

Weeding out the highs of medical marijuana

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Research exploring new ways of exploiting the full medicinal uses of cannabis while avoiding unwanted side-effects will be presented to pharmacologists today (Tuesday, 15 July) by leading scientists attending the Federation of European Pharmacological Societies Congress, EPHAR 2008.

Cannabis is a source of compounds known as cannabinoids, one of which, THC – the main chemical responsible for the 'high' – has long been licensed as a medicine for suppressing nausea produced by chemotherapy and for stimulating appetite, for instance, in AIDS patients.

More recently, the cannabis-based medicine Sativex was licensed both for the symptomatic relief of neuropathic pain in adults with multiple sclerosis and as an adjunctive analgesic treatment for adult patients with advanced cancer. Sativex contains approximately equal amounts of THC and the non-psychoactive plant cannabinoid, cannabidiol.

"THC works by targeting molecules in our bodies called cannabinoid receptors" said Roger Pertwee, Professor of Neuropharmacology at the University of Aberdeen, who is co-chairing the cannabis symposium.

"So some current research is focused on designing drugs that only target cannabinoid receptors in the part of the body relevant to the disease in question and not the receptors in the central nervous system involved in the unwanted effects of cannabis."

A further approach to avoiding the psychoactivity caused by THC involves harnessing the body's own cannabis, called 'endocannabinoids'.

"We don't have cannabinoid receptors just in case we come into contact with plant-derived chemicals that activate them but rather because we have our own molecules that do this," said Christopher Fowler, Professor of Pharmacology at Umea University, in Sweden, and co-chair of the meeting.

"The neat thing about endocannabinoids is that they are often produced only when we need them, such as when our bodies are damaged in some way; pain, for example, leads to a release of endocannabinoids in a region of the brain that is involved with pain control.

"The problem with this natural protective 'endocannabinoid system' is that it is too short-lived to be of great benefit – enzymes in our bodies quickly breakdown or metabolise the endocannabinoids negating their effect. It's a bit like a bathtub without a plug – the water is turned on but rapidly disappears down the plughole. This suggests an immediate target: block the plughole and the water will stay longer.

"Since the release of endocannabinoids is local, levels in other parts of the brain, stay low. This approach is under intense investigation and programmes for the development of new drugs targeting pain and possibly other disorders such as anxiety and depression are currently underway."

Speakers will report on promising studies that show improved strategies for targeting the endocannabinoid system, not only for pain relief, but also for treating other conditions, including stroke, liver diseases and, ironically, nicotine addiction and obesity.

Thus, as the conference will hear, there are some disorders in which

endocannabinoid release appears to be detrimental to our health, one example being obesity, which can be treated with Acomplia*, a licensed synthetic medicine that acts by blocking cannabinoid receptors.

Professor Pertwee added: "THC in cannabis is of course well known for its ability to induce 'the munchies' and, as mentioned, is used in clinics to boost appetite. But my research group has discovered that another constituent of cannabis, THCV, acts in a similar way to Acomplia, blocking one of the cannabinoid receptors, so providing an alternative – and potentially better – treatment route in the fight against obesity.

"The conference will hear about some of the possible advantages THVC has over current obesity treatments, as well as data on the potential of cannabinoids to treat other conditions, including neurodegenerative disorders like Alzheimer's, Parkinson's and Huntington's disease."

Source: University of Manchester

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