

# Molecule said to underlie benefits of light drinking

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Courtesy of University of Rochester Medical Center and World Science staff

A well studied molecule called Notch may be behind the beneficial effects of moderate alcohol drinking on the heart, researchers say after a new study. Down the road, they add, the finding could help scientists create a heart disease treatment that mimics this healthy influence.

"It wouldn't translate to doctors prescribing people to drink, but hopefully... [to] a new therapy for the millions of people with coronary heart disease," said Eileen M. Redmond of the University of Rochester Medical Center, one of the scientists.

Past research has found that heart disease and cardiac-related death rates are 20 to 40 percent lower in light-to-moderate drinkers than in non-drinkers.

Redmond and colleagues found that about one to three alcoholic drinks daily reduce the activity of Notch, a molecule that carries signals among cells in the body. Inhibiting Notch prevents the buildup of smooth muscle cells in blood vessels, they said, which contributes to narrowing of the arteries and can lead to a heart attack or stroke.

The group studied Notch because research had shown it affects the development and migration of vascular smooth muscle cells. In blood vessels, these activities influence the development of atherosclerosis, the hardening and narrowing of arteries, and restenosis, the re-narrowing of arteries after they have been treated to remove buildups. Both are risk factors for heart attack and stroke.

The scientists studied the effects of moderate amounts of alcohol in human coronary artery smooth muscle cells and in the carotid arteries of mice. In both scenarios, the researchers said, alcohol doses equivalent to two daily drinks inhibited the activities of Notch, which in turn decreased the production and growth of smooth muscle cells, leaving vessels less obstructed.

"This is the first time anyone has linked the benefits of moderate drinking on cardiovascular disease with Notch," said David Morrow, also of the center, and co-author of the research, published online Oct. 7 in the journal *Arteriosclerosis, Thrombosis and Vascular Biology*. "We're going to delve deeper into the nuts and bolts of the process to try to find out exactly how alcohol inhibits Notch in smooth muscle cells."