

One step closer to finding out how wine may protect your neurons

May 3 2017



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Let it be no misunderstanding: heavy alcohol intake has severe harmful effects. But already for several years, researchers have been finding that moderate wine intake can be beneficial in delaying the onset of cognitive

impairments in aging and neurodegenerative diseases like Parkinson's and Alzheimer's disease. Dr. Esteban-Fernández from the Institute of Food Science Research in Madrid and her colleagues have been investigating the molecular mechanisms underlying the neuroprotective actions of wine, recently published in *Frontiers in Nutrition*.

Instead of investigating [wine](#) directly, they studied the compounds that are left after the wine has passed through the gut: the so-called wine-derived human gut metabolites. They selected some of these metabolites based on their presence in the urine and feces of people consuming wine on a regular and moderate basis. To explore the neuronal effect of these compounds, they added them to human [cells](#) under [stress conditions](#) that normally lead to neuronal cell dysfunction and death. These conditions are related to the initial stages of some neurodegenerative disorders.

They found that the metabolites are protecting the cells from dying due to the stress conditions. The most striking result, however, was that the metabolites are active at different points in the cell signaling cascade that is leading to this cell death. The exact composition of the wine metabolites is therefore important in the protective neuronal effect. And this composition depends on your gut microbiota composition, as the intestinal flora breaks down the wine into the different metabolites.

"In other words, differences in our gut microbiota are leading to the different metabolites. Which underpins the idea that humans benefit from food in different ways", Dr. Esteban-Fernández explains. "This individual difference is a factor not to be neglected to understand the health effects of certain foods. We are now in need to advance our understanding of the effect of [diet](#) in the promotion of normal brain function."

"It is very important to understand that certain food compounds are responsible for this health benefit in protecting against the onset of

[neurodegenerative diseases](#); no medication was involved. I am not advocating to replace medicines by diet, but I want to raise more awareness how your diet is helping to prevent diseases or reduces the risk of getting sick. It is more than feasible to go to the supermarket and buy vegetables and fruit: it depends only on the individuals to maintain a balanced diet."

As she works on the role of diet in health maintenance and [disease](#) prevention, Dr. Esteban-Fernández takes her own nutrition very serious. "I am really aware about the importance of a healthy diet enriched in vegetables, fruits, and reduced industrial saturated fats. Although I try to maintain my dietary habits as good as possible, I think it is also important to not get too obsessed. Society is nowadays full of false myths about diet, and it is the role of both science and media to avoid the spread of these rumors, as well as make people aware of the importance of diet for your health."

More information: A. Esteban-Fernández et al, Neuroprotective Effects of Selected Microbial-Derived Phenolic Metabolites and Aroma Compounds from Wine in Human SH-SY5Y Neuroblastoma Cells and Their Putative Mechanisms of Action, *Frontiers in Nutrition* (2017). [DOI: 10.3389/fnut.2017.00003](https://doi.org/10.3389/fnut.2017.00003)

Provided by Frontiers

Citation: One step closer to finding out how wine may protect your neurons (2017, May 3) retrieved 7 May 2024 from <https://medicalxpress.com/news/2017-05-closer-wine-neurons.html>

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