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CANNABINOID CHRONICLES

Medical Cannabis News and Information

Neurodegenerative Diseases and Medical Cannabis

Neurodegenerative diseases, also known as degenerative nerve diseases, are a dysfunction of the central nervous system (CNS) due to nerve cell (neuron) damage; one profound example is amyotrophic lateral sclerosis (ALS). Many neurodegenerative diseases are caused by genetic mutations, most of which are located in completely unrelated genes. Sometimes the cause is a medical condition, such as a tumor, or a stroke, or exposure to toxins, chemicals, and viruses. Sometimes the cause is not known. There are no known cures.

Several neurodegenerative diseases (e.g. Alzheimer's, Parkinson's, Huntingdon's) are classified as proteopathies as they are associated with the aggregation of misfolded proteins. Failure to fold usually means inactive proteins but other misfolded proteins have modified or toxic functionality that can lead to accumulation of amyloid fibres which in turn can lead to *amyloidosis*. Amyloidosis has been pinpointed in more than 20 serious human diseases and may play a role in various neuro-degenerative disorders.

Damage to neurons of the CNS can result in a decreased ability to send signals to the peripheral, autonomic, and enteric (gastro-intestinal) nervous systems, which make it possible for us, in general, to live.

When cells of the central nervous system are destroyed and/or not able to communicate with each other, symptoms such as cognition and memory impairment, lack of muscle coordination, weakness, spasticity, paralysis, rigidity, and more can occur. These symptoms can cause substantial decreases in quality of life for patients, and even death when involving reduction in function of important physiological processes like breathing and heart function. Neurons are one of the few cell types with a very limited ability to regenerate. In most cases, once neurons have been destroyed, they cannot grow back.

A significant amount of research on cannabis has been conducted on the plant's potential harms in relation to brain function. However, the evidence suggests that cannabinoid medicine may actually prove effective in halting or reversing debilitating neurodegenerative disorders.

A study in the *Journal of Neuroscience Research* in July 2014 suggests that ultra-low doses of cannabinoids, and THC in particular, can help protect against cognitive deficits that arise as a result of inflammation in the brain (http://www.ncbi.nlm.nih.gov/pubmed/25042014).

Another study published in 2012 in *Philosophical Transactions of the Royal Society* discusses that cannabis may exert neuroprotective effects through mitochondrial regulation, anti-inflammatory and antioxidant (i.e. agents that prevent free radical damage) properties, and clearance of damaged cells and molecules in the brain. It was noted that signalling of the endocannabinoid system (ECS) may decrease as people age, and therefore decreased function of the ECS may be a partial cause for age-related cognitive decline.

Much more research is needed.

Sources: http://www.medicaljane.com/2014/11/11/cannabis-classroom-neurodegenerative-disease-and-medical-marijuana/# AND http://en.wikipedia.org/wiki/Neurodegeneration

Happy New Year from the VICS!!

Best wishes in 2015 from the staff to our nearly 2400 members. Many thanks to all who help. *PEACE*

International Association for Cannabinoid Medicines (IACM) Bulletin

Increased endocannabinoid levels reduce pain caused by bladder inflammation

Mice without the enzyme fatty acid amide hydrolase (FAAH), which degrades the endocannabinoid anandamide, present with reduced bladder inflammation (cystitis) and reduced subsequent changes in pain perception. These mice have increased endocannabinoid levels. Department of Surgical Sciences, University of Wisconsin, Madison, USA.

Source: http://www.ncbi.nlm.nih.gov/pubmed/25374388

Patients are more in favour of using cannabinoids in epilepsy than physicians

776 subjects participated in a survey on epilepsy and cannabis. 58% were patients from North America, and 22% were epileptologists and general neurologists from Europe and North America. A minority of epileptologists and general neurologists said that there were sufficient safety (34%) and efficacy (28%) data, and 48% would advise using cannabis in severe cases of epilepsy. By comparison, nearly all patients and the public said there were sufficient safety (96%) and efficacy (95%) data, and 98% would recommend cannabis in cases of severe epilepsy.

Source: http://www.ncbi.nlm.nih.gov/pubmed/25413126

2-AG stimulates the production of platelets

Research with human megakaryozytes – large bone marrow cells responsible for the production of blood thrombocytes (platelets) – shows that the endocannabinoid 2-AG (2-arachidonoylglycerol) triggers platelet release and according to scientists may have clinical efficacy to counteract diseases related to reduced number of platelets.

Source: http://mct.aacrjournals.org/content/early/2014/11/12/1535-7163.MCT-14-0402.abstract

THC reduced inflammation of the lung caused by the bacterium *Staphylococcus aureus*

Results of new research suggest that THC is a potent anti-inflammatory compound that may serve as a novel therapeutic to suppress lung inflammation caused by a toxin of the bacterium *Staphylococcus aureus* (enterotoxin B).

Source: http://www.ncbi.nlm.nih.gov/pubmed/25425209

Endocannabinoids reduce morphine withdrawal

Animal studies suggest that the inhibition of endocannabinoid degradation reduces morphine withdrawal signs.
Department of Pharmacology and Toxicology, Medical College of Virginia Campus, Virginia Commonwealth University, USA.

Source: http://www.ncbi.nlm.nih.gov/pubmed/25425209

THC has anti-inflammatory effects in monkey models of HIV infections

THC reduced inflammation in the bowel of macaques infected with the SI virus (SIV), which is similar to HIV in humans. Researchers wrote that THC mediated "suppression of gastrointestinal inflammation and maintenance of intestinal homeostasis."

Source: http://www.ncbi.nlm.nih.gov/pubmed/25378491

Cannabinoids may help in anxiety disorders

Activation of the endocannabinoid system by cannabinoids in a certain brain region (the periaqueductal grey) attenuates consequences of aversive stimuli. Researchers concluded that "this process may be considered for the development of additional treatments against panic and other anxiety-related disorders".

Source: http://www.ncbi.nlm.nih.gov/pubmed/25388290

THC reduces brain reward by electrical stimulation of a certain brain region

Intracranial self-stimulation (ICSS) of the medial forebrain bundle is a method to create well-being (brain reward). Remarkably, THC and the increase of endocannabinoid concentrations reduced ICSS.

Source: http://www.ncbi.nlm.nih.gov/pubmed/25398241

Researcher gets 2 million dollars to research the benefits of cannabis in posttraumatic stress disorder

Colorado honours Dr Sue Sisley, who lost her job as professor at the University of Arizona in July, by a grant of 2 million dollars to continue her study into the effects of cannabis on veterans suffering from post-traumatic stress disorder (PTSD). She has expressed suspicion that she was fired in July because of political influences. Sisley's study plans to focus on 76 veterans suffering from posttraumatic stress disorder, half of whom will be in Arizona - where a private donor has reportedly offered her free lab space - while the other half will be at Johns Hopkins University in Baltimore.

Source: http://www.nydailynews.com/news/national/axed-arizona-professor-2m-grant-study-pot-ptsd-article-1.2026398

Truffles contain anandamide

Truffles, the fruiting body of a subterranean Ascomycota fungus endowed with major gastronomic and commercial value, contain the endocannabinoid anandamide. Researchers wrote that anandamide has "evolved earlier than endocannabinoid-binding receptors, and that anandamide might be an ancient attractant to truffle eaters."

Source: http://www.ncbi.nlm.nih.gov/pubmed/25433633

US Spending Bill Ends Federal Prohibition on Medical Cannabis

Deep inside the 1,603-page US federal spending measure is a provision that effectively ends the federal government's prohibition on medical cannnabis and signals a major shift in drug policy. The bill's passage in mid-December marks the first time Congress has approved nationally significant legislation backed by legalization advocates. It brings almost to a close two decades of tension between the states and Washington over medical use of cannabis.

Under the provision, states where medical cannabis is legal would no longer need to worry about federal drug agents raiding retail operations. Agents would be prohibited from doing so.

The Obama administration since last year has largely followed that rule as a matter of policy. But the measure approved as part of the spending bill, which President Barack Obama plans to sign this week, will codify it as a matter of law.

More importantly, from the standpoint of activists, congressional passage of the provision marked the emergence of a new alliance in marijuana politics: Republicans are taking a prominent role in backing the right of states to allow use of a drug the federal government still officially classifies as more dangerous than cocaine. 23 states and the District of Colombia have legalized cannabis or its ingredients to treat ailments, a movement that began in the 1990s, after some states had already been approving broader decriminalization measures for two decades. The Drug Enforcement Administration, however, continues to place cannabis in the most dangerous category of narcotics, with no accepted medical use.

Sources: http://www.mapinc.org/drugnews/v14/n923/a06.html?204

Thanks once again Raeside **(www.raesidecartoon.com)**

Cannabidiol (CBD) Extract and Childhood Epilepsy

Three clinical studies exploring the efficacy and safety in the development of a cannabis extract (Epidiolex) rich in cannabidiol (CBD) by the British company GW Pharmaceuticals were presented at the 68th Annual Meeting of the American Epilepsy. These three studies are precursor studies to a randomized clinical trial.

In the first study, 23 patients with treatment-resistant epilepsies, especially Dravet Syndrome, with an average age of 10, were enrolled in two epilepsy centres at New York University and the University of California in San Francisco. Patients received CBD at a constant dose of 5mg per kg body weight in addition to their current epilepsy medication. The daily dose was gradually increased until intolerance occurred or a maximum dose of 25 mg per kg body weight was achieved. After three months of therapy, 39% of patients had a greater than 50% reduction in seizures. Seizure freedom occurred in 3 of 9 Dravet patients and 1 of 14 patients with other forms of epilepsy. Adverse effects were mostly mild or moderate and included somnolence, fatigue, decreased appetite, weight gain, diarrhoea, increased appetite and weight loss.

The second abstract examined the drug interactions between existing anti-epileptic medications and Epidiolex. In this study, 33 children were taking an average of three different drugs including clobazam (54.5% of patients), valproate (36.4%) and levetiracetam (30.3%), felbamate (21.2%), lamotrigine (18.2%) and zonisamide (18.2%). Again patients were given a dose of 5mg/kg and increasing by 5mg/kg every week until a maximal dose of 25mg/kg in addition to their baseline anti-epileptic drugs. The study found that in patients on multiple drugs, the addition of CBD may be associated with changes in blood concentrations of some concomitant anti-epileptic drugs. This suggests CBD may have effects on the major metabolic pathways of clobazam.

The third abstract explored the anticonvulsant effects and tolerability profile of plant-derived CBD in both in vitro and in vivo models. Researchers at GW Pharmaceuticals explored five different models of seizure control as well as the use of CBD in combination with commonly used anti-epileptic drugs on seizures. The study found that CBD significantly weakened status epilepticus-like conditions. In vivo, CBD exerted significant anticonvulsant effects in models of seizure. Moreover, CBD was well-tolerated and devoid of any negative drug-drug interactions when co-administrated with clinically used anti-epileptic drugs.

Sources: www.sciencedaily.com/releases/2014/12/141208144148.htm

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Federal Court Upholds Injunction

Judge R. Boivin of the Supreme Court has denied an appeal by the Crown that challenged Justice Manson's decision of March 21, 2014 that permitted an extension of personal cultivation and possession of cannabis for medical purposes under the now expired MMAR. As stated on John Conroy's website:

"The Government of Canada's appeal, trying to undo the interlocutory injunction pending trial granted March 21st, 2014 was dismissed and our cross-appeal was allowed to the extent of sending it back to the case management judge to address the situation of the 2 Plaintiffs/Applicants Beamish and Hebert (the wife patient and husband caregiver) whose possession license expired before the cutoff date that the court below set (March 21, 2014) and had to move their production site before the other cutoff date (Sept. 2013), but were unable to do so until afterwards so he lost his production license. To fix that situation, the judge below will have to 1st backdate eligibility to either March 2013 or September 2013, and also come up with a way for them to change their production site, pending trial. This should be done for all medically approved patients who are still under the MMAR so hopefully we will be able to get back in front of Manson J. ASAP to move the possession date back to March 2013 or September 2013 at the latest and to enable a procedure to change production sites - we will suggest by filing with Health Canada in order to maintain a national data base pending completion of the trial.
This does mean that those currently grandfathered by the injunction and hopefully the others above will be able to continue until probably at least June 2015 and maybe longer before we get a final decision."

The trial is expected to start in late February 2015.

Sources: http://www.johnconroy.com/mmar.htm *AND* http://news.nationalpost.com/2014/12/16/court-upholds-injunction-that-allows-medical-marijuana-patients-to-grow-at-home/

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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

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"If you can't get rid of the skeleton in your closet, you'd best teach it to dance."
-- George Bernard Shaw (1856-1950)