Fang Wang

Novel Metal-Containing Drugs for Treating Resistant Cancers

Proposal Abstract:

Approximately 25% of deaths in the United States are due to cancer. Although the cancer mortality rate has declined gradually, it has long been challenging to develop effective treatments for resistant cancers.

This proposal describes an innovative strategy to enhance the activity of drugs against resistant cancers. Specifically, my research group has created a new class of compounds by incorporating bioactive platinum agents into clinically used anticancer drugs through chemical synthesis. Our preliminary studies suggest that these drug candidates effectively kill cancer cells that are resistant to conventional therapeutics and substantially delay the acquisition of resistance – two important properties for next-generation anticancer drugs.

We will develop a collection of potential drugs that feature different metals, including platinum and gold, paired with a broad spectrum of conventional anticancer agents. We will collaborate with the Yilmaz group at MIT and the Braverman group at the University of California, Berkeley to evaluate the potency of these compounds and explore how they work in biological models. We anticipate establishing an externally funded research program that integrates state-of-the-art chemistry and biology approaches. Ultimately, we believe we will be able to develop new drugs that can be used by patients with difficult-to-treat cancers.

Awarded: $19,989.44