

## **Secret at heart of red wine revealed**

Researchers have pinned down for the first time the biological mechanism by which a moderate intake of red wine may protect against heart disease.

The so-called "French paradox" - why the French have a lower rate of heart disease despite indulging in as much fatty food as other nations - has long puzzled scientists.

The French love of red wine is thought to be a key factor, as it is already known to have health benefits - but no-one knew how it worked. Now Roger Corder and his team at Barts and the London School of Medicine and Dentistry have discovered that red wine puts a brake on a key molecule involved in coronary heart disease called endothelin-1 (ET-1).

ET-1 is a protein fragment made by the endothelial cells that line blood vessels. Normally, it plays a key role in maintaining the structure of arteries and veins, helping to repair them if they get damaged. But too much ET-1 can lead to a thickening of vessels and atherosclerosis, and can exacerbate existing coronary heart disease.

The researchers made extracts of red, white and rosé wines, and red grape juice, and tested to see what effect they would have on ET-1 production in cultured endothelial cells.

White wine had no effect, but the team found that extracts of red wine made from Cabernet Sauvignon grapes could more than halve the production of ET-1. Rosé wine made from the same grape variety had no effect, suggesting that the active compounds must come from the skins or stalks of the grapes.

The team studied a total of 23 red wines, and found that the most effective ones contained the highest levels of chemicals called polyphenols. A number of these chemicals are already known to have beneficial anti-oxidant effects.

But none of the known polyphenols affected ET-1 production. "We think we are dealing with a novel polyphenol," says Corder. Red grape juice had a limited effect - probably because polyphenols dissolve better in alcohol than in water, he says.

The team also found that the unknown polyphenol works by blocking the activity of an enzyme involved in cell signalling. Corder is now trying to isolate this enzyme and find out what it is.

"Identifying it may give us some insight into preventing atherosclerosis by other means," says Corder. "It could be a target for new drug discovery."