

# Fluoxetine -- a.k.a., Prozac -- is effective as an anti-viral: study

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UCLA researchers have come across an unexpected potential use for fluoxetine – commonly known as Prozac – which shows promise as an antiviral agent. The discovery could provide another tool in treating human enteroviruses that sicken and kill people in the U.S. and around the world.

Human enteroviruses are members of a genus containing more than 100 distinct RNA viruses responsible for various life threatening infections, such as poliomyelitis and encephalitis. While immunization has all but eliminated the poliovirus, the archetype for the genus, no antiviral drugs currently exist for the treatment of enterovirus infections, which are often severe and potentially fatal. In view of its favorable pharmacokinetics and safety profile of [fluoxetine](#) — which is in a class of compounds typically used in the treatment of depression, anxiety disorders and some personality disorders — the research team found that it warrants additional study as a potential antiviral agent for enterovirus infections.

Using molecular screening, the UCLA research team from the Department of Pediatrics, the California NanoSystems Institute and the Department of Molecular and Medical Pharmacology found that fluoxetine was a potent inhibitor of coxsackievirus replication. This is one of the viruses that include polio and echovirus that is found in the gastrointestinal tract. Exposure to the virus causes other opportunistic infections and diseases.

"The discovery of unexpected antiviral activity of fluoxetine is scientifically very significant and draws our attention to previously overlooked potential targets of fluoxetine and other psychogenic drugs," said Robert Damoiseaux, scientific director of the Molecular Screening Shared Resource at the California NanoSystems Institute. "Part of our follow-up work will be the discovery of these unconventional targets for fluoxetine and other drugs of the same class and how these targets intersect with the known targets of this drug class."

Paul Krogstad, professor of pediatrics and molecular and medical pharmacology, added that understanding the mechanisms of action of fluoxetine and norfluoxetine against coxsackieviruses "will add to our understanding of enterovirus replication and lead to assessment of their potential clinical utility for the future treatment of serious enterovirus infections."

The research team found that fluoxetine did not interfere with either viral entry or translation of the viral genome. Instead, fluoxetine and norfluoxetine markedly reduced the production of viral RNA and protein.

**More information:** The study was published on July 2 in the journal of *Antimicrobial Agents and Chemotherapy*.

Provided by University of California, Los Angeles

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