

BIOMEDICINE

From New Orleans, at the annual meeting of the Society for Neuroscience

Caffeine may ward off Parkinson's

Call it Starbucks science. Two new studies provide a potential explanation for how coffee may protect the brain from the ravages of Parkinson's disease, an illness that produces speech and coordination difficulties.

Hints that coffee has some protective value against the disease, which kills nerve cells that make the brain chemical dopamine, emerged in several recent epidemiological studies. In the latest one, reported in the Nov. 14 *NEUROLOGY*, researchers from the Mayo Clinic in Rochester, Minn., found that heavy coffee drinkers were less likely to suffer the disorder than moderate coffee drinkers were. In general, those who drank coffee but did develop Parkinson's had later-than-average onset of the disease.

While some scientists hypothesize that caffeine safeguards brain cells, others, including the Mayo investigators, express skepticism that coffee itself wards off Parkinson's disease. They instead theorize that the abnormal brain chemistry in people with the disease makes them less likely to enjoy coffee, so they drink less. Both views could account equally well for the epidemiological data.

Which theory's right? Work reported in New Orleans provides a direct link between caffeine consumption and brain cell protection.

In one study, scientists from Massachusetts General Hospital (MGH) in Boston gave rats both caffeine and MPTP, a toxin that destroys dopamine-making cells and produces a condition in rodents similar to Parkinson's disease. The caffeine reduced MPTP toxicity, as evidenced by the presence of more dopamine in the brains of caffeine-treated animals compared with rats that had received only the toxin.

The MGH team also gave MPTP to mice genetically engineered to lack one of the brain-cell-surface proteins—the A2A adenosine receptor—that caffeine blocks. The toxin produced a less drastic decline in brain dopamine concentrations than it did in normal mice, more evidence that caffeine's blocking of such receptors may be central to thwarting Parkinson's disease.

These findings provide a plausible biological mechanism by which coffee could protect nerve cells, says MGH's Michael A. Schwarzschild.

—J.T.