

Study Reveals Green Tea Compound Aids Tumour-Suppressing, DNA-Repairing Protein

An antioxidant found in green tea may increase levels of p53, a natural anti-cancer protein, known as the “guardian of the genome” for its ability to repair DNA damage or destroy cancerous cells. The study has been published in *Nature Communications*. It suggests that a direct interaction between p53 and the green tea compound, epigallocatechingallate (EGCG), points to a new target for cancer drug discovery.

“Mutations in p53 are found in over 50% of human cancer, while EGCG is the major antioxidant in green tea, a popular beverage worldwide,” said Chunyu



Wang, corresponding author and a professor of biological sciences at Rensselaer Polytechnic Institute. “Our work helps to explain how EGCG can boost p53’s anti-cancer activity, opening the door to developing drugs with EGCG-like compounds.”

Wang’s team found that the interaction between EGCG and

p53 preserves the protein from degradation. Typically, after being produced within the body, p53 is quickly degraded when the N-terminal domain interacts with a protein called MDM2. This regular cycle of production and degradation holds p53 levels at a low constant. “Both EGCG and MDM2 bind at the same place on p53, the N-terminal domain, so EGCG competes with MDM2,” said Wang. “When EGCG binds with p53, the protein is not being degraded through MDM2, so the level of p53 will increase with the direct interaction with EGCG, and that means there are more p53 for anti-cancer function.”

Medical Cannabis Can Be Useful in Reducing High Blood Pressure, Says New Study

Researchers from Ben-Gurion University of the Negev (BGU) and its affiliated Soroka University Medical Center show that medical cannabis may reduce blood pressure in older adults. The study, published in the *European Journal of Internal Medicine* focuses on the effect of cannabis on blood pressure, heart rate, and metabolic parameters in adults 60 and above with hypertension.

“Older adults are the fastest-growing group of medical cannabis users, yet evidence on cardiovascular safety for this population is scarce,” says Dr. Ran Abuhasira of the BGU Faculty of Health Sciences, one of Israel’s leading medical faculties, and the BGU-Soroka Cannabis Clinical Research Institute. Patients were evaluated using 24-hour ambulatory blood pressure monitoring, ECG, blood tests, and body measurements—both before and three months after initiating cannabis therapy. In the study, researchers found a significant reduction in 24-hour systolic and diastolic blood pressure values, with



the lowest point occurring three hours after ingesting cannabis either orally via oil extracts or by smoking. Patients showed reductions in blood pressure in both daytime and nighttime, with more significant changes at night. The BGU researchers theorize that the relief from pain, the indication for prescription cannabis in most patients, may also have contributed to a reduction in blood pressure.

Link between Caffeine and Headaches

Everyone gets headaches from time to time. And most of us have caffeine in what we drink and eat every day. It's possible for caffeine to both cause and cure a headache.

When your head hurts, whether it's a run-of-the-mill tension headache or a migraine, caffeine can help. That's why it's one of the popular pain relievers.

Caffeine helps reduce inflammation, and that can bring relief. It also gives a boost to common headache remedies. Aspirin, ibuprofen, or acetaminophen work faster and better and keep the pain away for longer when combined with caffeine. A very rare condition called hypnic headaches responds especially well to caffeine. These strike older people, waking them in the middle of the night with severe pain. Doctors typically tell people who get these to have a cup of coffee before bed.



The Many Benefits of Cilantro

In a new study, researchers uncovered the molecular action that enables cilantro to effectively delay certain seizures common in epilepsy and other diseases. The study, published in *FASEB Journal*, explains the molecular action of cilantro (*Coriandrum sativum*) as a highly potent KCNQ channel activator.

"We discovered that cilantro activates a class of potassium channels in the brain to reduce seizure activity," said Geoff Abbott, Ph.D., professor of physiology and biophysics at the UCI School of Medicine and principal investigator on the study. "Specifically, one component of cilantro, called dodecenal, binds to a specific part of the potassium channels to open them, reducing cellular excitability. This is important as it may lead to more effective use of cilantro as an anticonvulsant, or to modifications of dodecenal to develop safer and more effective anticonvulsant drugs."

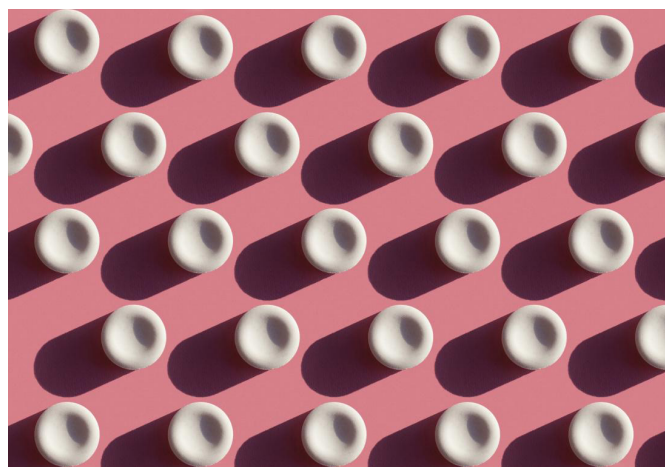
Researchers screened cilantro leaf metabolites, revealing that the long-chain fatty aldehyde (E)-2-dodecenal activates multiple potassium channels including the predominant neuronal isoform and the predominant cardiac isoform, which are responsible for regulating electrical activity in the brain and heart. This metabolite was also found to recapitulate the anticonvulsant action of cilantro, delaying certain chemically-induced seizures. The results provide a molecular basis for the therapeutic actions of cilantro and indicate that this herb is influential upon clinically important potassium channels. "In addition to the anticonvulsant properties, cilantro also has reported anti-cancer, anti-inflammatory, anti-fungal, antibacterial, cardioprotective, gastric health and analgesic effects," said Abbott.



Epilepsy Drug Ezogabine Effectively Reduces Symptoms of Depression

Patients with major depressive disorder experienced reduced depressive symptoms after receiving treatment with the FDA-approved anticonvulsant ezogabine, according to study data. “Recent preclinical evidence has highlighted the KCNQ-type voltage-gated potassium channel as a promising novel molecular target for the treatment of depression,” said Aaron Tan, Ph.D. candidate, from the departments of psychiatry and neuroscience, Icahn School of Medicine at Mount Sinai, and colleagues. Their study appears in *Molecular Psychiatry*.

In the open-label pilot study, researchers examined whether ezogabine significantly engaged the brain reward system and affected clinical symptoms in 18 medication-free patients with major depression. Patients currently in a major depressive episode received ezogabine up to 900 mg per day orally over 10 weeks, and the investigators collected resting-state functional MRI data at baseline and post-treatment. After receiving ezogabine, patients with MDD experienced a 45% drop in depressive symptoms as measured by the change in the Montgomery-Asberg Depression Rating Scale score ($P < .001$). Anhedonic



symptoms, measured by a change in Snaith-Hamilton Pleasure Scale score, also decreased from baseline to week 10 ($P < .001$). These results remained significant after controlling for overall depression severity, according to the researchers. Patients also showed an improvement in resilience. In total, 44% ($n = 8$) and 28% ($n = 5$) of patients met response and remission criteria, and 61% ($n = 11$) saw notable improvements in illness severity.

Cannabis for Endometriosis

Some women desperate for relief from the chronic pain of endometriosis have found using cannabis provides more effective relief from their symptoms than other over-the-counter or prescribed medication, a new study reveals. Of the 213 women surveyed who had

ever used cannabis for their endometriosis symptoms, 170 (almost 80 percent) were current users. The paper was authored by researchers from the University of Otago, in collaboration with those from the University of Western Sydney and Endometriosis New Zealand.

no negative side effects.

Of the 213 women in the study, the majority used cannabis for pain relief (96 percent) and to improve sleep (96 percent). Respondents reported that their symptoms were much better for pain (81 percent), sleep (79 percent), and nausea or vomiting (61 percent). 81 percent of women indicated cannabis had reduced their normal medication usage and 50 percent had completely stopped taking their medication—most commonly analgesics, such as paracetamol, and opioids.

The study provides evidence that cannabis-based medicines “should at least be considered as an option for treatments,” he says.



Study co-author Dr. Geoff Noller, an Assistant Research Fellow in Otago's Department of General Practice and Rural Health, says the study showed cannabis provides patients with some relief or benefit with 98 percent reporting