



UNIVERSITY OF HAWAI'I
CANCER CENTER

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**University of Hawai'i Cancer Center and Chemistry Department Researchers
Collaborate In Development of Potential New Anti-Cancer Drug**

Natural compound known as englerin A specifically kills renal cancer cells

HONOLULU, HI – Associate Professor Joe W. Ramos PhD, a cancer biologist at the University of Hawai'i Cancer Center in collaboration with Assistant Professor William Chain, PhD from the University of Hawai'i's Chemistry Department are the first to describe the biological effects that a compound known as englerin A has on renal cancer cells.

Englerin A is a natural product found in the bark of *phyllanthus engleri*, a plant indigenous to east Africa. This compound was previously reported to be a potent and selective inhibitor that prevents the growth of six human renal cancer cell lines while not affecting other cancer cell types. Chain closely examined the chemical structure of englerin A and was able to effectively synthesize the compound in his lab.

"Synthesizing this compound helped us gain access to reasonable amounts of material needed for biological testing," said Chain. "Additionally, synthesizing the natural products compound from scratch enabled us to focus directly on englerin A's desired effect on human cancer cells."

With direct access to the synthesized compound Florian Sulzmaier, a graduate student in Ramos's lab, began examining the biological effects englerin A had on renal cancer cells and evaluating its impact on healthy cells.

Their findings confirmed that englerin A is a potent and selective inhibitor in the growth of human renal cancer cells. They further showed that the compound kills tumor cells and has no adverse effects on normal kidney cells. In addition, their research defines some of the biological changes caused by englerin A that precede cell death, revealing that it functions via a mechanism distinct from the current standards of care in the treatment of renal cancer.

"This discovery provides an important basis for the evaluation and validation of the compound's use as an anti-tumor drug," said Sulzmaier. "This work also provides new guidance in the search for the targets of englerin A in renal cancer cells," added Ramos.

The next step will be to identify how englerin A specifically targets renal cancer cells and to improve the compound's effectiveness. This will allow the researchers to move forward with the promise of developing a new renal anti-cancer drug.

The study: "*Englerin A selectively induces necrosis in human renal cancer cells*" is published in the October 22, 2012 edition of the Public Library of Science (PLOS ONE):

<http://dx.plos.org/10.1371/journal.pone.0048032>

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The University of Hawai'i Cancer Center is one of 67 research institutions designated by the National Cancer Institute. A unit of the University of Hawai'i at Mānoa, the Center is dedicated to eliminating cancer through research, education, and improved patient care. Construction is under way on a new state-of-the-art research center, opening in 2013 to better serve the people of Hawai'i and the Pacific. Learn more about the Center's work at www.uhcancercenter.org.