

Report on the 3<sup>rd</sup> visit of Dr. Oksana Kovtonyuk in the Department of Medicine, Center for Molecular Medicine, Karolinska Institutet, Sweden within 7PR21/BASTION/WP1 (Twinning)



foto 1. Dr. Oksana Kovtonyuk at the entrance to the Centre for Molecular Medicine, Karolinska Institutet.

From May 30<sup>th</sup> till June 29<sup>th</sup> 2014 I made my third visit to the Department of Medicine at Center for Molecular Medicine (CMM), Karolinska Institutet. This visit was coordinated under the twinning agreement between the Medical University of Warsaw and the Karolinska Institutet in WP1 (Task 1.7). During my stay in Karolinska Institutet, I conducted research in the field of experimental oncology together with Professor Cecilia Söderberg-Nauclér's research team. The main purpose of my visit was to perform staining of the extracellular matrix (ECM) components (namely elastin and collagen) in 85 patients samples collected at the MUW, Warsaw, Poland.

The patients were diagnosed with arteriovenous fistula (AVF) - an abnormal connection between an artery and a vein. AVFs are classified as being congenital or acquired. Acquired AVFs can result from infection, tumors (as renal cell carcinoma), surgery (e.g. patients may develop AVFs after breast or renal biopsy). I was focused on analysis of malignant tumor-associated AVFs. Following surgical excision, fixation, embedment and sectioning, AVFs samples from patients

underwent three different stainings. Hematoxylin and eosin (H&E) staining was used to determine the general morphology of the blood vessels. Masson trichrome staining was used for determination of collagen in tissue, Verhoeff van Gieson (EVG) staining was used to determine the presence of elastin in tissues. Samples were then analyzed histologically for collagen and elastin content.

Collagen and elastin are two vital components of the blood vessel wall. It is now well known that AVF may undergo remodeling in response to structural modifications in these proteins. It was previously shown that the specific tissue stains could be useful not just for estimation of ECM composition (collagen - elastin relative ratio), but also for the detection of vascular invasion and blood-derived metastases.

Analysis of elastin and collagen content was done using next-generation viewer software (NDP.view2). Results of the project are in preparation for publication.



foto 2. Dr Oksana Kovtonyuk with members of the Cell and Immunology Group in microscope room.

During my visit at Karolinska Institutet I participated in scientific meetings where I had a chance to meet world leading scientists (e.g. Prof Trygve Tollefsbol) and learn about research projects of other groups working in CMM.