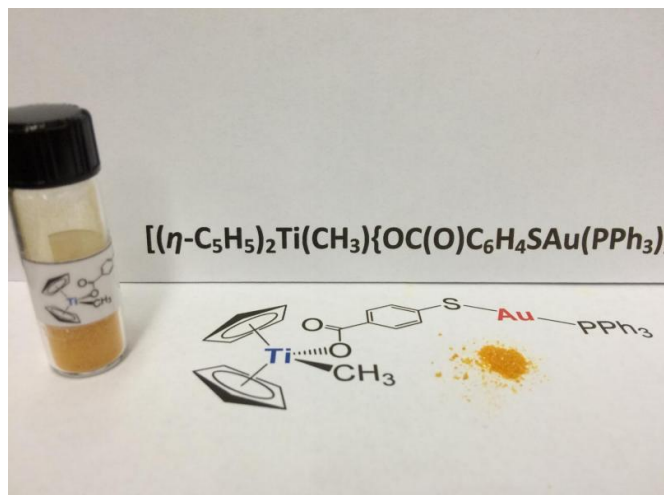


Titanium and gold based compound fights kidney cancer cells

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A metal-based compound shows promise for kidney cancer patients. Credit: Brooklyn College

Researchers developed a promising metal-based compound that destroys kidney cancer cells, while leaving normal cells unharmed. The findings may provide a new way of treating kidney cancer, opening the potential for more potent and less toxic therapies that would give cancer patients a better quality of life.

"Kidney cancer is frequently diagnosed in the late stages when there are minimal options for treating the deadly disease. The hope is that this could potentially lead to new therapies that would extend the life-span of cancer patients who are diagnosed late," said Dr. Joe Ramos, PhD, a professor and the director of the Cancer Biology Program at the University of Hawaii Cancer Center.

Chemical Science published the findings by Dr. Maria Contel, an associate professor in the Department of Chemistry at Brooklyn College (The City University of New York) and Dr. Ramos. The study highlights the increased effectiveness and

reduced toxicity of anti-cancer compounds containing the two metals, titanium and gold, called Compound 5 when used together. The research indicates that the improved anti-tumor activity may be due to the interaction of the different metals with multiple biological targets, or by the improved chemical and physical properties of the new compound.

"A gold based compound (called Auranofin) has been used to treat rheumatic diseases for years and has recently been used in clinical trials for the treatment of some cancers such as Chronic Lymphocytic Leukemia. However, that drug does not work well for [kidney cancer](#). An important finding for us was that the incorporation of the titanium fragment into the similar gold based compound 5 increased the activity and specificity towards kidney cancer," said Contel.

Unlike previous metallic compounds known to fight cancerous cells, this titanium-gold compound does not attack DNA, but rather causes cancer cell death by blocking a group of enzymes that supports cancer cell survival and metastasis.

Compound 5 shrank tumors and performed better in pre-clinical models than the FDA approved platinum drug, Cisplatin, showing excellent promise for further clinical development. Researchers emphasize the necessity of having further studies to find how the compound affects other cancers and improve its potential for clinical use.

"To do the best cutting-edge cancer research you often need to work between disciplines and institutions. This work is the result of such a collaboration. This is the sort of work especially fostered by Cancer Centers like the UH Cancer Center, and is an important mission of NCI designated Cancer Centers like ours," said Ramos.

The UH Cancer Center will host The First International Organometallics Symposium in

December 2015 where top researchers in the field will meet to share and discuss the latest findings of using metal-based [compounds](#) to fight [cancer](#).

Provided by University of Hawaii Cancer Center
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