Award ID:
RP160866

Project Title:
Renal Clearable Nanodelivery System for Triple Negative Breast Cancer Therapy

Award Mechanism:
High Impact/High Risk

Principal Investigator:
Zheng, Jie

Entity:
The University of Texas at Dallas

Lay Summary:

Chemotherapy patients suffer from a variety of side effects such as pain, fever, numbness and nausea, mainly due to accumulation of anticancer drugs in normal tissues and healthy organs. Therefore, how to diminish such side effects without impacting the battle against the tumor has been a long-term challenge in cancer thermotherapy. In this proposal, we plan to develop a class of renal clearable near infrared (NIR) emitting gold nanoparticles (AuNPs) that can effectively deliver anticancer drugs to triple negative breast tumor that currently is hard to be treated due to lack of key receptors, retain drug molecules in the tumor for long period of time, release them in tumor sites, and more importantly, efficiently carry untargeted drug molecules out of the body through the urinary system. This proposal's success will significantly improve the therapeutic potency of antidrug molecules, minimize side effects induced by drug molecules, greatly improving cancer patients' life quality.