SWISS BRIDGE

INVEST IN CANCER RESEARCH WORLDWIDE

**PRESS RELEASE**

# Presentation of the 14th SWISS BRIDGE Award for Cancer Research: 500 000 Swiss francs awarded for outstanding projects in the field of immunotherapy in oncology

**Zurich, October 30, 2014 – SWISS BRIDGE has chosen to grant their award to immunotherapy in oncology research projects. Two researchers have received an award for their projects' excellence in this area: Professor Laurece Zitvogel, from the Gustave Roussy Comprehensive Cancer Centre, France, and Professor Adrian Ochsenbein, from the Inselspital, Bern University Hospital, Switzerland.**

Both researchers are sharing the 500 000 Swiss francs award, which is being presented for the 14th time. Their projects have impressed the jury by their relevance and quality in immunotherapy, a very promising research area. The SWISS BRIDGE Award 2014 shall be awarded tonight in Zurich by Professor Gordon McVie from the European Institute of Oncology in Milan and President of the SWISS BRIDGE scientific jury.

## The importance of intestinal flora

Laurence Zitvogel, from the Gustave Roussy Comprehensive Cancer Centre, Villejuif, proposes to explore the influence of intestinal flora on immunotherapy treatments. This researcher has already made noteworthy advancements in the understanding of cancer by showing that intestinal flora can have a major influence on certain chemotherapies. Now she would like to better understand the influence of intestinal flora on the response to new immunotherapy treatment. Based on her most recent work, Professor Zitvogel proposes the hypothesis that certain types of bacteria can boost the treatment's effect, while other bacteria can hinder it instead. With this award, SWISS BRIDGE would like to encourage a very promising project that appears capable of providing essential progress in the fight against cancer.

## Understanding stem cells in order to better eliminate them

Adrian Ochsenbein, from the Inselspital, Bern University Hospital is focusing on cancer stem cells. These very specific cells are more resistant to treatment than other cells and are capable of dividing infinitely; allowing these cells to maintain tumour growth. So much so, that it is thought that these cells are responsible for relapses and tumour re-proliferation by escaping treatment. However, these stem cells need a favourable microenvironment to maintain growth. A fundamental element of this environment is the immune system's cells. By understanding these stem cells' characteristics and their interactions with the immune system, they can better be eradicated; which is the only way to completely eliminate certain types of cancer.

## Immunotherapy: a promising new therapy

This year, SWISS BRIDGE has decided to grant their awards to projects concerning immunotherapy; a very promising, new form of therapy, but one that is still not well understood. Immunotherapy is the treatment of a disease, in this case cancer, which consists of administering substances that will induce, stimulate or suppress an immune response. Cancer cells have established sophisticated strategies to escape the immune system. Thanks to advances in research, new drugs have the capacity to counteract these strategies, thus enabling our bodies to identify and eliminate cancer cells. These developments are opening new avenues towards cancer treatment.

The scientific jury, comprised of international experts, evaluated the 45 applications received and selected eight applicants to be invited to submit a detailed project description. Out of these eight selected projects, the two aforementioned were nominated for the award. The Swiss Cancer League's Scientific Office is responsible for the operational management from the call for proposals through to the coordination of the evaluation process.

*The **SWISS BRIDGE Award for Cancer Research,** endowed with 500 000 Swiss francs, is awarded already for the 14th time. The award is granted to outstanding research projects which are selected by a jury composed of internationally renowned scientists. The **SWISS BRIDGE Foundation** was founded in 1997, on the initiative of the founder and current foundation board member, Thomas Hoepli, with the support of the Swiss Cancer League. Their goal is to financially support high-quality domestic and foreign research projects aimed at the fight against cancer, along with the help of private donors and foundations. Since its founding, the SWISS BRIDGE Foundation has been able to award over 25 million Swiss francs for research work in Belgium, Brazil, England, France, Germany, Israel, Italy, Norway, Sweden, Spain and Switzerland.*

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**Short Descriptions of Research Projects**

**Prof. Laurence Zitvogel,** MD PhD, Gustave Roussy Comprehensive Cancer Centre, Villejuif, France

**How the gut microflora influences the efficacy of new anti-cancer treatments**

*(Original title: Impact of gut microbiota in the efficacy and toxicity of immune checkpoint blockers in oncology)*

Last year, progress in immunotherapy changed the landscape in oncology. New antibodies that help redirect the immune system to attack the tumour are now available: They are called immune checkpoint blockers, the first available being ipilimumab. They showed a broad potential and trials in many tumour types have been initiated. These drugs can achieve durable disease control, even in advanced cancers. Unfortunately, they do not work in all patients and some patients show severe adverse effects limiting their broad use.

Prof. Zitvogel recently showed that the gut microbiome composition, meaning the composition of the bacteria in our guts, has a profound influence on the efficacy and toxicity of those antibodies. She plans to explore the reasons for this and in a second step to validate the relevance of the findings in patients. Uncoupling efficacy from toxicity represents a challenge and an unmet medical need and is highly relevant for cancer control as checkpoint blocking is one of the most promising new treatments for cancer.

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**Prof. Adrian Ochsenbein**, MD, Department of Medical Oncology, Inselspital, Bern University Hospital

**Targeting the cancer-initiating cells**

*(Original title: Targeting TNF receptor TNIK signalling to eliminate cancer stem cells)*

In recent years, the understanding of cancer biology has fundamentally changed. While it was previously assumed that tumours represent a group of similar ever-proliferating cells, it has been recognized in the last 10 years that the tumours are formed from various cell types having different functions and potentials, and that the cells are organized hierarchically. In various tumour types, it was shown that only a small number of the cancer cells have the ability to maintain tumour growth over a long period of time, while most of the cancer cells only a have limited life span. These disease-initiating cells are called cancer stem cells, abbreviated CSCs. They self-renew and give rise to the other cells in the tumour. From a clinical point of view, CSCs are of fundamental interest since these cells are resistant to most of the current cancer treatments and might be responsible for disease relapses.

Resistance of CSCs to treatment is mediated by cell intrinsic characteristics but also by the interactions of the cells with their microenvironment. This is best documented for leukaemia stem cells that depend on signals from their surrounding environment to maintain stem cell characteristics. The immune system is an important part of the tumour microenvironment and may contribute to tumour control.

Over the last years, the laboratory of Prof. Ochsenbein has been investigating the mechanisms by which the immune system contributes to the progression of solid tumours and leukaemia. They recently documented that a signalling pathway is crucially involved in the formation of leukaemia as well as other solid tumours including colon cancer. This signalling pathway is called the TNFR/Wnt signalling pathway; it is a hallmark of CSCs and is necessary to maintain several important stem cell characteristics. Built on their previous work and new technical developments they will analyse the role of this signalling pathway in leukaemia stem cells and in colorectal CSCs. These experiments will investigate the possibility of manipulating this signalling pathway in order to target CSCs. This is of prime importance as it is becoming clear that the cure of cancer implies the elimination of cancer stem cells.