

# Resveratrol causes conflicting changes in dogs' immune systems

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Resveratrol, a compound found commonly in grape skins and red wine, has been shown to have several potentially beneficial effects on health, including cardiovascular health, stroke prevention and cancer treatments. However, scientists do not yet fully understand how the chemical works and whether or not it can be used for treatment of diseases in humans and animals.

Now, researchers at the University of Missouri have found that resveratrol does affect the immune systems of dogs in different ways when introduced to dogs' blood. Sandra Axiak-Bechtel, an assistant professor in oncology at the MU College of Veterinary Medicine, said this is a first step in determining how the chemical causes immune systems to react.

"This study makes it clear that resveratrol does cause the immune systems of dogs to change, but the changes it causes have created more questions," Axiak-Bechtel said. "We found that resveratrol simultaneously causes dogs' immune systems to increase and decrease in different ways. If we can better understand why resveratrol makes these changes and learn to control them, the chemical may have valuable uses in treatments of cancer and other diseases in dogs and humans."

For their study, Axiak-Bechtel; Rowena Woode, a veterinary medical student in the MU College of Veterinary Medicine; and Amy DeClue, an associate professor in the MU College of Veterinary Medicine; added resveratrol to canine blood and measured innate [immune system function](#)

. They found that resveratrol caused the stimulated white blood cells to release more pro-inflammatory and fewer anti-inflammatory cytokines, which are signals cells use to communicate with each other during infection and inflammation. These cytokines point to a stimulated immune system. However, the researchers also observed a decrease in the ability neutrophils, which are [immune cells](#) that help fight diseases, to kill bacteria. Axiak-Bechtel says this points to decreased immune system strength.

"Seeing a decrease in neutrophil function typically means an immune system is losing the ability to kill invaders like bacteria," Axiak-Bechtel said. "Combining this loss of bacteria-fighting ability with an increase in inflammatory cytokines creates a very interesting mixed message in terms of what resveratrol is doing to the immune system. It is clear that resveratrol is having a distinct effect on how the [immune system](#) reacts, but we still don't fully understand how this reaction can be best used to fight disease. Once we have a better understanding of this process, [resveratrol](#) could be a valuable supplementary treatment in fighting diseases like cancer."

This study was published in *Veterinary Immunology and Immunopathology* and is a result of collaboration through the One Health, One Medicine area of Mizzou Advantage.

Provided by University of Missouri-Columbia

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