

SEMINAR

Thursday, 31st May, 12.00 pm, Seminar Room

Host: Dr. Ivan Coluzza

Modular Objects for Nano-Immuno-Oncology

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I will describe families of modular, therapeutic objects that can accommodate a variety of antitumor drugs for future, non-conventional cancer treatment. The building blocks of our modular therapeutic objects are engineered natural proteins such as humanized antibodies, human ferritin, and streptavidin, as well as modified drugs including cisplatin, doxorubicin, and maytansinoids. Our modular objects are reminiscent of highly successful agents that are routinely used in clinical oncology, most notably Antibody-Drug Conjugates. For increased freedom, we design on the nanoscale level, enabling the incorporation of alternative, exchangeable targeting moieties, step-wise binding to cancer cells, and conditional drug delivery. Experimental proof of principle will be provided that our modular objects kill cancer cells *in vitro*, and control experimental mouse tumor xenografts *in vivo* with reduced side effects. I will argue that a new range of cytotoxics (and nano-photonics-based companion diagnostics) is needed to take up the challenge of precision oncology.