

A fully synthetic platform-nanotechnology for selective depletion of immune-suppressor cells in cancer

Abstract: Selective depletion of immune cells that hinder or suppress endogenous immunity or impair exogenous immunotherapies, could provide a new class of therapeutics against metastatic cancers. In this talk I will discuss the design and development of a versatile, plug-and-play nanotechnology platform that specifically depletes immune-suppressor cells of myeloid origin from metastatic tumor niches. In particular, we have developed fully synthetic, multivalent Janus nanoparticles that functions like monoclonal antibodies (mAbs) – by targeting specific cell types and engaging them with effector cells like macrophages or NK cells, and thereby triggering target cell killing and clearance. We will show how the synthetic nanoparticle antibodies (SNAbs) perform in a mouse orthotropic model of triple-negative metastatic breast cancer.