers have shown. The new findings and ways of obtaining more and more information from samples, known as “next generation sequencing” methods, require the development of new platforms to utilise the data to treat patients. Treatment platforms process the individual data of cancer patients to allow it to be used for therapy recommendations, for example. Bioinformatics methods permit the evaluation and processing of the specific information on the molecular fundamentals of individual tumours, which in turn forms the basis for personalised cancer immunotherapy.

#### **“APERIM” - Four steps to personalised cancer immunotherapy**

The “APERIM” project has four goals: A new database will store all molecular information on a tumour, a new analysis tool will permit quantification of tumour-infiltrated T cells, a software application will provide the information required to produce personalised, therapeutic vaccinations and a new method will be used to develop a special T cell gene therapy.

Univ.-Prof. Trajanoski and his colleagues plan to develop a database in which all information on a tumour – i.e. findings from the histopathological image analysis as well as genetic and clinical data – can be entered. That allows all molecular properties and specific mutations of a tumour to be stored and retrieved. “This comprehensive information will then provide an important foundation for diagnosis and therapy,” explains Univ.-Prof Trajanoski, the project coordinator.

## Press Release

The second step will be the development of a tool for quantifying tumour-infiltrated T cells. “It is essential to determine the density and the subpopulations of the tumour-infiltrated T cells precisely to be able to identify high-risk patients. The more specific immune cells are infiltrating, the higher the chances of survival of cancer patients,” explains the expert.

The third project section will develop software to identify antigens for the development of individualised cancer vaccination based on the comprehensive detailed information. Every tumour has different properties, which makes it impossible to develop a single vaccination for a type of cancer. “Therapeutic vaccinations of this kind for treating cancer must be personalised and the software must facilitate the analysis required for this,” adds Trajanoski. The fourth and last project target is a vision for the future in particular, as there have only been a few experimental studies to date. “We want to develop a new method which makes it possible to predict the antigen specificity and tumour activity of the T cells. Based on this information, individual T cell gene therapy will be developed.” The APERIM project will evaluate the quality of such predictions.

### Partner

Medical University of Innsbruck, Austria  
National Center for Investigating Cardiovascular diseases (CNIC), Spain  
University of Tübingen, Germany  
Utrecht University, The Netherlands  
Masaryk University, Czech Republic  
French Institute of Health and Medical Research (INSERM), France  
Translational Oncology at the University Mainz (TRON), Germany  
The Netherlands Cancer Institute (NKI)

Definiens AG, Germany  
AptaIT, Germany  
Cemit – Center of Excellence in Medicine and IT GmbH, Austria

Press images with captions  
For download: <http://www.i-med.ac.at/pr/presse/2015/X.html>  
Free for use – Copyright Medical University of Innsbruck

### Media contact:

Medical University of Innsbruck  
Department of Public Relations  
Dr. Barbara Hoffmann-Ammann  
Innrain 52, 6020 Innsbruck, Austria  
Tel.: +43 512 9003 71830  
[public-relations@i-med.ac.at](mailto:public-relations@i-med.ac.at), [www.i-med.ac.at](http://www.i-med.ac.at)

## Press Release

### About Innsbruck Medical University

Innsbruck Medical University has approximately **1,400\*** employees and around **3,000 students** and, together with the University of Innsbruck, is the largest educational and research institution in western Austria and the regional university for Tyrol, Vorarlberg, South Tyrol and Liechtenstein. The following courses are offered at Innsbruck Medical University: **Medicine and Dentistry** as the basis of an academic medical degree and a **PhD degree (PhD)** as the postgraduate aspect of scientific work. The bachelor's degree in **Molecular Medicine** is new in the curriculum since autumn 2011. There is the possibility to continue with a master degree in Molecular Medicine.

Innsbruck Medical University is involved in numerous international educational and research programmes and networks. The research focuses on the areas **Oncology, Neuroscience, Genetics, Epigenetics** and **Genomics** as well as **Infectious Diseases, Immunology & Organ and Tissue Repair**. In addition to scientific research, Innsbruck Medical University is also nationally and internationally very successful in the highly competitive field of research funding.

\* full-time equivalent