

Professor's cancer research recognized in national journal

Maggie Louie, associate professor in Dominican University of California's Department of Natural Sciences and Mathematics, is co-author of a study published this week in the prestigious journal Nature Medicine.

Louie worked alongside researchers at UC Davis, in collaboration with the other institutions, on studies examining the cause of prostate cancer. The researchers found that suppressing the nuclear receptor protein ROR- γ with small-molecule compounds can reduce androgen receptor (AR) levels in castration-resistant prostate cancer and stop tumor growth.

According to a release issued by UC Davis, this novel approach does not directly target the AR, but rather inhibits the gene that codes for the AR protein. Reducing AR levels could help patients overcome treatment-resistant prostate cancer and even rescue existing therapies.

In the vast majority of prostate cancers, according to the UC Davis release about the findings, the AR gene becomes hyperactive, driving tumor growth and metastasis. Anti-androgen therapies can slow, and even stop, prostate cancer -- for a time. But quite often the gene mutates to resist the treatment.

However, suppressing ROR- γ circumvents this resistance. Because the protein is required for AR gene expression, ROR- γ inhibition strongly reduces AR protein levels in tumor cells. By preventing AR protein synthesis, ROR- γ antagonists can potentially short-circuit the resistance process.

The research team was led by Hongwu Chen, a professor in the Department of Biochemistry and Molecular Medicine at UC Davis.

Louie, who received her PhD from UC Davis, worked on this study during a recent sabbatical from [Dominican's Department of Natural Sciences and Mathematics](#).

At Dominican, Louie's National Institutes of Health funded research focuses on the role environmental contaminants play in breast cancer. Currently, Louie and her students are examining how oxidative stress impacts the development and progression of breast cancer cells.

Louie has been studying how environmental contaminants promote cancer progression since joining Dominican's faculty in 2005. Louie involves both her undergraduate and graduate students in her research. She and her team have received more than \$1 million in grants from the NIH to fund their work.

Earlier research, including previous work from the Louie lab in the [School of Health and Natural Sciences](#), has shown that breast cancer cells become increasingly aggressive the longer they are exposed to small concentrations of [cadmium](#), a common environmental contaminant that enters the body through consumption of contaminated food, water, or inhalation of cigarette smoke.

Now Louie is investigating how long-term exposure to low levels of cadmium can trigger oxidative stress, a process that leads to cellular damage and potentially contribute to breast cancer development and progression.

For more information about the Louie lab, please follow [this link](#).

For more information about the UC Davis study, please follow [this link](#).

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