

# Scientists reveal molecular secrets behind resveratrol's health benefits

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Kendall Nettles, Ph.D., is an associate professor at The Scripps Research Institute, Florida campus. Credit: Photo courtesy of The Scripps Research Institute

Resveratrol has been much in the news as the component of grapes and red wine associated with reducing "bad cholesterol," heart disease and

some types of cancer. Also found in blueberries, cranberries, mulberries, peanuts and pistachios, resveratrol is associated with beneficial health effects in aging, inflammation and metabolism.

Scientists from the Florida campus of The Scripps Research Institute (TSRI) have now identified one of the molecular pathways that [resveratrol](#) uses to achieve its beneficial action. They found that resveratrol controls the body's inflammatory response as a binding partner with the estrogen receptor without stimulating estrogenic cell proliferation, which is good news for its possible use as a model for drug design.

The study was recently published as an accepted manuscript in the online journal *eLife*, a publication supported by the Howard Hughes Medical Institute, the Max Planck Society and the Wellcome Trust.

"Estrogen has [beneficial effects](#) on conditions like diabetes and obesity but may increase cancer risk," said Kendall Nettles, a TSRI associate professor who led the study. "What hasn't been well understood until now is that you can achieve those same beneficial effects with something like resveratrol."

The problem with resveratrol, Nettles said, is that it really doesn't work very efficiently in the body. "Now that we understand that we can do this through the estrogen receptor, there might compounds other than resveratrol out there that can do the same thing—only better," he said.

"Our findings should lead scientists to reconsider the estrogen receptor as a main target of resveratrol—and any analogues," said Jerome C. Nwachukwu, the first author of the study and a research associates in the Nettles laboratory. "It has gotten swept under the rug."

In the new study, Nettles, Nwachukwu and their colleagues found that

resveratrol is an effective inhibitor of interleukin 6 (IL-6), a pro-inflammatory protein that is part of the immune system (although IL-6 can be anti-inflammatory during exercise). High levels of IL-6 are also associated with poor breast cancer patient survival. According to the study, resveratrol regulates IL-6 without stimulating cell proliferation by altering a number of co-regulators of the [estrogen receptor](#).

**More information:** "Resveratrol Modulates the Inflammatory Response via An Estrogen Receptor-Signal Integration Network," *eLife*, 2014. [elifesciences.org/content/earl...14/04/24/eLife.02057](https://elifesciences.org/content/earl...14/04/24/eLife.02057)

Provided by The Scripps Research Institute

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