



Vol.10, Issue 12
January 2019

CANNABINOID CHRONICLES

Medical Cannabis News and Information

UBC Researcher to Study Cannabis's Role in Opioid Overdose Treatment

A professorship at the University of British Columbia (UBC) has been created to lead clinical trials that will explore the role cannabis can play in helping people with opioid use disorder stay on their treatment plan.

Dr. M-J Milloy, the new Professor of Cannabis Science, is a research scientist at the British Columbia Centre on Substance Use (BCCSU). As a substance use epidemiologist, his research has focused on the interrelationships between illicit drugs and HIV, as well as the public health impact of cannabis regulation and the medical application of cannabis and cannabinoids, especially for people living with HIV or substance use disorders.

Milloy said the therapeutic benefits of cannabis are only just beginning to be understood.

"Early research has shown that it could have a stabilizing impact for people with opioid use disorder, improving their quality of life and offering a pathway to long-term treatment solutions. In the midst of an overdose crisis, we have a scientific imperative to build upon this research," he said.

Milloy has authored more than 150 peer-reviewed articles on the impact of policy on the health outcomes of people who use drugs. Recent research includes studies that have found: using cannabis every day was linked to a lower risk of starting to inject drugs amongst street-involved youth; daily cannabis use increased the likelihood that people will stay in opioid agonist therapy (OAT) treatment; intentional cannabis use resulted in preceded declines in crack use among crack cocaine users. Research shows that less than one-third of people who start opioid agonist therapy, with methadone or buprenorphine/naloxone, remain in treatment after six months. Dropping out of addiction treatment is a serious risk factor for overdose death. Findings from these clinical trials could help identify ways to better support people

with opioid use disorder with cannabis-based therapy. Milloy's research will contribute to an emerging body of evidence suggesting that cannabis can have a positive impact on the wellbeing of people with opioid use disorder.

Two American studies, published in May 2018 in the journal *JAMA Internal Medicine*, found evidence that legalization may reduce the prescribing of opioids. One study found that medical cannabis legalization led to a 6% drop in opioid prescriptions to Medicaid patients; adult-use legalization led to an additional 6% decrease. The other study found that medical cannabis laws are associated with significant reductions in opioid prescribing in the Medicare Part D population.

This professorship was established through funding from Canopy Growth and the Province of BC. The province invested \$500,000 to the BCCSU in support of research leading to solutions to the overdose crisis. Canopy Growth is contributing \$2.5 million to UBC and the BCCSU through the Canopy Growth Cannabis Science Endowment Fund to establish the professorship.

Sources: <https://news.ubc.ca/2018/11/23/professor-of-cannabis-science-announced-to-research-the-role-of-cannabis-in-opioid-overdose-treatment/>

<https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2676999> AND [.../article-abstract/2677000](https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2677000)



Image: <https://d3atagt0rnqk7k.cloudfront.net/wp-content/uploads/2017/09/20140545/cannabis-intervention-opioids-1280x800.jpg>

Human: Cannabis may be beneficial in patients with fibromyalgia and low back pain

In an observational cross-over study with 31 patients suffering from fibromyalgia and low back pain, a treatment with cannabis had a beneficial effect. Scientists of the Department of Orthopaedics in Petah Tikva, Israel, presented their research in the journal *Clinical and Experimental Rheumatology*. The patients were screened, and treated with 3 months of standardised analgesic therapy with opioids and duloxetine. Following 3 months of this therapy, the patients could opt for additional use of cannabis and were treated for a minimum of 6 months with cannabis.

While standard treatment led to minor improvements as compared with baseline status, the addition of cannabis allowed a significantly higher improvement in all outcomes at 3 months after initiation of cannabis treatment, and the improvement was maintained at 6 months. Authors concluded that their study demonstrates an advantage of medical cannabis in fibromyalgia patients with low back pain as compared to standard treatment.

Source: <https://www.ncbi.nlm.nih.gov/pubmed/30418116>

Human: A high-fat meal may increase blood concentration of CBD by up to 5-fold

In a study with healthy adult volunteers, researchers investigated safety, tolerability and pharmacokinetics of CBD oral solution up to a dose of 1500 mg CBD twice-daily. A high-fat meal increased CBD plasma concentration after the intake of 750 mg and 1500 mg twice daily by 4.85 and 4.2-fold. CBD was generally well tolerated. There were no severe side-effects.

GW Research Ltd, Cambridge, UK.

Source: <https://www.ncbi.nlm.nih.gov/pubmed/30374683>

Human: Cannabis users may be kidney donors

In a study with 294 living kidney donors, of whom 31 were cannabis users, and 230 living kidney recipients, of whom 27 were cannabis kidney recipients, there was no difference in donor or recipient outcomes based upon donor cannabis use. There was no difference in function of the kidneys.

Dept. of Urology, Loma Linda University Health, USA.

Source: <https://academic.oup.com/ckj/advance-article/doi/10.1093/ckj/sfy107/5145154>

Animal: THC may reduce increased insulin levels and inflammation

In rats which received 10% fructose in their drinking water for 12 weeks, THC (1.5 mg/kg per day) for the last 4 weeks reduced high levels of insulin and inflammation caused by fructose.

Faculty of Cerrahpasa Medicine, Istanbul Univ., Turkey.

Source: <https://www.ncbi.nlm.nih.gov/pubmed/30427077>

Human: Patients with Hodgkin's lymphoma may profit from a treatment with cannabis

In an analysis of 133 medical files of patients with Hodgkin's lymphoma, 51 patients (38%) used medical cannabis. "Cannabis users reported improvement in pain, general well-being, appetite, and nausea in 94, 87, 82, and 79% of cases, respectively. Importantly, 81.5% reported a high overall efficacy of cannabis in relieving symptoms. Adverse events related to cannabis use itself were mild."

Sackler Faculty of Medicine, Tel Aviv University, Israel.

Source: <https://www.ncbi.nlm.nih.gov/pubmed/30307491>

Human: Cannabis use by Canadian adolescents decreased in the past 10 years

An analysis of the Canadian Student Tobacco, Alcohol and Drugs Survey revealed that cannabis use among Canadian youth decreased between 2004 and 2014. Past-year use peaked in 2008/2009 at 27.3%, compared to 16.5%, in 2014/2015. Mean age of initiation did not vary over time.

Source: <https://www.ncbi.nlm.nih.gov/pubmed/30316874>

Animal: CB1 receptors in the hippocampus are involved in the production of new nerve cells in adults

In studies with adult mice it was shown that CB1 receptors present on neural stem cells in the hippocampus, a certain brain region, control neurogenesis to regulate morphology of nerve cells, brain plasticity and behaviour. Neurogenesis describes the process by which nerve cells are produced from neural stem cells.

University Medical Center of the Johannes Gutenberg University Mainz, Germany.

Source: <https://www.ncbi.nlm.nih.gov/pubmed/30307491>

Animal: CBD may reduce the negative consequences of reduced blood supply to the brain in diabetes

In a study with diabetic rats whose blood supply to the brain was reduced, which caused cognitive deficits, treatment with CBD improved memory performance. This neuroprotective effect was attributed to the reduction of nerve inflammation by CBD.

Sources: <https://www.ncbi.nlm.nih.gov/pubmed/30430393>

UN: New report on the ongoing cannabis review process

FAAAT has published volume 1 of the "Crimson Digest", a 50-pages condensed info about the WHO, the ongoing cannabis review process and a historical background. The second Volume to come soon will address more directly the current state of the process.

Sources: http://faaat.net/wp-content/uploads/CRIMSONDIGESTvol1_web.pdf

<http://www.cannabis-conference.com/>

Rare Liverwort Activates Cannabinoid Receptors

A recent study by a group of scientists in Bern, Switzerland, examining a cannabinoid extracted from a rare bryophyte (non-vascular plant) - a member of the liverwort family - growing only in Japan, New Zealand, and Costa Rica has revealed potentially useful properties that may be valuable for people suffering with inflammation and chronic pain.

What's even more interesting is that this liverwort is distantly related to a plant we are quite familiar with, *Cannabis sativa* L., which has more recently emerged as a potential approach for treating seizures, multiple sclerosis, inflammation, and many chronic medical conditions.

The moss-like plant from the Genus *Radula*, *Radula perrottetii* produces a compound named perrottetinene (PET). PET was first described in 1994 by the Japanese phyto-chemist, Yoshinori Asakawa. However, it wasn't until Jürg Gertsch from the Institute of Biochemistry and Molecular Medicine at the U. of Bern, evaluated the similarity of this compound in structure and activity to THC in the brains of mammals that the significance became more relevant. Gertsch joined forces with his colleague, Erick Carreira, from the Department of Chemistry at the ETH Zürich, and proceeded to compare THC and PET.

Using animal models, they were able to demonstrate that perrottetinene reaches the brain very easily and that, once there, it specifically activates cannabinoid receptors. It even demonstrates a stronger anti-inflammatory effect in the brain than THC, something which makes perrottetinene particularly interesting when you consider its potential medical application.

Gertsch believes that PET's more robust anti-inflammatory effect in the brain compared with THC makes it noteworthy.

"It's astonishing that only two species of plants, separated by 300 million years of evolution, produce psychoactive cannabinoids," says Gertsch.

They also found that PET helped reduce inflammation on molecules known as prostaglandins (which THC does not affect). In fact, researchers see potential for PET to be more effective at combating inflammation than the cannabinoids in cannabis.

In an article for *Scientific American*, researcher Michael Schafroth stated, "These prostaglandins are involved in many processes (such as) memory loss, neuro-inflammation, hair loss and vasoconstriction. [PET is] highly interesting for medicinal applications, as we can expect fewer adverse effects while still having pharmacologically important effects."

"The work of Jürg Gertsch and colleagues is a prominent

advance in understanding the role of plants beyond cannabis on the endocannabinoid system," said Ethan Russo M.D., a neurologist, and Director of Research and Development for International Cannabis and Cannabinoids Institute (ICCI). "Perrottetinene ... has proven to stimulate weakly the CB1 receptor where THC and the endocannabinoids, anandamide (ANA) and 2-arachidonyl glycerol (2-AG) also bind."

Russo also explained that "perrottetinene differs from THC in a key way that makes it potentially useful medically, in that it reduces levels of prostaglandins D2 and E2 in the brain without producing COX inhibition, and thus may provide an effective anti-inflammatory and pain killer with a low risk of intoxication, formation of ulcers, or production of heart attacks or strokes."

Russo explained that this finding should prompt additional biochemical prospecting in other liverwort species in this frequently overlooked group of "primitive" plants.

The study was recently published in *Science Advances*.

Source: <http://advances.sciencemag.org/content/4/10/eaat2166.full>
<https://www.scientificamerican.com/article/lowly-moss-like-plant-seems-to-copy-cannabis/>

https://www.eurekalert.org/pub_releases/2018-10/uob-ato101918.php



Image: <https://files.newsnet.ch/story/1/1/6/11687663/25/topelement.jpg>

For Privacy, Pay Cash for Cannabis

The federal privacy commissioner advises, "...if you are concerned about using your credit card, and the option is available, consider using cash to purchase cannabis." Also, "...do not provide the retailer with more personal information than necessary." See below for more.

Source: https://www.priv.gc.ca/en/privacy-topics/collecting-personal-information/gd_can_201812/

U of Toronto Researchers Publish Cannabis Genome Map

THC and CBD, bioactive substances produced by cannabis and sought by medical patients and recreational users, sprung to life thanks to ancient colonization of the plant's genome by viruses, U. of Toronto researchers have found. Hemp contains little or no THC (tetrahydrocannabinol) but a lot of CBD (cannabidiol), while cannabis is rich in THC but has little or no CBD.

The finding is only one of the insights revealed by the long-awaited cannabis genome map detailing gene arrangement on the chromosomes, published recently in the journal *Genome Research*. Among other revelations are discovery of a gene responsible for the production of cannabichromene (CBC), a lesser known cannabinoid.

The new map reveals how hemp and cannabis, which belong to the same species *Cannabis sativa*, evolved as separate strains with distinct chemical properties. Cannabis plants grown for drug use are abundant in psychoactive THC, whereas hemp produces CBD, popular of late for its medicinal potential.

The enzymes making THC and CBD are encoded by THCA and CBDA synthase genes, respectively. Both are found on chromosome 6 of the ten chromosomes the cannabis genome is packaged into. There, the enzyme genes are surrounded by vast swaths of garbled DNA that came from viruses that colonized the genome millions of years ago. This viral DNA, or retroelements as it is known, made copies of itself that spread across the genome by jumping into other sites in the host cell's DNA.

The researchers believe that gene duplication of the ancestral synthase gene and expanding retroelements drove ancient cannabis to split into chemically distinct types. Humans subsequently selected for plants containing desirable chemistry such as high THC.

Because the enzymes are so similar at the DNA level, until this study it was not even clear if they are encoded by separate genes or by two versions of the same gene. Adding to the confusion was the fact that most strains produce both CBD and THC.

The researchers expect the map will speed up breeding efforts to create new strains with desired medical properties as well as varieties that can be grown more sustainably, or with increased resistance to diseases and pests.

Sources: <https://www.utoronto.ca/news/u-t-researchers-publish-long-awaited-cannabis-genome-map> AND <https://genome.cshlp.org/content/early/2018/11/07/gr.242594.118.abstract>



Visit us at www.thevics.com

RESOURCE DIRECTORY:

AIDS Vancouver Island

3rd Fl- 713 Johnson St, Victoria
250-384-2366

VIPWA

101-1139 Yates Street, Victoria
250-382-7927

The Action Committee of People with Disabilities

948 View Street, Victoria
250-383-4105

Victoria Brain Injury Soc.

830 Pembroke St., Victoria
(250) 598-9339

HepC BC

2642 Quadra Street, Victoria
250- 595-3892

BC Cancer Agency

2410 Lee Ave, Victoria
(250) 519-5500

Canadians for Safe Access

www.safeaccess.ca

John W. Conroy, Q.C.

1-877-852-5110 (toll free)
www.johnconroy.com

Kirk Tousaw, Barrister

604-836-1420
www.tousawlaw.ca

DrugSense

www.drugsense.org

BC Coalition of People With Disabilities

1-800-663-1278

Health Canada

<http://www.hc-sc.gc.ca/dhp-mps/marihuana/index-eng.php>

Drug Policy Alliance

www.drugpolicy.org

Media Awareness Project

www.mapinc.org

Together Against Poverty Society

302-895 Fort Street, Victoria
250-361-3521

"We cannot escape fear. We can only transform it into a companion that accompanies us on all our exciting adventures... Take a risk a day - one small or bold stroke that will make you feel great once you have done it."

-- Susan Jeffers (American psychologist and author; 1938-2012)