Enzyme used in antidepressants could help researchers develop prostate cancer treatments

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An international team of scientists including researchers at the Cedars-Sinai Samuel Oschin Comprehensive Cancer Institute and the University of Southern California found that an enzyme commonly used as a target for antidepressants may also promote prostate cancer growth.

The study, published in the *Journal of Clinical Investigation*, found that suppressing the enzyme monoamine oxidase A, or MAOA, may reduce or even eliminate prostate tumor growth and metastasis in laboratory mice. The finding could open the door for physicians to use antidepressants to fight prostate cancer. Currently, drugs that inhibit MAOA enzymes are used to treat patients with mental illnesses like depression.

"When this enzyme is not suppressed, it produces a tumor-rich environment that fuels the growth and metastasis of prostate cancer cells," said Leland Chung, PhD, corresponding author of the paper and director of the Uro-Oncology Research Program at the Cedars-Sinai Samuel Oschin Comprehensive Cancer Institute. "Suppressing this enzyme and combining it with current therapies may provide a better way to manage and cure men with metastatic prostate cancer."

MAOA regulates the amount of neurotransmitters in the central nervous system by deactivating and breaking them down. Like all enzymes in the brain, MAOA is needed in optimum quantities to work effectively on patients. Previous studies have shown that too much MAOA is linked with depression, while too little of the enzyme is linked with autism, aggression and anxiety.

"This is the first paper showing that MAOA plays an important role in prostate cancer progression and metastasis and may provide an unmet need in cancer treatment," said Jean C. Shih, University Professor at the USC School of Pharmacy, two-time National Institutes of Health MERIT awardee and co-corresponding author of the study.

More information: *Journal of Clinical Investigation*. 2014 May: Monoamine oxidase A mediates prostate tumorigenesis and cancer metastasis.

Provided by Cedars-Sinai Medical Center