Report from active participation in 15th International Conference on Oxidative Stress Reduction, Redox Homeostasis and Antioxidants, June 22th –24th, 2015, Paris, France – Malgorzata Bajor

The 15th International Conference on Oxidative Stress Reduction, Redox Homeostasis and Antioxidants, was held at Institut Pasteur in Paris, from June 22 to 24, 2015.

Paris Antioxidants World Congress 2015 is recognized as the most important in field of oxidative stress conference and is extremely well attended by scientists from all over the world. ISANH Antioxidants 2015 highlighted the mechanisms of redox regulation of cellular processes. The great interest was focused on understanding the ways in which cells respond to oxidative stress and how to prevent damage and cell death, with a particular focus on neurons and neurological conditions, stroke, Alzheimer's disease, kidney and liver pathologies as well as cancer.

During this conference I had an opportunity to hear lectures and breakthrough discoveries authored by leading researchers, whose contributions have left significant and lasting marks in the field of redox signaling in physiological and pathological states which may lead to discover new therapeutic and disease-preventive agents. The leaders in oxidative stress field discussed the role of antioxidants as modulators of redox signaling pathways rather than players that counter "balance" oxidant formation. Moreover, I had an opportunity to attend in workshop dedicated to Oxidative Stress Evaluation which was held during first day of congress.

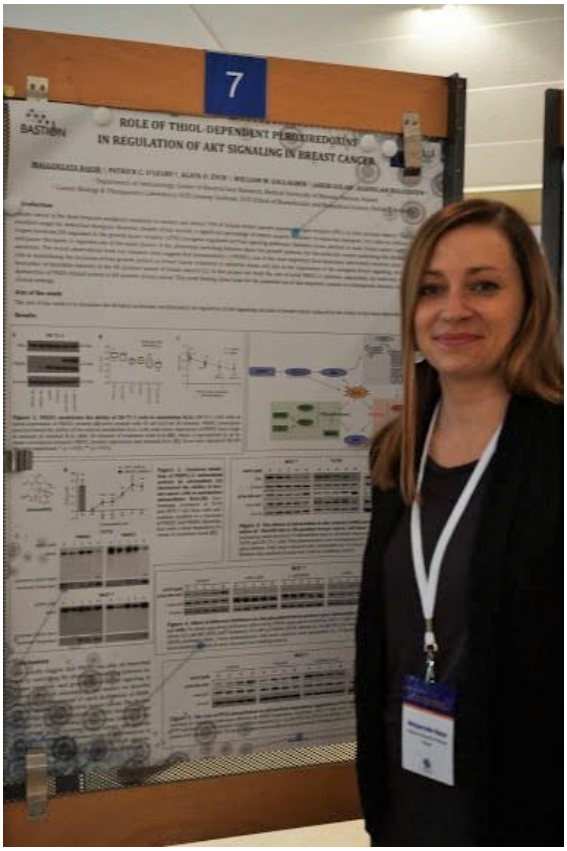
At the Paris Antioxidants 2015 I had a pleasure to present our data during Poster Session entitled: 'Oxidative Stress & Chronic Diseases: From Predictive to Preventive Medicine'

Title of the poster: **ROLE OF THIOL-DEPENDENT PEROXIREDOXINS IN REGULATION OF AKT SIGNALING IN BREAST CANCER**

Authors: Malgorzata Bajor (presenting author), Patrick C. O'Leary, Agata O. Zych, William M. Gallagher, Jakub Golab, Radoslaw Zagozdzon

Oxidative stress is regarded one of the factors in the phenotype switching between estrogen receptor- and oncogene-regulated growth patterns. Our observations suggest that peroxiredoxin-1 (PRDX-1), one of the most important thiol-dependent antioxidant enzymes, plays a fundamental role in maintaining the hormone-driven growth pattern in breast cancer subjected to oxidative stress. The objective of this study is to elucidate the detailed molecular mechanism(s) of regulation of Akt signaling cascades in breast cancer induced by the defect in the thiol-dependent antioxidants. To study the molecular consequences of dysfunction of PRDX-related system we have used a novel PRDX1/2 inhibitor, adenanthin. We evaluated its effect on ability of breast cancer cells to metabolize hydrogen peroxide, and phosphorylation status of cancer-related signaling proteins. We have shown that adenanthin strongly inhibits metabolism of hydrogen peroxide by breast cancer cells. Simultaneously, a marked increase in phosphorylation status of proteins associated with Akt signaling as well as role of phosphatases was observed. In summary, we provided new data regarding the importance of thiol-dependent antioxidant system in breast cancer. It will improve understanding of the mechanisms for

adaptation of breast cancer to oxidative stress, which can eventually translate into more efficient use of therapeutic approaches to this disease.



Dr Bajor at the poster during poster session.