

Nanotechnology Characterization Laboratory



December 2021

Each quarter the NCL accepts the most promising cancer nanomedicine candidates into its Assay Cascade characterization and testing program. Nanomedicines accepted into the program will undergo a rigorous evaluation that may include sterility and endotoxin testing, physicochemical characterization, in vitro hemato- and immunotoxicity, and in vivo studies to evaluate safety, efficacy and pharmacokinetics. The studies are tailored to each individual nanomedicine and are designed to promote the clinical translation of these novel therapies. **All studies are conducted free of charge for Awardees.**

Congratulations to this Quarter's Awardee

Jindrich Kopeček, University of Utah

Dr. Kopeček and his team developed a bona fide combinatorial chemo-immunotherapy regimen for the treatment of solid tumors. This "optimized immunotherapy" regimen consists of two components: a) KT-1, a backbone-degradable polymer-epirubicin conjugate that not only extends long-circulating pharmacokinetics but also elicits immunogenic cell death to "heat up" immunosuppressive cold tumors; and b) MPPA, a multivalent polymer-peptide antagonist to PD-L1, which both blocks PD-1/PD-L1 interaction and degrades the PD-L1 in the lysosomal compartment yielding a prolonged elimination of PD-L1. This innovative design exploits the delivery platform's plasticity and serviceability. Several preclinical investigations in collaborations with TheraTarget, Inc. demonstrate great promise as a potential breakthrough therapy for refractory solid tumors.

<http://www.kopeceklab.com/>

If you are interested in learning more about the NCL's services, please visit our website, <https://ncl.cancer.gov>, or contact us for more information, ncl@mail.nih.gov. **The next application deadline is March 1, 2022.**