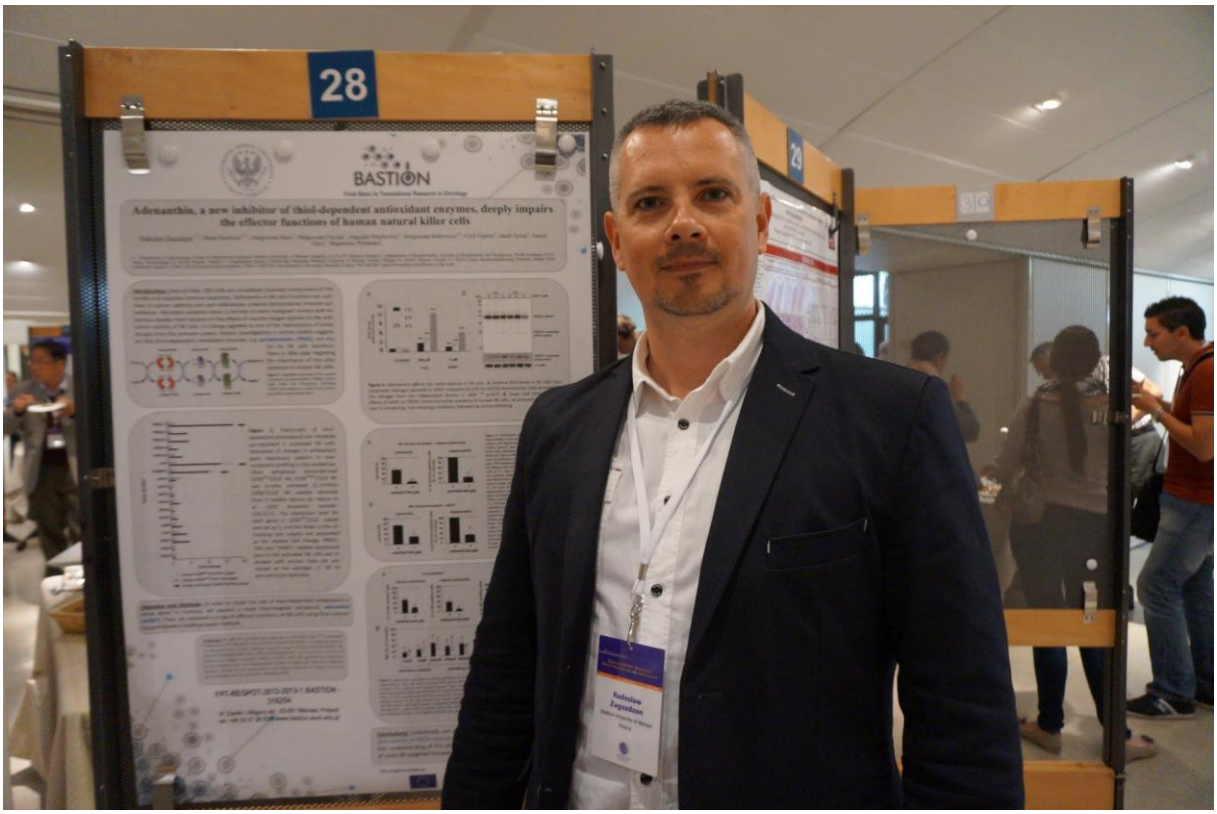
Report on active participation in 15th International Conference on Oxidative Stress Reduction, Redox Homeostasis & Antioxidants held at Pasteur Institute, Paris, France on June 22-24, 2015

Radoslaw Zagozdzon

More than 300 academic and industrial participants coming from Europa, USA, South America, Australia, Asia & New Zealand gathered during this 3-day international congress.

The meeting constituted an important opportunity for European and world researchers to discuss the most up-to-date results in the oxidant/antioxidant area as well as to start up new collaborations between top-class laboratories in their research fields. Participation of Dr. Zagozdzon in this meeting was a great chance to present his own research findings and to exchange scientific ideas with the world-class researchers studying oxidative stress in human physiology and pathology, including cancer.



Title and abstract of the poster presentation:

ADENANTHIN, A NEW INHIBITOR OF THIOL-DEPENDENT ANTIOXIDANT ENZYMES, DEEPLY IMPAIRS THE EFFECTOR FUNCTIONS OF HUMAN NATURAL KILLER CELLS

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Objectives: Deficiencies in NK cells functions are common in cancer patients and such deficiencies underlie dysfunctional immune surveillance. Persistent oxidative stress is intrinsic to many malignant tumors and numerous studies have focused on the effects of reactive oxygen species on the antitumor activity of NK cells. Indeed, investigations in animal models suggested that thiol-dependent antioxidant enzymes, e.g. peroxiredoxins (PRDX), are essential for NK cells functions. There is little data regarding the importance of this phenomenon in humans.

Methods: In order to study the role of thiol-dependent antioxidants in more detail in humans, we applied a novel thiol-targeted compound, adenanthin. Then, we assessed a range of effector functions of NK cells using flow cytometry and Western blotting-based methods.

Results: Following adenanthin treatment, in human primary NK cells we have observed profound alterations in redox balance parameters, changes in spontaneous and antibody-dependent NK cell cytotoxicity against cancer cells, impairment of degranulation and cytokine expression, and a decreased expression of activation markers.

Conclusions: Collectively, our study pinpoints the unique role for the antioxidant activity of PRDX-related enzymatic chain in human NK cell functions. Further understanding of this phenomenon will prospectively lead to fine-tuning of novel NK-targeted therapeutic approaches in human disease.

Please note: Dr. Zagozdzon was also a co-author of a poster presented by Dr. Malgorzata Bajor at the same meeting. This has been described in a separate report.