Therapeutic Platelets to Target the Metastatic Cascade

Metastasis is a pivotal event in the progression of cancer as evidenced by the dramatic decline in the 5 year-survival of cancer patients, from 72% prior to established metastases to 22% in the stage IV of the disease (NCI database, 2014). Currently, no treatments are clinically available that directly target circulating tumor cells (CTCs), which are the “seeds” for new metastatic niche formation. One potentially unexplored target for anti-metastatic therapy are platelets, which facilitate the survival and dissemination of CTCs, in addition to contributing to cancer progression. We will present the development of detergent-extracted human platelets or “platelet decoys”, which maintain platelet binding activities but cannot be activated, and discuss whether these modified platelets can be used as competitive inhibitors of platelet-dependent interactions with CTCs.

BIO
Dr. Anne-Laure Papa received her PhD in physical Chemistry in 2009 from the University of Bourgogne, France. She then completed her postdoctoral training at Harvard–MIT Program of Health Sciences and Technology, followed by the Wyss Institute for Biologically Inspired Engineering at Harvard University. She received a Breast Cancer Breakthrough Award from the Department of Defense to support her work on platelet-based therapeutic approaches in cancer. Dr. Papa joined the Department of Biomedical Engineering at the George Washington University as an Assistant Professor in October 2017. Her research group focuses on developing novel cellular therapeutics and diagnostic tools for applications in metastatic cancer and thrombosis.