

New drug for heart disease shows promise for cats and humans

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UC Davis veterinary cardiologist Joshua Stern performs an echocardiogram on a cat, assisted by animal health technicians Heather Schrader, right, and Judy Schettler. Credit: Don Preisler/UC Davis

A new drug shows promise for treating heart disease in cats and humans, according to research by a team including veterinarians at the University of California, Davis, School of Veterinary Medicine.

The novel drug, MYK-461, proved effective in a study of five cats with a naturally occurring form of inherited hypertrophic cardiomyopathy (HCM), a currently incurable disease that also affects humans. A paper describing the work was published Dec. 14 in the journal *PLOS ONE*.

HCM is the most common form of feline heart disease and results in thickening of the walls of the heart ventricles and altering of heart function. It frequently leads to fatal consequences. Cats with this disease may suffer [blood clot formation](#), [congestive heart failure](#) and sudden death. In humans, HCM is a frequent cause of [sudden cardiac death](#) that can even afflict seemingly healthy young athletes.

HCM affects approximately one in 500 people and was recently reported to affect a startling one in seven cats. More than 1,500 genetic mutations have been associated with the disease in humans, creating challenges for researchers. However, veterinary scientists are making strides in identifying the best treatment options for the disease since the cat condition and human condition are so similar.

In the study, treatment with MYK-461 eliminated left ventricular obstruction in five cats with HCM. The [novel drug](#) is the first in its class and uniquely addresses the functional changes that are seen in [human](#) and feline HCM.

"This is an exciting discovery for both animals and humans – an excellent representation of the One Health concept in action," said Associate Professor Joshua Stern, chief of the Cardiology Service at the UC Davis veterinary hospital. "The positive result in these five cats shows that MYK-461 is viable for use in cats as a possible option to halt or slow the progression of HCM."

MYK-461 was already shown to stop the thickening of the ventricle walls in mice.

Current treatment for cats with HCM is largely symptomatic. There is no preventative therapy for HCM that is shown to change the course of [disease](#).

"There has been little to no progress in advancing the treatment of HCM in humans or animals for many years," Stern said. "This study brings new hope for cats and people."

With this proof of concept that the drug is viable for use in cats, UC Davis hopes to conduct a clinical trial in the near future, which could determine if MYK-461 has the potential to become the accepted protocol for care of [cats](#) with HCM.

More information: Joshua A. Stern et al. A Small Molecule Inhibitor of Sarcomere Contractility Acutely Relieves Left Ventricular Outflow Tract Obstruction in Feline Hypertrophic Cardiomyopathy, *PLOS ONE* (2016). [DOI: 10.1371/journal.pone.0168407](https://doi.org/10.1371/journal.pone.0168407)

E. M. Green et al. A small-molecule inhibitor of sarcomere contractility suppresses hypertrophic cardiomyopathy in mice, *Science* (2016). [DOI: 10.1126/science.aad3456](https://doi.org/10.1126/science.aad3456)

Provided by UC Davis

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