

ICB PhD public presentations

NOVEL APPLICATIONS OF METALLIC NANOPARTICLES FOR CANCER TREATMENTS

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Project Summary: Nanomedicine can be divided into two main branches: one relying on nanoparticles' chemical properties and one on their physical properties. In this work, the chemical properties of platinum nanocatalysts are used to activate caged prodrugs at a determined site with hydrogen, thus controlling the location and timing of drug activation. Being only locally active, caged prodrugs have the potential to reduce side effects. We developed a caged prodrug system with a specific focus on lung cancer treatment. Furthermore, an application relying on the physical properties of magnetic nanoparticles was developed to remove circulating tumor cells (CTCs). CTCs generate metastases and it has been hypothesized that their systematic removal could potentially increase the prognosis of cancer patients. The combination of our carbon-coated cobalt nanoparticles and a magnetic column system, efficiently removed CTCs from blood samples of cancer patients.

CV. Antoine obtained his BSc in Chemistry from EPFL in 2012. He spent the third year of his bachelor at Imperial College before joining ETH Zürich. After gaining industry experience at BASF and Novartis, he returned to ETH Zürich to graduate in 2015. Shortly after, he started his doctoral studies in the Functional Materials Laboratory.