Project CBD encouraged production

As CBD-Rich Cannabis Strains Proliferate, Clinicians Develop Survey to Document Effects

By O'Shaughnessy's News Service

Two-and-a-half years ago, one analytic chemistry laboratory in California had begun testing cannabis flowers for cannabinoid content. Today we know of about 20 labs serving the industry in California, Colorado, Montana, Michigan, and Oregon.

Two-and-a-half years ago, it was still widely assumed that cannabidiol had been reduced to trace amounts in all the cannabis being grown for psychoactive effect in California and elsewhere. Today the labs have identified more than 35 strains whose flowers are rich in CBD (defined as four percent or more CBD for data-collection purposes).

Two-and-a-half years ago, THC was commonly described in the media as "the active ingredient in marijuana." Today it is increasingly referred to as "the psychoactive ingredient" —reflecting a new awareness that the plant contains components other than THC that exert effects when ingested into our bodies.

The advent of CBD-rich cannabis has created a unique research opportunity for the Society of Cannabis Clinicians, the doctors' group founded by Tod Mikuriya, MD, in 1999. Doctors Stacey Kerr and Jeffrey Hergenrather of the SCC have developed a survey to document patients' responses to cannabidiol. The SCC survey, seen as the first in a series, is designed to answer basic questions of efficacy. Follow their progress at cannabisclinicians.org.

Project CBD

Project CBD was launched two-and-a-half years ago by two journalists to share what we were learning about CBD, to expedite production of CBD-rich cannabis, and to publicize the study that our allies in the SCC were planning. Martin A. Lee, the author of *Acid Dreams,* had been writing about CBD for *O'Shaughnessy's* and was convinced that its re-introduction into the grassroots supply warranted special attention. Montana activist Sarah Russo was hired as outreach coordinator to arrange participation by dispensaries, labs, cultivators, patients, physicians, and scientists.

"Project CBD is the medical marijuana movement living up to its name."

"Project CBD is the medical marijuana movement living up to its name," Russo wrote to prospective stakeholders in March of this year. "We are confident that a serious, professional, physician-run data-collection effort will enhance the credibility of the movement as a whole."

ProjectCBD.org was created to share relevant material. On these pages we present key pieces from the site. —*F.G.*

CBD-RICH TINCTURE was made by extracting contents of trim from Harlequin plants. It contains 3.9 milligrams of CBD and 1.7 mg of THC per cubic centimeter. If CBD-rich cannabis causes no disfunction, tinctures administered under the tongue will enable people to maintain endocannabinoid tone throughout the workday.

In case you're just joining us...

Medical Hemp: The Story to Date

Cannabidiol (CBD) is the predominant cannabinoid in hemp —plants grown to produce fiber or growing wild. It has medical effects when ingested. It is not psychoactive and actually counters the psychoactive effects of THC.

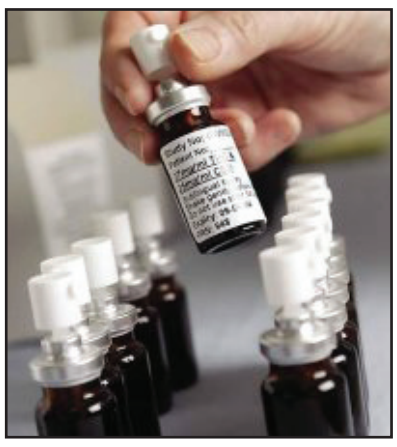
CBD levels go down and THC levels go up when plants are bred to maximize psychoactive effect, as they have been in the U.S. for many generations of plants and people.

It was generally assumed before the winter of 2008-2009 that CBD had been bred down to trace levels in all the cannabis being grown in California for medical and recreational purposes. Because no analytic chemistry labs in the United States were testing cannabis samples, there was no way to assess cannabinoid content.

It turned out that CBD-rich cannabis was not as rare in California as the experts had predicted.

Overseas, scientists had been studying CBD. Their findings, as reported in journal articles and at conferences, suggested that CBD could be effective in easing symptoms of a wide range of difficult-to-control conditions, including rheumatoid arthritis, diabetes, alcoholism, PTSD, epilepsy, antibiotic-resistant infections and neurological disorders. CBD has also demonstrated neuroprotective and anti-cancer effects.

The reduced psychoactivity of CBD-rich cannabis was a key selling point when a Britsh company, GW Pharmaceuticals, got government approval in 1998 to grow cannabis for use in clinical trials. GW Pharmaceuticals' flagship product, Sativex, is a whole-plant extract containing approximately equal amounts of CBD and THC (plus small amounts of all the other compounds produced by the plant). It is formulated for spraying under the tongue.



Sativex is a whole-plant extract formulated for spraying under the tongue.

The fact that Sativex is not smoked was another selling point in the eyes of the regulators granting the approval, as was the near-perfect consistency with which GW Pharmaceuticals could produce it.

Harborside's Steve DeAngelo

The situation in the U.S. changed when Steve DeAngelo, the director of Oakland's Harborside Health Center, decided to underwrite a lab in the spring of 2008. When Harborside opened two years earlier, DeAngelo had phoned every analytic lab in the Bay Area requesting that they test cannabis for mold and cannabinoid content —and they all turned him down So in the spring of '08 he backed two entrepreneurs who wanted to launch a lab — the aptly named "Steep Hill"— and supplied them with a large, steady stream of samples from Harborside to test for mold and cannabinoid content (THC, CBD and CBN, a breakdown product indicative of staleness).

The first CBD-rich sample identified by Steep Hill, "Stinky Purple," came from Round Valley in Mendocino County. But no cuttings had been made from a "mother plant," and there was no way the grower who had brought the CBD-rich Stinky Purple to Harborside could reproduce it.

Over the course of 2009-2010 it turned out that CBD-rich cannabis was not as rare in California as the experts had predicted. About one in 600 samples brought to Steep Hill and the other labs that had begun testing cannabis was found to contain 4% or more CBD.

Sarah Russo and Wade Laughter, Project CBD's Outreach Coordinator and the cultivator who gave the world "Harlequin." Laughter's decision to make clones available expedited the availability of CBD-rich Cannabis in California.

Whenever a CBD-rich strain was identified, Project CBD made sure the cultivators knew that cannabidiol had medical potential. We encouraged them to grow out their strains and make them available to patients as widely and as rapidly as possible.

Demand for CBD-rich cannabis was not strong. Dispensary owners were reluctant to stock it because they knew that most of their customers were seeking —or not averse to— herb that causes euphoria or sedation. In other words, high-THC content was a tried-and-true seller. Why spend money on and devote shelf space to a type of cannabis that most medical users hadn't heard of and whose effects were unproven? Growers, in turn, had to anticipate the wants of dispensary buyers and were reluctant to devote valuable garden space to plants for which there was no established market.

The developers of Harlequin, Soma A-plus, and Pineapple Thai made clones available, putting the interests of the community above their own potential profits. Harborside and Herbal Solutions in Long Beach sold clones instead of trying to corner the market (which would have been impossible long term, but feasible for a year or so).

Strains of Interest*

Harlequin
Omrita Rx3
Jamaican Lion
Blue Jay Way
Cannatonic
Soma A+
Cotton Candy x Diesel
Stinky Purple
Pineapple Thai
Misty
Good Medicine
Poison OG
Sour Tsunami
Granny Durkel
Sugaree x Blue Diesel
Kushage
Downtown Diesel
Double Diesel
Wu#1
Phenom Phen
Purple Diesel
Silver Dragon
Monkey Balls
F5
Manawell
Sweetooth SFV
LA Confidential
Sweet Diesel
White Widow
OG Afgani
Purps
Unicorn
Atomic Jam
Jamaican Skunk
R-4
Black Queen
Intensive Care OG Kush
Dr. Tod
Ma's Cheese
Hubba Bubba
BC "Outdoors"
Tora Bora

* Plants identified as containing more than 4% CBD by various labs as of June 2011

Finally, in the summer 2011, enough CBD-rich cannabis is being grown to enable the production of tinctures and edibles. Demand at the dispensary level has been building slowly and steadily —it is a function of education. Everyone in the industry realizes that there is a huge, untapped market for cannabis that does not induce euphoria or sedation. Do the strains now available meet that criterion? We'll get answers as patients respond to the SCC survey.

A milestone was achieved in late February 2011, when Lawrence Ringo of the Southern Humboldt Seed Collective announced that he had stabilized a CBD-rich strain called Sour Tsunami —meaning he could guarantee that the seeds had a one-in-four chance of containing >4% CBD. This and other recent developments are reported in the "CBDiary" on the pages that follow.

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"Think this through with me…"

CBDiary: the Reintroduction Era

ProjectCBD.org went on line in late November 2010. News and correspondence was posted on a page called "CBDiary." We hope the following selection of CBDiary items conveys a sense of the excellent adventure unfolding as well as useful information.

—FG, MAL, SR

December 23, 2010

From a Concerned Parent

I am growing/have a limited supply of Pineapple Thai, a high CBD strain. Do you know anyone who has an interest in obtaining some for study? I am in Southern California. I had it tested at the WercShop and: 2.31% THC and 5.21% CBD. Would someone be interested in them? They will be outdoor organic. I am totally legal, licensed.

C.P., San Diego

PCBD Response: Dispensaries committed to making CBD-rich medicine available are listed on ProjectCBD.org. You could contact them directly. Herbal Solutions in Long Beach had made Pineapple Thai available to patients, but we have recently heard troubling reports of Long Beach authorities closing them down. Are they still featuring it? What do you know about the background of your Pineapple Thai? What are the effects that you and others report? How long does it take to grow, etc., etc.

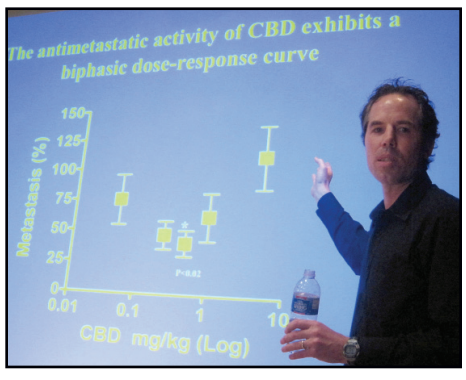
Follow-up from C.P.: I actually got my clones from Herbal Solutions. I had a great crop. Like I said, outdoor organic. I took some clones off them as I didn't know if they would be available again. I think there are only two Herbal Solutions dispensaries left of four, don't know the reason. I have seen Pineapple Thai offered there, but from what I can see they are not advertising the CBD qualities. It's just listed like the rest of the strains they carry.

My son is bipolar and gets social anxiety. I don't really use Cannabis on a regular basis. I got involved because of my son. He uses Cannabis anyway and I researched the strains and found out about CBDs. He says it doesn't really make him high, but he is able to focus better instead of a lot of running thoughts, it sort of centers him and reduces anxiety.

Sometimes he'll blend it with an OG Kush or Indica for what he calls a "fun factor." Pineapple Thai is a rangy plant, when it flowers it loses a lot of leaves, leaving just the flowers. I finally harvested in October. I am in San Diego County.

—C.P. , San Diego

McAllister Updates SCC: Cannabidiol Inhibits Metastasis



SEAN MCALLISTER, PHD, at the Dec. 11, 2010, meeting of the Society of Cannabis Clinicians. With colleagues at the California Pacific Medical Center Research Institute, McAllister has discovered that CBD is a potent inhibitor of breast cancer metastasis. CBD affects a protein called ID-1, which appears to be a major conductor of cancer cells.

Medicine Going to Waste?

• Many people, upon learning that CBD is the dominant cannabinoid in hemp plants, wonder, "Can I just smoke or ingest hemp or ditchweed to get the healing effects of CBD?"

It is true that hemp fiber or seed strains will be *relatively* high in CBD, but their *overall* cannabinoid content is typically very low, so the total CBD content is similarly low.

In general, a plant is bred to be good for one of three purposes: drug (usually THC), fiber, or seed. It is an unusual plant that is useful in more than one category. Hemp plants are selected for maximum fiber growth, not resin production.

Some plant breeders start with hemp strains and select offspring in succeeding generations to maximize CBD production.

Oureach coordinator Sarah Russo requests: if you have been growing out a hemp strain and had it tested, please let us know the results: info@ProjectCBD.org

CBD is on Schedule I

Some people have been saying that CBD is not in Schedule I of the Controlled Substances Act. It is. The code number for cannabidiol in Schedule I is 7372. The situation is quite different in civilized countries. In Germany, Spain, Italy, and many others, CBD is not controlled.

Using CBD and THC Together

What happens when you smoke a strain that is 5% CBD and 5% THC? Is the psychoactive effect removed?

Allison D.

• That's one of the things we expect the SCC survey to reveal. Our hypothesis, based on information from sophisticated Europeans, is that CBD will most effectively block THC mental effects if it is taken first, with little or no THC present. When CBD and THC are used simultaneously, the most likely effects are:

1) Peak high is delayed. This may be experienced as a creeping high —one that starts slowly.

2) The peak high is blunted slightly over that of THC alone.

3) The effects last longer.

December 29, 2010

Cannabis Analysis

You and your readers might be interested in this United Nations publication, "Recommended Methods for the Identification and Analysis of Cannabis and Cannabis Products." The labs probably have copies, but just in case…

Name withheld

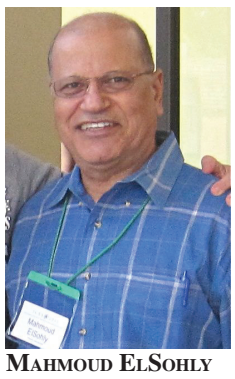
Increasing CBD:THC Ratio

Nancy Sajben, MD, has a patient who is attempting to heat cannabis in a vaporizer in order to increase the CBD-to-THC ratio. She asks if this is feasible...The scientists we checked with just say "No."

Longtime Dearth of CBD Documented

"Potency Trends of THC and Other Cannabinoids in Confiscated Cannabis Preparations from 1993 to 2008," a study published in *Forensic Sciences*, confirms that U.S. plant breeders aiming for psychoactive effect have maximized THC levels over the years at the expense of CBD. The only appreciable amounts of CBD were found in imported hashish —and ditchweed (feral hemp, which grows wild in many states where it used to be cultivated legally).

Co-author Mahmoud ElSohly is renowned for running the federally sanctioned grow at the University of Mississippi. He also has a contract with the National Institute on Drug Abuse to analyze and report on marijuana seized by the DEA in raids.



MAHMOUD ELSOHLY

The 46,211 Cannabis samples provided by the DEA over the years were grouped by Team ElSohly into six product categories —"marijuana," "sinsemilla," "hashish," "hash oil," "Thai sticks," and "ditchweed." Overall, THC content was found to have increased steadily from a mean of 3.4% in 1993 to 8.8% in 2008.

Levels of some so-called "minor cannabinoids" —CBC, CBD, CBN, CBG and THCV— were also monitored. "CBD is the major cannabinoid found in ditchweed," the authors noted, "and is present in elevated amounts in intermediate type Cannabis (moderate levels of both Δ9-THC and CBD) used to make hashish."

A year-by-year summary of ElSohly's data showing the dearth of Cannabidiol in the U.S. supply was reprinted in "What's New @ Drug War Facts," a recently launched publication that promises to be a very useful resource for concerned citizens.

We expect future reports from ElSohly to show a rise in CBD-rich cannabis confiscations. The numbers will constitute a "Sabotage of Research" index.

The U.S. cannabinoid data jibe with a recent British study. *See item below.*

Cannabis Potency by Year

Year	Marijuana	Sinsemilla	Buds	Kilobricks	Loose-Leaf	CBD	CBC	CBN
2008	5.81	11.46	10.14	6.85	1.82	.41	.26	.27
2007	6.11	11.08	9.81	6.73	2.09	.48	.25	.24
2006	5.58	11.20	9.73	6.03	2.30	.53	.25	.28
2005	5.25	11.63	9.81	5.67	2.19	.46	.27	.32
2004	5.38	11.91	9.19	5.41	2.16	.46	.25	.28
2003	4.97	11.59	8.39	5.13	2.18	.46	.24	.23
2002	5.11	11.36	8.03	5.07	2.25	.42	.24	.22
2001	5.02	9.55	8.88	4.99	2.31	.47	.23	.28
2000	4.67	12.80	9.33	4.40	2.31	.45	.21	.34
1999	4.18	13.38	9.97	3.84	2.24	.43	.21	.38
1998	4.22	12.33	8.40	4.66	2.41	.41	.21	.23
1997	4.26	11.62	8.71	4.66	2.79	.40	.25	.20
1996	3.87	9.23	6.94	4.44	2.26	.42	.23	.23
1995	3.73	7.51	6.01	3.84	2.01	.31	.20	.31
1990	3.24	10.10	6.27	3.76	--	.38	.18	.19
1985	2.83	7.28	5.67	3.80	--	.28	.14	.23

Cannabis Potency in the UK

Only hashish imported from Afghanistan and Morocco contained significant levels of CBD, according to David Potter, Peter Clark, and Marc Brown, authors of a paper titled "Potency of Delta-9 THC and Other Cannabinoids in Cannabis in England in 2005: Implications for Psychoactivity and Pharmacology." It was published in *The Journal of Forensic Science*, January 2008.

Two of the authors work for GW Pharmaceuticals, which also provided lab and statistical support for the study. GW is marketing Satviex, an extract containing equal amounts of THC and CBD, and has an obvious interest in emphasizing the "anti-psychotic" potential of CBD. Here's the abstract:

"Gas chromatography was used to study the cannabinoid content ('potency') of illicit Cannabis seized by police in England in 2004-5. Of the 452 samples, indoor-grown unpollinated female Cannabis ("sinsemilla") was the most frequent form, followed by resin (hashish) and imported outdoor-grown herbal Cannabis (marijuana). The content of herbal Cannabis and resin was 2.1% and 3.5% respectively. The median 13.9% THC content of sinsemilla was significantly higher than that recorded in the UK in 1996-98.

"current trends in Cannabis use pose an increasing risk to those users susceptible to the harmful psychological effects associated with high doses"

"In sinsemilla and imported herbal Cannabis, the content of the antipsychotic cannabinoid cannabidiol (CBD) was extremely low. In resin, however, the average CBD content exceeded that of THC, and the relative proportions of the two cannabinoids varied widely between samples.

"The increases in average THC content and relative popularity of sinsemilla Cannabis, combined with the absence of the anti-psychotic cannabinoid CBD, suggest that the current trends in Cannabis use pose an increasing risk to those users susceptible to the harmful psychological effects associated with high doses."

CBDiary *from previous page*

Is There CBD in Hops?

I was wondering if you know of any studies using the CBD from hops flowers. Apparently they are related to Cannabis and have a decent amount of CBD in them. Also, they are abundantly available and cheap.

—Patti J.

• Hops are rich in beta-myrcene, one of the terpenoids thought to influence the effects of Cannabis. But it's hemp, not hops, that has CBD. You're right that they're related. The following is from a monograph by Arno Hazekamp, who knows his cannabinoids:

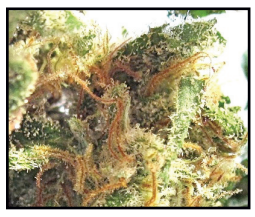
"According to current botanical classification, Cannabis belongs, only with Humulus (hops), to the small family of *Cannabinaceae* (also *Cannabaceae* or *Cannabidaceae*). Despite this close relationship, cannabinoids can only be found in Cannabis sativa.

In the genus Humulus, even in grafting experiments between Cannabis and Humulus, no cannabinoids have been found, but instead a variety of so-called bitter-acids, such as humulone, adhumulone and cohumulone, are produced. The close relationship between both plant species is clearly shown by the fact that the compounds (cannabinoids and bitter-acids, respectively) are both derived from similar biosynthetic pathways. Furthermore, both are excreted as a resinous mixture by glandular hairs, mainly found on female flowers."

Hops (Humulus flowers) are grown on vines supported by trellises. Humulus and Cannabis are the only members of the *Cannabinacae* family. Female plants produce fragrant green seed heads that brewmasters use as a preservative and to add bitterness. Native to the British Isles.

Harlequin: The Back Story

"Harlequin is one phenotype of a plant bred to produce hashish," explains Wade Laughter. "The genes are 75% sativa and 25 % indica. The Sativas include an early 1970s Columbian Gold, a Thai from the mountains near Laos, and a Swiss native landrace that was bred for consumption of cattle. The Indica is from Nepal's Mustang state. These are all high-elevation plants.... Harlequin is available as a clone at dispensaries in the Bay Area that are participants in Project CBD, including Harborside and the Vapor Room. The smell and taste are sweet with an almost syrupy heaviness that is pleasant on the inhale and the exhale. She needs about 60 to 70 days indoors to finish her full flowering. She sets flowers fairly quickly compared to other strains. I see fingertip-sized bud set at two weeks of flower —compared to pencil-eraser size in other plants at the same two weeks of flower. She really needs some way to support the colas the last few weeks because the trichomes and flowering tops get so heavy. Along those same lines, in a drying room where strains like Blueberry or Bubba Kush take seven to 10 days for drying before curing, the Harlequin can take as long as three weeks. She can be completely obscured by 'sugar' to where she looks 'frosted.'"



Laughter's decision to share his genetics will expedite the reintroduction of CBD into the medical pipeline. Patients who may benefit from CBD, doctors keen to study its effects, and journalists covering the story can only say thanks, brother.

Let Us Not Indulge in CBD Opportunism

It's tempting for those who are talking up the medical potential of cannabidiol to emphasize the absence of psychoactive effects in such a way as to imply that CBD is the "good" cannabinoid, as opposed to THC, the "bad" cannabinoid. That is a shortcut to acceptance that we consider opportunistic at best, unethical at worst.

Examples of "CBD Opportunism" can be found in a recent an article in the *New Scientist* by Lady Amanda Neidpath of the Beckley Foundation, a British charitable trust "that promotes the investigation of consciousness and its modulation," and Paul Morrison, a researcher at the Institute of Psychiatry in London. Here's an excerpt with our comments in **boldface:**

"It's lack of balance that makes skunk cannabis do harm. The effects of cannabis on mental health have attracted much attention over the years. As far back as the 19th century it was recognised that cannabis could induce a transient psychosis which mimics the symptoms of schizophrenia. Despite this, until the last decade or so, most psychiatrists regarded cannabis as essentially benign."

This is the reverse of the truth. Most psychiatrists in the UK and the US are Prozac pushers who have accepted Cannabis prohibition without a peep.

"The type of cannabis taken is an important factor. Street cannabis has indeed changed over the years. So-called 'skunk' does contain higher than normal concentrations of the main psychoactive compound, a molecule called delta-9-tetrahydrocannabinol (THC). What is less well known is that another constituent, cannabidiol (CBD), has been eliminated from skunk through selective breeding to increase the THC content."

Granny derkel at sunset

CBD has been bred down to trace levels not just in "Skunk" but in virtually all cannabis grown for psychoactivity.

"The elimination of CBD may play a key role in the development of psychosis. Laboratory studies have shown that pure, synthetic THC causes transient psychosis in 40 to 50 per cent of healthy people."

At what doses? Pure THC lacks not just CBD but other compounds in the plant known to exert modulating effects.

"In stark contrast to THC, CBD appears to have an anti-psychotic effect, at least in animals. Studies in humans, though few in number, have produced similar findings.

"The elimination of cannabidiol from skunk may play a key role in the development of psychosis. In one human study, in *Neuropsychopharmacology (DOI: 10.1038/npp.2009.184)*, Sagnik Bhattacharya and colleagues at the Institute of Psychiatry in London used functional MRI brain scanning to study the effects of THC and CBD on the brains of healthy volunteers. They found that THC and CBD acted in opposition; in brain regions where THC increased neural activity from a baseline, CBD decreased it, and vice-versa.

"In a further experiment, a group including one of us (Morrison), in collaboration with the Beckley Foundation, compared the effects of a mixture of synthetic THC and CBD (to mimic traditional cannabis) with THC on its own (to mimic skunk). The aim was to find out if CBD offered protection against the psychotic effects of THC. Healthy volunteers were given the molecules intravenously for two sessions."

Two synthetic molecules don't "mimic traditional cannabis," and people don't shoot cannabis. What does this experiment have to do with the real world?

Niedpath and Morrison conclude: "The evidence supports the idea that nature knows best, and that the reintroduction of CBD would be beneficial. Two molecules are better than one."

But the whole plant is better by far.

January 17, 2011

'The Farmer is the one Who feeds 'em all'

A plant breeder who developed one of the first CBD-rich strains called in dismay this afternoon. The buyer at a Berkeley dispensary had just rejected the pound of cannabis he had driven down with from north of Redding —after the owner had said that he wanted to carry it.

Cultivators have almost no leverage in dealing with dispensaries.

The owner wasn't there and the buyer decreed that the buds "didn't all look the same." Our friend tried to explain how the plant grows. The buyer said, "I'm not a grower, all I know is what looks good."

Cultivators have almost no leverage in dealing with the dispensaries. Fortunately for our friend, a dispensary in San Jose was eager to stock his strain and he drove south.

We hope the advent of CBD-rich Cannabis will lead to a de-emphasis on what the dispensary buyers call "bag appeal." Medical users whose concern is pain relief should not be put off by the presence of some CBD-rich wrapper leaves around the buds they're buying —especially if manicuring costs are reduced and the savings passed on.

It's up to the budtenders to explain this reality to patients, to educate them away from "bag appeal." It won't be easy, because, as Harborside's Rick Pfrommer says, "a lot of people think of Cannabis in terms of bling." And in the retail world, the customer is always right.

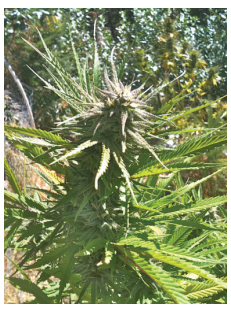
Harvest Early?

We've heard from people who read somewhere that you can get higher CBD levels if you harvest early... That article must be quite old. It's been known for 10-15 years that CBD is not the precursor to THC, but rather CBG is. One may (or may not) be able to increase CBG yield by harvesting early, but not CBD. You can't create CBD in a genetic vacuum. It is either there, or it's not.

Sour tsunami clones

New CBD-rich Strains ID'd

A Cannatonic plant grown by Whitney Eads, RN, had the highest CBD level of strains submitted at the recent Emerald Cup in Laytonville —13.5% CBD and 6.9% THC, according to SC Analytics lab. A close second was "Sour Tsunami," grown by Lawrence Ringo of the Southern Humboldt Seed Collective (12.9% CBD, 6.9% THC). Third was Sugaree x Blue



Whitney's winner

January 20

CBD in 'Poison OG'

The Werc Shop opened for business on April 20, 2010, becoming the second lab testing cannabis in Southern California. (First was The Farmacy's internal testing operation.) Proprietor Jeff Raber reports, "We continue to see Poison OG show up that is CBD-rich. It can sporadically be found at Reseda Discount Caregivers. We've tested some Cannatonic that has had some phenotypes presenting CBD-rich profiles. We've also seen a CBD-rich Trainwreck and some CBD-rich Northern Lights phenotypes (not all of them) as well. Some of those we've found are from private collectives not currently wishing to be identified."

January 23

Two More CBD-Rich Strains Identified by Pure Analytics

Two strains containing twice as much CBD as THC were referenced in a report received today from Pure Analytics lab. Both were found through Sacramento dispensaries: "Sweet Diesel" from Unity NPC, and "Purple Dragon" from El Camino Wellness Center.

January 23

Good News for Fresh Bud Fans

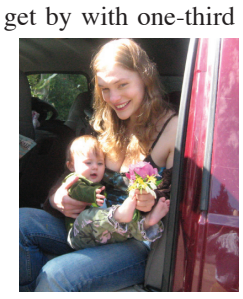
Kristen Peskuski, a patient with a remarkable medical history, and William Courtney, MD, made a joint presentation at a conference Jan. 22 in Laguna Woods. They drove down with baby Zahaia and stopped at the Werc Shop with samples from 17 Cannatonic plants being grown in Mendocino as potential "mothers."

The test results were encouraging, says Courtney. "The big news for us was a plant that was 22% CBD acid by weight, which was reduced upon heating to 19.8% CBD." That's three times higher in CBD than the plant from which many of Courtney's pa-

continued on next page

CBDiary *from previous page*

tients have been getting clones. "Which means they can get by with one-third the dose," Courtney says, enthused by the prospect of growers producing clones from the new champion.



January 24

BCBD

A. Paul Hornby, PhD, the president of Hedron Analytical Inc. in Vancouver, informed us by email of "a strain here in BC that runs 15 to 17% CBD and roughly 8 to 12% THC. This particular strain has significantly reduced a young girl's grand mal epileptic seizures and is being summarized in a three-year case study." Hornby attached case studies of patients who benefited from using high-THC Cannabis (obtained through the Green Cross Society of BC) in treating MS and severe chronic pain, respectively. We asked for more details about the CBD-rich strain.

Hornby described it as "an outdoor strainthat we are currently attempting to grow indoors. It is one pocket of genetics of a strain available here in B.C. I fear that revealing the strain's name would begin a fool's gold rush. We have tested many samples that go by the name of that strain, but no CBD. As stated earlier, it is a pocket of genetics that has the high CBD count.

Cannabis Testing in Europe?

Are there any analytical chemistry laboratories in Europe that test for cannabinoid content?

—**Aaron L.**

• Rudolf Brenneisen in Bern, Switzerland is very capable of doing reliable cannabinoid testing.

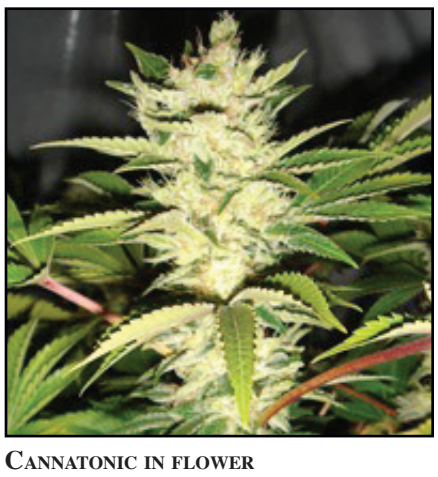
February 14

Seeds Sought

I'm a small time (personal) grower who helps out a couple of friends with MS. I've been looking for high CBD strains for some time and recently found your excellent site. Although we're well served for seeds in the UK with access to Dutch, Spanish and Swiss genetics, nobody seems to consider CBD content, so I'm hoping you can give me a link to suitable strains and the seedbanks that sell them.

—Tony B.

• Resin Seeds in Spain sells CBD-rich Cannatonic.



CANNATONIC IN FLOWER

February 15

Omrita Rx3

Miguel A. acquired 10 seeds of a strain called Rx from the Vancouver Island Seed Company in late 2009. The VISC catalog described Rx as their "favorite medicinal variety" —a double Indica cross of Romulan Joe with Fucking Incredible." (Which undoubtedly sounds more "medical" in Latin.)

Miguel, 38, lives with severe chronic back pain from a sports injury and has a recurring fracture in his lower lumbar (L4) vertebrae. He uses the Rx strain for pain management "along with a regimen of traditional Ayurvedic medical practices that include Hatha Yoga, diet, herbs, energy/body work, and meditation." The most prominent feature in the living room of his East Bay bungalow is a massage table on which he receives regular therapy. And he still plays soccer!

Of the 10 original Rx seeds Miguel planted, he says, "Only three of the seeds germinated, which resulted in two females and one male. The females were robust, colorful, and covered with resin, so I brought some to Harborside where Rachael decided to give the Rx a chance. When the test results came back, I learned about CBD for the first time. That's when I decided to do my own N-of-1 trial by only strictly medicating with the Rx, and nothing else, for a 7-day period.

"Three days into my trial the differences of high-CBD medication began to jump out at me. Most noticeable was the lack of a 'crashing' sensation and the fatigue that I feel when I medicate with a high-THC variety, especially first thing in the morning when I am starting my day. I experienced very mild psychoactivity for about 20-30 minutes, followed by a sense of extreme clarity. And I was still experiencing *all* of the pain relief that I had become accustomed to with high THC. Since then I have found that I am able to be more functional and productive throughout the day by medicating with a CBD-rich variety and saving the THC varieties for the evening."

OMRITA RX3 BUDS appealed to Harborside buyers for looks, aroma and perceived effects —and then turned out to be CBD-rich. Growers typically bring in one or two pounds of dried flowers in bags meant for roasting turkeys.

Miquel renamed the strain to emphasize its medical value, adding the Sanskrit word "Omrita," which means "nectar." He points out that the strain "was the result of someone else's work and recognition should be directed back to the original breeders at VISC for their incredible creation."

CBD Counters "Social Anxiety Disorder (SAD)"

More evidence that CBD reduces anxiety has been published in the journal *Neuropsychopharmacology* by Jose A.S. Crippa and colleagues at the University of Sao Paulo, Brazil. Their paper, "Cannabidiol Reduces the Anxiety Induced by Simulated Public Speaking in Treatment-Naïve Social Phobia Patients," describes a study involving 24 patients diagnosed with SAD and 12 healthy controls.

Half the SAD patients received a strong dose of CBD (600 milligrams dissolved in corn oil) and half got placebo. After an hour and 20 minutes the subjects were given two minutes to prepare a four-minute speech on "The public transportation system of your city." Subjects were told that the speech would be recorded on videotape and analyzed by a psychologist.

Subjects gave their speeches while observing themselves in a monitor (to maximize self-consciousness).

Subjects gave their speeches while observing themselves in a monitor (to maximize self-consciousness). Each speech was interrupted midway through so that "performance measurements" could be taken. Measurements were also taken before and after the speech. These included both psychological and physiological tests —a Visual-Analog Mood scale, a Self-Statements-During-Public-Speaking scale, a Bodily Symptoms scale, skin conductance, arterial blood pressure and pulse rate.

The authors concluded, "Pretreatment of SAD patients significantly reduced anxiety, cognitive impairment and discomfort in their speech performance... The placebo group presented higher anxiety, cognitive impairment, and discomfort...when compared with the control group... These preliminary results indicate that a single dose of CBD can reduce the anxiety-enhancing effect provoked by SPST in SAD patients, indicating that this cannabinoid inhibits the fear of speaking in public, one of the main symptoms of the disorder."

The authors note that "there is only one published report of the anxiolytic effect of CBD in an anxiety disorder (Crippa et al).

Dr. Crippa has provided us with a list of "Methods for assessment of mood in people with cognitive and/or communicative impairment." It's online at ProjectCBD.org.

CBD vs. the Munchies?

The title of a paper published in *Neuropsychopharmacology* —"Cannabidiol Attenuates the Appetitive Effects of Delta(9)-Tetrahydrocannabinol in Humans Smoking Their Chosen Cannabis"— suggests to us that CBD-rich Cannabis might work as an appetite suppressant.

The authors, Celia Morgan and colleagues from University College London, tested 94 subjects on two occasions. The subjects brought and smoked their own Cannabis and "while acutely under the influence" were offered more Cannabis, other drugs, and food.

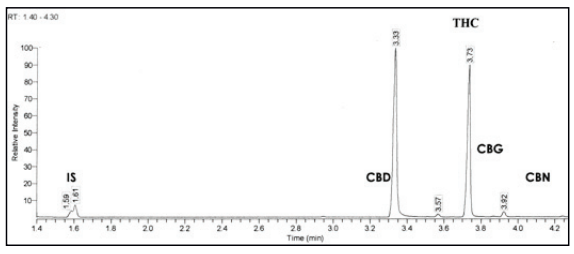
Morgan *et al* measured the eagerness with which the subjects responded to the offerings, and found that it correlated inversely with the CBD-to-THC ratio of the Cannabis the subjects were smoking. In other words, the higher the proportion of CBD they had ingested, the less desirous they became of more drugs and food. In the great tradition of Prohibitionist science, Morgan *et al* concluded that "CBD has potential as a treatment for Cannabis dependence" and "possibly... for other addictive disorders."

If CBD-rich cannabis is an appetite-suppressant, that pattern should show up on the SCC Survey... In animal studies another compound in the Cannabis plant, THC-V, has been found to suppress food cravings... Personal stashes of Londoners have varying CBD levels because hashish from the Middle East and Afghanistan which is widely available, tends to be CBD-rich.

February 22

Juanita la Lagrimosa

A Spanish company, Reggae Seeds, is offering a CBD-rich strain called "Juanita la Lagrimosa," which means "Juanita the Tearful." It has tested at 8.8% CBD, 6.8% THC, according to Canna Research Laboratories. *See chromatogram at right.*



February 25

CBD Profile Predictable Early

Wilson Linker, a sales exec at Steep Hill Lab, tested leaves from different parts of a Harlequin plant about five weeks after it was started indoors from a clone —"Still completely in veg," he says. To his surprise, GC/MS showed the leaf to contain approximately 4% CBD and 2% THC,

Linker repeated the test and confirmed the results with another Harlequin clone started the same day. Key questions will be answered by more testing: Do all Harlequin plants produce cannabinoids in the vegetative state? Do other CBD-rich strains have this trait?

"The true benefit," says Linker, "would be that you could extract the CBD in mid-summer, not wait for buds before harvesting. There's obvious implications for making edibles and tinctures. Imagine not having to deal with a harvest!"

Pure Analytics and The Werc Shop have also reported that the presence of CBD can be detected on Harlequin plants early in the vegetative stage... The Werc Shop tested a Harlequin clone 25 days after planting and found it to contain 2.1% CBD and 1.2% THC.

"The true benefit," says Linker, "would be that you could extract the CBD in mid-summer, not wait for buds before harvesting.

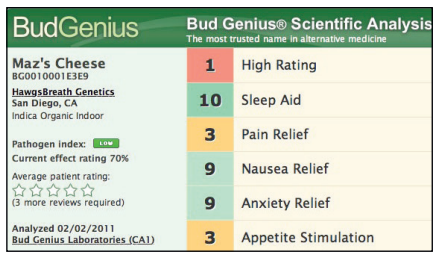
Jeff Raber called our attention to the 2008 study by D. Pacifico and colleagues —"Time course of cannabinoid accumulation and chemotype development during the growth of Cannabis sativa," published in the journal *Euphytica*— that reported early detectability of cannabinoid levels.

Raber notes, "This type of testing will offer insight into the ratio of CBD/THC but cannot yet predict the end total values."

Maz's Cheese may be good, but lab's numbers smell funny

A San Diego collective, Bella Flora, reports availability of a CBD-rich strain called "Maz's Cheese." Results were posted on the website of a testing service called Bud Genius, with numbers and check marks supposedly rating this strain's efficacy for various conditions. We asked Bud Genius how the ratings were arrived at, and to explain the meaning of a caption stating, "The above characteristics are considered a scientific baseline..." If all these things are known, maybe the Society of Cannabis Clinicians shouldn't be surveying patients, and maybe Project CBD is redundant. We await elucidation from Bud Genius.

• *PS... Not surprisingly, they never tried to explain the jive numbers.*



CBDiary *from previous page*

Defining "Stability"

Dedicated plant breeders aspire to produce strains stable enough to enable seed sales. As one skilled breeder reminds us, "stabilizing the genetics... is not just a simple F1 Hybrid between two parents that may or may not have the desired traits. Stabilization could take as many as five or six inbred generations beyond the original F1 cross to establish a homozygous gene condition for CBD."

We asked the dean of West Coast plant breeders, DJ Short, to define his standard of stability. "If you cross it with itself, you get pretty much the same thing," he replied.

DJ advises customers that at least two females (and two males) in your pack of 10 should display or exceed the advertised characteristics. That means half the seeds, based on an 80% sprout rate, will yield what you want

DJ Short consulting with a member of the Organicann collective in Santa Rosa.

DJ says he could cross more generations and approach 100% replicability, but he knows the buyers would rather have access now, on the two-out-of-10 basis.

February 28

Harlequin Happening in L.A.

From Michael Backes of the Cornerstone Research Collective: "There a consistent and reliable source of Harlequin in LA now. Cornerstone is simply purchasing 20 or so cuts every couple of weeks and then giving them away for free to candidate cultivators." This is thanks to a willingness to share on the part of Wade Laughter, who made a decision to provide clones to Oakland's Harborside Health Center, which provided them to member-growers, leading to the current surge in availability in L.A.

March 7

Sativex Alleviates Spasticity and Spasms in MS

Czech investigators led by A. Novotna report in the *European Journal of Neurology* that Sativex reduces overall spasticity and the number and severity of spasms experienced by Multiple Sclerosis patients. (Spasticity is an ongoing increase in muscle tone; spasms are episodes of muscle contraction. They often, but don't always, go together.)

Spasticity in MS can be painful, disrupting sleep and reducing mobility. Various medications, including baclofen, benzodiazepines and anticonvulsants, provide minimal relief.

Sativex is an oral spray made from a blend of Cannabis plants containing approximately equal amounts of CBD and THC, plus small amounts of other cannabinoids and terpenes. The manufacturer, GW Pharmaceuticals, underwrote the study, which employed an "enriched enrollment design" to exclude MS patients who did not respond to a preliminary four weeks of usage. This study design, the authors point out, reflects the way patients and doctors actually decide on a treatment regimen: "patients who do not respond to a medicine, or who find it intolerable, are unlikely to continue treatment for a prolonged period."

Spasticity in MS can be painful, disrupting sleep and reducing mobility. Various medications, including baclofen, benzodiazepines and anticonvulsants, provide minimal relief.

The Sativex study by Novotna *et al* initially enrolled 572 potential subjects. During the first phase, subjects continued taking the drugs from which they were getting "insufficient benefit" while adding Sativex. (They thought they might be getting a placebo.) After four weeks, 272 patients reported that the severity of their spasms had been reduced by 20% or more. This group —minus 31 dropped for various reasons— then took part in the 12-week randomized, double-blind study comparing Sativex to placebo. All patients continued taking their regular meds.

During the 12-week phase, 74% of the patients on Sativex reported achieving a 30% reduction in spasticity from the initial screening baseline, compared to 51% on placebo. Fifty-six patients on Sativex reported >50% relief, compared with 39 patients on placebo.

Sativex was also found to be superior to placebo for reducing spasm frequency and sleep disruption.

CBD for Insomnia?

S.B. asks succinctly, "Are CBD-rich strains good for insomnia?" That's a question Project CBD hopes to answer via the Society of Cannabis Clinician survey(s).

European researchers tell us that CBD is "alerting, except at very high doses." But our early anecdotal evidence suggests that it helps people sleep.

Three possibilities to explain the input from patients (some of whom give CBD-rich cannabis rave reviews for treating insomnia):

1) The European researchers have it wrong.

2) CBD brings on sleep by reducing anxiety.

3. CBD doesn't have much of an impact on sleep, and other components of the plant are determining whether it will be sedating or alerting when ingested. A terpenoid, myrcene, which is abundant in hops as well as cannabis, is reportedly sedating. Maybe myrcene levels are where it's at for inducing drowsiness.

HOPS thrive in Oregon's Willamette Valley.

CANNABINOID PROFILE					
Active Cannabinoids		Inactive Cannabinoids	Calculated Active Cannabinoids		Relative Ratio of Active Cannabinoids	
CBD:	<0.01%	CBD-A: 10.89%	CBD:	9.55%	CBD:	6.98
CBN:	0.13%		CBN:	0.13%	CBN:	0.1
THC:	<0.01%	THC-A: 4.56%	THC:	4%	THC:	2.92
CBC:	<0.01%		CBC:	<0.01%	CBC:	0
THCV:	<0.01%		THCV:	<0.01%	THCV:	0
Total Assayable Cannabinoids:	15.58%		Total:	13.68%	Total:	10

CANNABINOID CONTENT OF "KUSHAGE" as reported by Denver's Full Spectrum Lab.

March 1

Sour Tsunami Stabilized

For the first time, a California grower has "stabilized" a Cannabis strain high in Cannabidiol. Lawrence Ringo of the Southern Humboldt Seed Collective is now offering seeds of "Sour Tsunami" that have a one-in-four chance of containing 10-11% CBD (and 6-7% THC)!

Ringo, 54, has been dealing with severe back pain since early adolescence. "I have no disk between my lower third and fourth," he told us. "It's bone on bone. When I was 13 some kids thought it was funny to let me take the weight of this thing we were lifting up. I've been dealing with the pain ever since. I've been to every doctor and chiropractor. No one can really help. There's no way that I'm going to do any drugs, ever. I despise them. And I'm not going to do any back surgery.

I'm going to rely on the strains I've developed over the years. When my back really hurts I do the the high-CBD kief. Two pipeloads and I can go out and do anything —ride a motorcycle, work in the garden."

Ringo started growing at 15. On his way to school one day he found a sapphire gold ring and a snub-nosed .38 and a film can of cocaine. He threw away the coke and returned the ring and the pistol to the local head of the Hell's Angels. "Come on in, little brother," said the grateful biker. When asked what he wanted way of thanks, Lawrence pointed to a big Sativa plant he saw growing in the backyard and said, "I want to learn how to grow that!"

At age 19 he went to Solano Community College and learned organic horticulture. He has been crossing plants of interest for many years, with the goal of creating a strain that would lessen his back pain without giving him "a clogged head." He says, "There are certain highs that you can operate on and some that you can't. You smoke three hits and you're passed out. I don't like that."

"I saved seeds whenever a plant gave me a creative feeling," Ringo explains.

"I saved seeds whenever a plant gave me a creative feeling," he explains. "I bought 'New York City Diesel' seeds from Marc Emery. I liked it —great taste and no couch lock. I took the males from that and crossed them onto Sour Diesel female clones. I crossed the NYC Diesel and the Sour Diesel for about four years kept crossing it back to the Sour Diesel clone.

Each year I'd save the male and do the dusting and make my seeds. One year a friend popped in with something that had a really nice creamy taste. I thought it was an Indica but it turned out to be 60% Sativa called Ferrari. I'll never forget that creamy taste. I smoked it and my brain just took off. I'm a musician so I just grabbed a guitar and was going nuts for hours."

"It took me about a year to get that Ferrari clone. It was protected by the rednecks — the good old boys who used to be loggers and now they're pot growers. They have this little clique going, the good old boys network. Very secretive and protective. They weren't going to give it to us but we got it.

I crossed my Sour Diesel —Double Diesel, I called it—to the Ferrari clone five years ago. Two years ago I re-crossed it back onto the Sour Diesel. Before I did that I had this thing called Tsunami. It was the Double Diesel crossed four times to the Sour Diesel then crossed to the Ferrari and then crossed back to the Sour Diesel. That made Sour Tsunami. It's unbelievable. The creamy taste was there.

I had no idea what the CBD count was until Samantha Miller [of Pure Analytics] analyzed my stuff and said it was 11.3% CBD. 'And by the way,' she said, 'You have eight other strains with great CBD potential.'"

Bingo!

CBDiary *from previous page*

CBD-Rich Still Too Stoney

Dear Project CBD,

I am in great interest in the therapeutic effects of CBD. I have obtained my Medical Cannabis license, but recently I have had to stop because to put it frankly, I do not wish to become high anymore. It's a distraction and contrary to belief, for some individuals even high CBD strains with low THC quite clearly cause anxiety and psychotic symptoms…

These symptoms are much lower with higher CBD strains, but nonetheless even small amounts of THC for some people cause many serious problems. Thus I would like to inquire your team on when pure or virtually pure, naturally extracted CBD oil or any type of CBD extract from Cannabis would be available?

I suffer from chronic anxiety and constant back and neck pain. Also, since it is naturally derived, it would be an inherently safer substance in my opinion. Please let me know if you know of any source that provides pure CBD in any form or when you predict it would be available.

N.M.

PCBD: An offspring of OmritaRx3 was found to have a 20:1 ratio and is being grown out. A strain called Stinky Pink Purple, being grown this summer from seed, once produced a plant with that ratio, but no mother plant was saved. *(See page 16.)*

Bear in mind that the terpenoid profile may also modulate the psychoactive effect of a given phenotype.

"At low doses, equal amounts of CBD will blunt the peak effect of THC somewhat, but not eliminate it. If given first, CBD can block the high of THC. At higher doses, the effects of THC overwhelm those of CBD, and one can still become extremely high."

According to sources we respect, "At low doses, equal amounts of CBD will blunt the peak effect of THC somewhat, but not eliminate it. If given first, CBD can block the high of THC. At higher doses, the effects of THC overwhelm those of CBD, and one can still become extremely high."

There were two very interesting presentations at the 2010 ICRS conference in Lund, Sweden, relevant to dosing questions.

• Yosef Sarne, an Israeli scientist, reported that ultra-low doses of THC had long-lasting preventive and remedial effects on "cognitive damage due to various insults" in mice. Homeopathy!

• Jacqueline Blankman from the Scripps Institute in San Diego reported on a powerful new compound that inhibits MAGL, the main enzyme that breaks down 2-AG. But it did this so effectively that 2-AG levels skyrocketed and her team observed the opposite reactions of everything they had expected —pro-inflammatory rather than anti-inflammatory, etc. At the same time, anandamide levels decrease when 2-AG levels are high (and vice versa), thereby accentuating the biphasic experience.

So dosage is everything, to paraphrase Paracelsus.

March 26

Testing Cannabis in Michigan

Lansing is now home to the first Cannabis testing lab in Michigan: Cannalytics. Founder Zach Jarou, a medical student, says that Cannalytics uses "an internally validated high-pressure liquid chromatography method." Cannalytics tests for THC, CBD, and CBN content in flowers, tinctures, and edibles. They plan on testing for other plant compounds in the future, as well as for mold and pesticides. Cannalytics has yet to test a CBD-rich sample.

March 2

Edibles: What Dose To Start With?

Question:

Conventional meds have not prevented our son from having seizures. He has been given a remarkable cannabis concentrate —17% THC, 16% CBD— and wants to make cookies. His plan, which his neurologist is aware of, is to take a single-dose cookie when he wakes up and every four hours thereafter until he goes to bed, to maintain roughly even cannabinoid levels. He wants to find the dose at which he can be functional and seizure-free. He will titrate, of course, but what should the starting point be —how many miligrams of THC and CBD should that cookie contain?

Reply from a toxicologist:

Two options: If using the dronabinol (Marinol) dosing model as a starting point (30-90 mg), then an ingested dose would be 15 mg per cookie, consuming 6 cookies per day. Assuming that 50% of the cannabinoid content is destroyed in cooking or otherwise not bioavailable, I would start with a recipe that results in 30 mg. of cannabinoids per cookie in the batter.

If using the Sativex dosing model (2.7 mg THC/2.5 mg CBD) per spray, 5-12 sprays/day (which assumes no destruction from cooking and 80% mucosal bioavailability), then 13.9 mg. is a single dose. Since GI bioavailability is less than mucosal, I again come up with an ingested dose of 15 mg per cookie. (And suggest starting with 30 mg. cannabinoids per cookie in the batter).

That's my 2 cents.

Janet Weiss, MD

CBD and Asthma

Note from Drs. Frankel and Paoletti:

It has been known for many years that smoked Cannabis is a bronchodilator and can be useful in treating asthma. Usually, asthma is a problem with bronchospasm (wheezes) and increased mucous production in the smaller airways of our lungs.

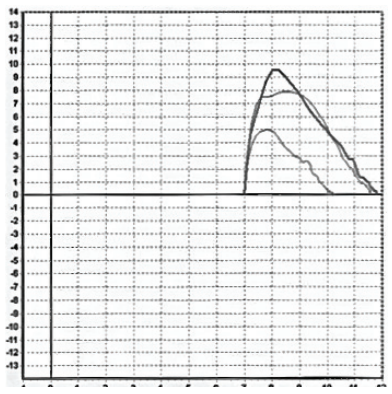
More anxiety causes worsening bronchospasm, which causes more anxiety.

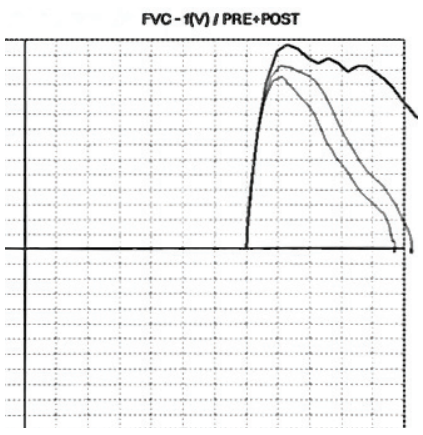
There is a large component of anxiety associated with asthma. Who would not be scared when it is difficult to breathe? More anxiety causes worsening bronchospasm, which causes more anxiety.

Typical inhalers contain adrenergic (adrenaline-like) stimulants, which work well but tend to heighten anxiety. It would be nice to have more alternatives to treat bronchospasm.

Since richer levels of THC can cause increased anxiety, using CBD seems like a reasonable thing to try. Last week a patient came into our office who had obtained some CBD-rich tincture at a local collective and said he felt it was helping his asthma. He was off of his Advair inhaler for a week and wanted to be "checked."

We administered a baseline spirometry test and then repeated the test 15 minutes after the patient had taken three drops of CBD-rich tincture (see graphic at right). After a three-drop dose, the patient's ability to exhale nearly doubled. This would generally be considered a great response to a typical bronchodilator!





Improved ability to exhale is indicated by spirometric exams that measure forced expiratory volume at one second (when the patient breathes out as hard as s/he can); forced vital capacity (the amount of air you can blow out after taking a deep breath); and peak expiratory flow rate (at any point during the exhalation). Graph at top shows patient's baseline ability. Graph at bottom shows ability after use of CBD-rich sublingual tincture.

April 7

New CBD-Rich Strain in Boulder

Project Greenergy in Boulder, Colorado, offers a Bubblegum Kush that has been tested at 9.84% CBD, 6.96% THC by Full Spectrum Labs. The grower crossed Bubblegum and OG Kush and kept the resulting seeds. He plans to "pop them to get pollen and different phenos."

Bubblegum Kush is in demand, especially by people with serious conditions and/or professional jobs. Older patients also appreciate it. It placed second in the CBD category (!) at the Denver *High Times* medical cannabis cup last weekend. The winner was Bubba Kush, submitted by The Clinic in Denver.

Unicorn Sighting in Colorado

A new CBD rich strain, Unicorn, has been identified in Glenwood Springs, Colorado at Green Medicine Wellness. It was tested in May by Cannlabs, which reported 7.74 CBD, 6.82 THC, and Full Spectrum Labs, which found 9.45 CBD, 7.27 THC. The grower says that 10 years ago in Amsterdam, Eddie Lepp's Waldo Haze (male) was crossed with Old School New York City Diesel (female), and produced "Unicorn," named for its "mythical qualities."

Patients say Unicorn is helpful for chronic pain and arthritis.Green Medicine Wellness ran out of Unicorn this summer but more is growing.

March 8

No Need to Spin the Truth

A self-styled information service is sending around the abstract of a study by Crippa *et al* with the subject heading "CBD Cures Social Anxiety." Our summary of the study is on page 11.

CBD appears to reduce the symptoms of social anxiety, but it certainly can't be said to cure it. Overstating what Cannabis can do is not in our interests. If you have the truth on your side, there's no need to spin or exaggerate.

A business in Southern California called BudGenius, run by skilled computer programmers, makes up numbers that are supposed to indicate the effectiveness of CBD in treating various conditions. They undermine their credibility —and ours, indirectly— with this kind of phoniness.

We ourselves have not practiced rigorous honesty. When *O'Shaughnessy's* and ProjectCBD.org report on research concerning "Social Anxiety Disorder," we implicitly endorse the notion that such a medical condition actually exists.

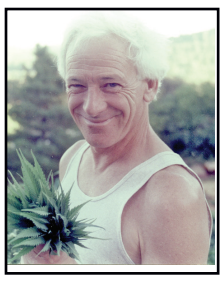
For decades the big drug companies have been expanding the customer base for anti-anxiety and anti-depressant drugs by "medicalizing" all manifestations of loneliness and insecurity, anger and grief.

"Social Anxiety Disorder" is one of numerous conditions concocted by the psychiatric establishment on behalf of the drug companies in order to sell their psychoactive synthetics. The venal strategy has been exposed by many authors, most recently and thoroughly by Marcia Angell in the *New York Review of Books*.

What the American Psychiatric Association in the 1980s defined as "Social Anxiety Disorder" is a normal, fairly common personality trait that used to be called *shyness*. Being shy —"reserved," "quiet," "private," etc.— is not an illness. Shy and brash, introverted and extroverted are at opposite ends of the *normal* spectrum of human personality. For decades the big drug companies have been expanding the customer base for anti-anxiety and anti-depressant drugs by "medicalizing" all forms of loneliness, insecurity, anger and unhappiness.

The tactic became obvious when Eli Lilly was expanding the customer base for Prozac in the early '90s with tactics like "National Depression Screening Day." That's when Dennis Peron started saying, "In a country that pushes Prozac on shy teenagers, all marijuana use is medical."

Dennis was simply insisting that the same standard apply to the anti-depressant of choice at the San Francisco Cannabis Buyers Club. Like a jiu-jitsu master flipping an attacker by using the momentum of the attacker's thrust... Lilly and Pfizer were pushing and doctors were prescribing SSRIs for "Social Anxiety Disorder," so Dennis said, okay, if it's a medical disorder it can be treated with medical Cannabis. And so can Depression and Anxiety...



Dennis Peron

And that's how the medical marijuana movement went from being mainly about people with AIDS, cancer, glaucoma, and seizure-disorders, to being about almost all of us in a land where unhappiness and insecurity are epidemic.

CBDiary *from previous page*

May 25

Note from Dr. Frankel: Tincture Rapidly Counters Symptoms

Barred by the state medical board from practicing medicine (see story on page 37), *Allan Frankel, MD, has been getting input from patients about the effects of CBD.*

Over the past several weeks, a local "grow collective" has been using Super Critical CO2 extraction on whole plants to produce Cannabis tinctures. Their current tincture measures around 4 mg/cc CBD and 2 mg/cc THC.

They request that patients not use the tincture until they are symptomatic —and then to see me ASAP. So patients have been popping into the Greenbridge office with their medication to discuss its use and allow me to observe its effects.

I saw a 48 y/o male with a horrible chest sarcoma eating through his chest wall, obtain nearly 100% pain relief.

I saw a 55 y/o woman's pelvic pain decrease 75% in 40 minutes.

I saw a Tourette's patient's spasms slowly disappear 95% over one hour. I'm seeing an interesting pattern: the tincture administration causes the pain/spasm/etc symptoms to decrease, beginning at their heads, going down their neck, shoulders arms and hands. Then, it moves back up to their upper chest and works its magic down the body. So, if you have pain in your foot, it will take the longest to feel better. I have no idea why I keep seeing this phenomenon.

I have seen another 10 patients with panic attacks and severe anxiety become virtually perfect within 30 minutes. This is the toughest area with regard to placebo effect, but time will tell more.

Many of these patients have prior recommendations, so I am just helping them learn how to use the tincture when they are experiencing symptoms! This point is very important. If a patient is feeling fine, the tincture has very minimal effects. You must medicate specific symptoms and monitor their changes. It is a new world of non-psychoactivity.

Speaking of psychoactivity, I am seeing patients becoming "happier" after they medicate themselves. I don't know if this is mild "euphoria" from the THC in the tincture, or whether they are just much happier with their discomfort gone.

P.S. May 26:

Today I can add some anecdotal evidence of my own. I was sitting on the floor with my legs crossed writing on my laptop when my lower back went into a painful spasm. Many people will know what I am referring to. I have had these in the past and was really upset as it is generally a four-five day process.

I had some CBD-rich tincture from a local collective and took 1/8 cc at 9 a.m. and a repeat dose at around 1 p.m.. There was no immediate relief, but as the hours passed my entire lower back softened up and the pain is already 60% gone.

May 30

Do Mold and Fungus Affect Cannabinoid Content?

This question was posed to Samantha Miller of Pure Analytics. Her response: "In really severe cases, the mold and fungus can have consumed so much of the plant material that it artificially elevates the potency results. This is because they are reported on a percent by weight basis, so as the plant material is consumed, the sample weighs less overall for the same cannabinoid content."

If planning to test cannabis for mold and pesticides, Miller recommends keeping the sample in the refrigerator until it is given to the lab. The lab needs to be able to see what the sample would be like if given directly to the patient if mold or fungus was to be found."

June 4

Note from Halent Labs (excerpted):

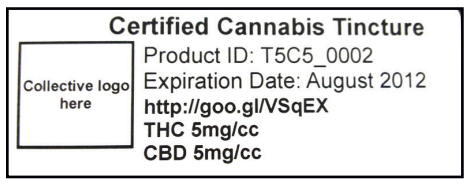
"We just analyzed our first high concentration CBD sample.

"Strain: L.A. Confidential
THCA: 6.137%
THC: 0.444%
CBDA: 10.415%
CBD: 0.349%

"Estimated total CBD for strongly heated sample was 9.49%

"On microscopic analysis, about 65% of the trichomes were a rich honey.color. Since CBD is yellow in color this tracks (THC is colorless).

Average reported samples of LA Confidential only have a maximum of about 0.5% CBD. This sample is very unusual for the strain. Sample may have been from a very rare phenoltype of LAC that genetically switches over to mainly CBD production. On the assumption that this is the case, we're working to see if any seed or clones are still available.



July 11

More THC in Edibles?

Dear Dr. Kerr,

My father is under a lot of pain and successfully quit heavy narcotic opiate medication (methadone and various others). I do not want him to relapse... I would like him to use marijuana but I don't want him to get paranoid. I want to know if it has been clinically studied whether or not edibles (baked marijuana absorbed by fat) have richer CBD in contrast to THC?

A.F.

• Response from Stacey Kerr, MD:

The amount of CBD and THC in cannabis is inherent to the original plant. How that plant is processed does not change the ratio of CBD to THC. That ratio will be the same in the butter as in the original plant.

Congratulations to your father on his success in getting off heavy narcotics —especially if they were not helping him! If you give him an edible, be sure to start him with a small dose. Edible cannabis passes through the liver, which metabolizes THC into a more psychoactive compound. One must be careful when ingesting cannabinoids —especially THC– because the effects can be quite strong and disturbing.

CBD For Acuity?

Dr. Kerr forwarded this "From a patient who did not use any cannabis before starting daily use of CBD-rich tincture (3.9%CBD/1.7%THC) for autoimmune disorders:

"'I am holding off on starting an anti depressant until I give the tincture 1-2 months. I have made amazing strides in just a couple weeks with physical strength and overall feeling of wellness. I have Lupus and chronic EBV, which has increased 25-fold over last year. I had lost much of my physical strength. I was stunned at the return of my physical strength through even the first few days of being on CBD Tincture. Also it has lifted my brain fog. Much sharper."

STACEY KERR, MD, at the Society of Cannabis Clinicans meeting in June, discussing the first wave of patient responses to the SCC survey aimed at assessing the effects of CBD-rich cannabis.

SCC Survey: The "Beta Rollout"

By Stacey Kerr, MD

The Society of Cannabis Clinicians (SCC) has developed a survey that asks about patients' responses to CBD-rich cannabis. While laboratory-based research is uncovering fascinating information about CBD, physicians want to know what patients are experiencing. Are the effects of CBD-rich cannabis and high-THC cannabis noticeably different? If so, how? Patients, collectively, can provide the answers.

The SCC Survey has been a work in progress for several months. We think the current format is easy for respondents to complete, taking only about 10 or 15 minutes of online time.

Properly tested and labeled cannabis is a prerequisite for any serious study of its components' effects.

For the survey data to be reliable, the medicine that patients are using should be analyzed by a trustworthy lab and labeled by the dispensary as to CBD and THC content. Properly tested and labeled cannabis is a prerequisite for any serious study of its components' effects. (We expect to study the effects of some terpenoids and other cannabinoids, too.)

The medical cannabis industry is still catching up to the importance of informing patients and physicians about the content and purity of their medicine. So far only about 25% of the survey's responses are based on verifiable cannabinoid content. We hope to see more lab-tested medicine available soon. Here's how the process should work:

George Grower brings a pound of his CBD-rich herb, which he named "Cativan," to Discreet Dispensary for distribution to patients. Discreet Dispensary sends a small sample of Cativan to a lab. The lab reports back: 8% CBD, 3%THC content, no sign of mold or pest infestation. The dispensary then labels its Cativan to identify the cannabinoid content and source: "CBD8/THC3-DD" (CBD8%, THC3%, Discreet Dispensary).

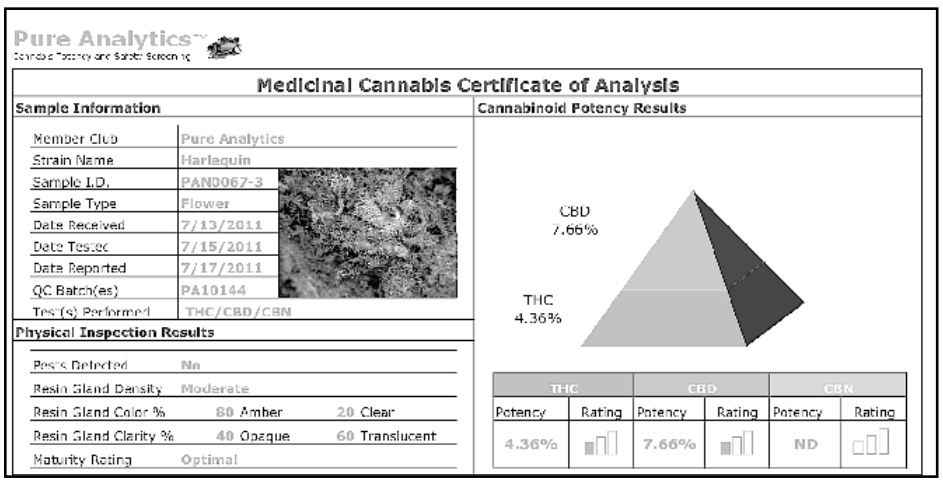
Patsy Patient, who has MS, sees the label describing Cativan as high in CBD. Dispensary staff confirms what she's read —CBD-rich herb may be helpful for muscle spasms. So she buys it, uses it for three weeks, and then decides to share her experience by taking the SCC survey. She logs onto the survey online and, when prompted, enters the code: CBD8/THC3-DD.

When we analyze the survey results, we know that her experience was based on cannabinoid levels from a reliable dispensary using a qualified lab to test their medicines. To researchers seeking to evaluate the effectiveness of CBD-rich cannabis on spasticity in MS, Patsy's feedback is much more meaningful than feedback from a patient who cannot verify the cannabinoid content of their medicine. (She is also the smarter consumer, choosing medicine that has been tested and making an informed choice for her personal needs.)

Widespread participation is the key to success.

The arrival of CBD-rich cannabis is going to be a boon, medically, leading to new treatment options. A serious, physician-led research effort to evaluate its effects will enhance the credibility of the medical cannabis movement/industry.Widespread participation is the key to success. Dispensaries should encourage the production of CBD-rich herb, edibles and tinctures. Patients who try CBD-rich products should take the survey and report the effects.

My colleagues and I look forward to the day when so many patients have access to accurately labeled medicine —and have taken the SCC survey—that we can report with confidence the unique therapeutic effects of CBD-rich cannabis.



Pure Analytics™

Medicinal Cannabis Certificate of Analysis

Sample Information	
Member Club	Pure Analytics
Strain Name	Harlequin
Sample I.D.	PAN0067-3
Sample Type	Flower
Date Received	7/13/2011
Date Tested	7/15/2011
Date Reported	7/17/2011
QC Batch(es)	PA10144
Test(s) Performed	THC/CBD/CBN

Physical Inspection Results		
Pests Detected	No	
Resin Gland Density	Moderate	
Resin Gland Color %	80 Amber	20 Clear
Resin Gland Clarity %	40 Opaque	60 Translucent
Maturity Rating	Optimal	

Cannabinoid Potency Results

THC		CBD		CBN	
Potency	Rating	Potency	Rating	Potency	Rating
4.36%		7.66%		ND	

ANALYSIS REPORT FROM PURE ANALYTICS LAB showing CBD (7.66%) and THC (4.36%) content of a Harlequin sample harvested at full maturity. Dispensaries adopting the SCC coding plan would add "C7.7T4.4-PA" to the label for data collection purposes.

CBD: How It Works

By Martin A. Lee

Cannabidiol, a non-psychoactive component of the cannabis plant, has generated significant interest among medical scientists in recent years, but researchers are still sorting out how CBD exerts its therapeutic impact on a molecular level.

CBD and FAAH

CBD has little binding affinity to either the CB1 or CB2 cannabinoid receptors. Instead, CBD indirectly stimulates endogenous cannabinoid signaling by suppressing fatty acid amide hydroxylase (FAAH), the enzyme that breaks down anandamide.

Anandamide is an endogenous cannabinoid compound that activates the CB1 receptor, which is concentrated in the mammalian brain and central nervous system. Less FAAH means more anandamide is present for longer duration in the body. And more anandamide means greater CB1 signaling.

By inhibiting the enzyme that metabolizes and destroys anandamide, CBD enhances the body's innate protective endocannabinoid response. At the same time, CBD powerfully opposes the action of THC at the CB1 receptor, thereby muting the psychoactive effects of THC.

CBD also stimulates the release of 2-AG, a major endogenous cannabinoid compound that activates both CB1 and CB2 receptors. CB2 receptors are predominant in the peripheral nervous system and the immune system.

The Vanilloid Receptor

Whereas CBD does not bind to either of the two known cannabinoid receptors, it directly interacts with other G-protein-coupled receptors to confer a medicinal effect. CBD binds to the TRPV-1 receptor, which mediates pain perception, inflammation and body temperature.

This is one of the reasons why CBD-rich cannabis may be a particularly effective remedy for neuropathic pain. CBD is a TRPV-1 "agonist" or stimulant.

Capsaicin, the pungent compound in hot chili peppers, also activates the TRVP-1 receptor.

TRPV is the technical abbreviation for "transient receptor potential cation channel subfamily V." Scientists also refer to it as the "vanilloid receptor," named after the flavorful vanilla bean. Vanilla contains eugenol, an essential oil that has antiseptic and analgesic properties that also helps to unclog blood vessels. The vanilla bean has been used as a folk cure for headaches.

Adenosine receptor

CBD exerts an anti-anxiety effect by activating adenosine receptors.

Adenosine receptors play significant roles in cardiovascular function, regulating myocardial oxygen consumption and coronary blood flow. The adenosine (A2A) receptor has broad anti-inflammatory effects throughout the body.

Adenosine receptors also play a significant role in the brain. They down-regulate the release of other neurotransmitters such as dopamine and glutamate.

Jose Alexandre Crippa and his colleagues at the University of San Paulo in Brazil and King's College in London have conducted pioneering research into CBD and the neural correlates of anxiety.

5-HT serotonin receptor

At high concentrations, CBD directly activates the 5-HT1A(hydroxytryptamine) serotonin receptor, thereby conferring an anti-depressant effect. This receptor is implicated in a range of biological and neurological processes, including anxiety, addiction, appetite, sleep, pain perception, nausea and vomiting.

5-HT1A is a member of the family of 5-HT receptors, which are activated by the neurotransmitter serotonin.

Found in both the central and peripheral nervous systems, 5-HT receptors trigger an intracellular cascade of chemical messages to produce an excitatory or inhibitory response. CBD triggers an inhibitory response that slows down 5-HT1A signaling.

LSD, mescaline, magic mushrooms, and several other hallucinogenic drugs activate a different type of 5-HT receptor that produces an excitatory response.

GPR55

Whereas cannabidiol activates the TRPV-1 vanilloid receptor and 5-HT1A serotonin receptor, CBD functions as an antagonist that blocks or deactivates another G protein-coupled receptor known as GPR55.

GPR55 has been dubbed an "orphan-receptor" because scientists are still not sure if it belongs to a larger family of receptors. Some researchers postulate that GPR55 may actually be a third cannabinoid receptor.

	Serotonin 5HT1A	Vanilloid TRVP-1	Adenosine 2A2	GPR55	FAAH inhibition	antioxidant
Agonist	★	★	★			
Antagonist				★		
Receptor-Independent					★	★
Regulates	depression sleep appetite	pain inflammation body temperature	cardio-vascular other neuro-transmitters	bone density blood pressure cancer cell proliferation	ECB tone	Neuro-protection

Cannabidiol's mechanism of action: a summary of what scientists have learned.

GPR55 is widely expressed in the brain, especially in the cerebellum. It is involved in modulating blood pressure and bone density. GPR55 promotes osteoclast cell function, which facilitates bone reabsorption. Overactive GPR55 receptor signaling is associated with osteoporosis.

GPR55, when activated, also promotes cancer cell proliferation, according to a 2010 study by researchers at the Chinese Academy of Sciences in Shanghai. This receptor is expressed in various types of cancer.

CBD is a GPR55 antagonist, as University of Aberdeen scientist Ruth Ross disclosed at the 2010 conference of the International Cannabinoid Research Society in Lund, Sweden.

By blocking GPR55 signaling, CBD attenuates bone reabsorption and cancer cell proliferation. This is one of many molecular pathways through which CBD exerts an anti-cancer effect.

Dr. Sean McAllister's research at the Pacific Medical Center in San Francisco indicates that CBD reduces breast cancer cell proliferation, invasion and metastasis by inhibiting Id-1 gene expression. Best results were obtained when CBD was administered in combination with THC.

Several other studies underscore the therapeutic advantages for combining CBD and THC.

A potent anti-oxidant

CBD is a potent anti-oxidant that mitigates the negative effect of free radicals. Highly reactive free radical chemicals are produced when animals use oxygen to burn food for fuel.

A great deal of data suggests that many problems associated with aging stem from the inability of the organism to protect itself against free-radical-induced inflammation and oxidative stress, which provides a fertile ground for the development of neurodegenerative and other age-related illnesses.

Cardiovascular, autoimmune, neurological disorders, cancers, and the aging process itself are all thought to have free radicals as causative agents. Free radicals are implicated in the formation of protein amyloid plaques, which attack neural synapses and prevent normal chemical and electrical signaling activity in the brain.

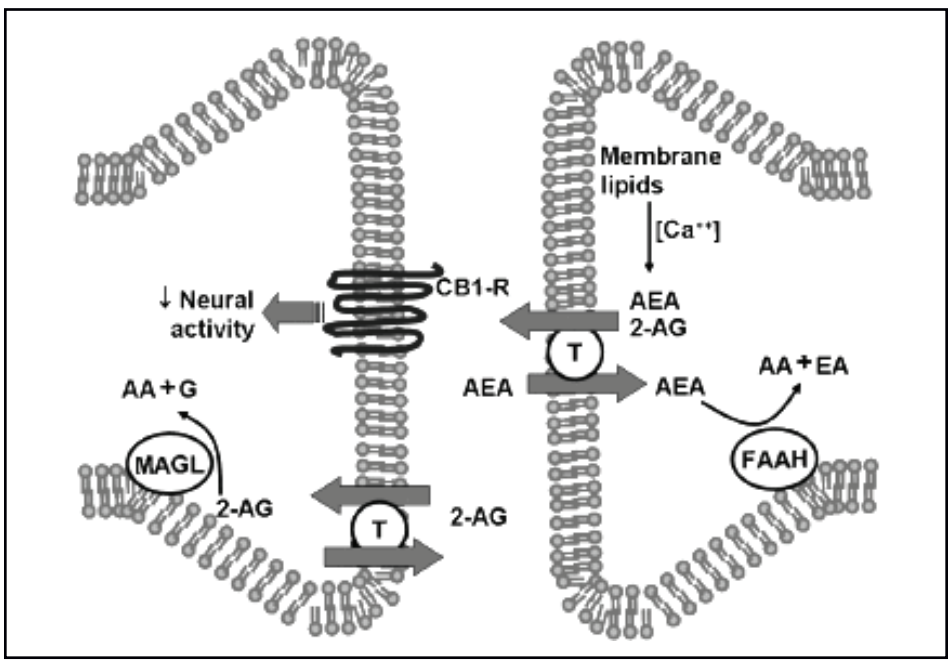
By binding to free radicals, antioxidants can break the plaque formation cycle that is associated with the progression of Alzheimer's disease. Several studies have shown that CBD blocks Alzheimer's plaque formation by a mechanism not involving the cannabinoid receptors.

The antioxidant properties of CBD exceed the antioxidant potency of vitamins C and E. When combined with THC, the antioxidant properties of cannabis are even stronger.

Once again, whole-plant cannabis therapeutics is greater than the sum of the herb's individual medicinal components.

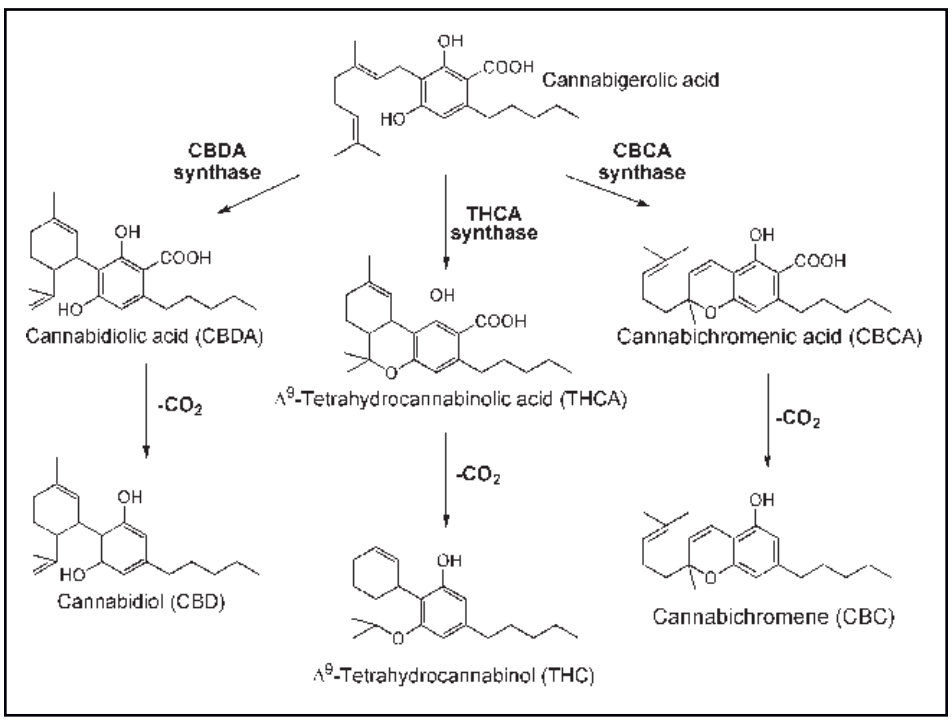
Martin A. Lee is the cofounder of the media watch group FAIR, the author of three books, including Acid Dreams, *and the cofounder of Project CBD. He is currently writing a social history of cannabis, which will be published next year by Scribner's. He can be reached at martinlee@projectcbd.org*

Endocannabinoid Synthesis



ENDOCANNABINOID SIGNALING ACROSS SYNAPSE (gap between nerve cells) is depicted. Anandamide and 2-AG are synthesized from membrane lipids in postsynaptic neuron (right) after calcium (CA++) increase. They diffuse and activate pre-synpatic CB1 receptors that induce intracellular cascades, inhibiting neural activity and neurotransmitter release in the pre-synaptic neuron (left). Anandamide (AEA) undergoes re-uptake and hydrolysis (breakdown) by fatty acid amide hydrolase —FAAH); 2-AG is broken down by monoacylglycerol lipase (MAGL).

Phytocannabinoid Synthesis



CANNABIGEROLIC ACID (CBGA) is the common precursor to CBD, THC, and CBC. As the Cannabis plant matures, CBGA is turned into CBD acid, THC acid, and CBC acid by enzymes called synthases. Mutations resulting in excess CBDA synthase or reduced THCA synthase would result in CBD-rich offspring.

CBDiary *from previous page*

JAMAICAN LION

June 26

CBD-rich Cannabis Gets its own Category At High Times MMJ Cup

The High Times Medical Cannabis Cup has instituted a new award category: "CBD-rich." First place (9.23% CBD) went this year to a strain called "Alaskan Thunderfuck," entered by the Master Control Unit Collective. The MCUC is at an undisclosed location, on the lam from the Word Police.

Second place went to "Jamaican Lion," entered into the competition by Elemental Wellness of San Jose. "Jamaican Lion comes from Rock Bud, which won the Cannabis Cup in 2003," the grower told Project CBD, "crossed with Lion Heart, which comes from Almighty Seeds out of Quebec. It produced Mountain Lion, the mother of this plant. The Jamaican Yarders were brought straight from Jamaica. It's a Sativa that grows about 15 to 18 feet tall. They also call them 'darkers,' because it gets a really dark color to it. I took the fastest flowering, most vigorous male, crossed it with my best female and had one mother left when I moved here from the East Coast three years ago."

Since no Jamaican Lion male plant exists, the grower is now crossing his Lionesses with several strains of interest, including an Omrita Rx3 from Miguel.

At the High Times Cup

Ringo with Jaime of Resin Seeds.

Debby Goldsberry, Melissa Balin

Caroline Francese (in straw hat) at the Harborside booth.

LIFETIME AWARD WINNERS MICHELE AND MICHAEL ALDRICH

The Release of Omrita Rx3

Miguel has decided to "share the genetics" of the CBD-rich strain now known as Omrita Rx3. *(See page 12 regarding its origins.)*

This spring Miguel used the pollen from his one male plant to fertilize branches from his CBD-rich females. He germinated 20 seeds in sustainable coco coir and 11 turned out to be vigorous females, which he grew out. These 11 phenotypes varied widely in CBD:THC content.

In mid-August Miguel provided Omrita clones to several participants in Project CBD —WAMM, Harborside Health Center, and the Berkeley Patients Group. Trusted growers will now produce clones so that patients will be able to grow their own Omritas by next spring, for sure.

By allowing others to grow out the plants —instead of remaining the sole source of Omrita flowers— Miguel gives up the opportunity to charge top dollar for his herb and products made from it.

Based on anecdotal reports reaching Project CBD, demand for Omrita will be strong. It is said to quell pain and intestinal disorders, while sharpening focus.

"Giving it away seemed like the right thing to do," says Miguel. "Of course I need to make a living, but if something is helping people this much, it needs to be available."

Miguel is 38 and does not have a family to support (yet). His dream is to have some arable land to farm.

Clones are also being provided to edible- and tincture makers. "The more patients that use CBD and report the effects, the more we'll know what it's good for," says Miguel.

Miguel has sought advice from California Botanicals laboratory about creating Omrita-based tinctures and salves. He has already created one for veterinary use.

This spring Miguel's beloved 12-year-old Chocolate Labrador Retriever, Samantha, was diagnosed with a cancerous mass in her jaw. It had eaten away the main TMJ joint and the vet didn't recommend chemo because if the mass shrank, there wouldn't be anything to hold the jaw in place. There have been no studies examining the effectiveness of CBD on cancer in dogs, but Miguel thought it couldn't hurt to give his Omrita a try.

He used ethanol to make an extract with a 3:1 CBD-to-THC ratio. He gave her one dose (15 milligrams CBD, 5 THC) per day in her food, and occasional sublingual doses. These, he says, "definitely onset much quicker than digestive. Her behavior while medicated is similar to humans —seeking out crumbs of food, kind of like the munchies... Hiding out in long-lost corners... playful and energetic."

The vet is aware of Miguel's unusual treatment plan and impressed by the big old Lab's response. Dogs with sarcomas don't usually have Samantha's healthy appetite, or high energy and spirits, he told Miguel. Miguel advises that Omrita grows well from cuttings, both outdoors in soil and indoors in coco, and he suggests using "Less nutrients and a slightly higher pH than normal."

Omrita is a very stout plant with strong side branching and large colas.

California Botanicals — Berkeley, Ca. 415.260.2889

Sample Submission Form — Results

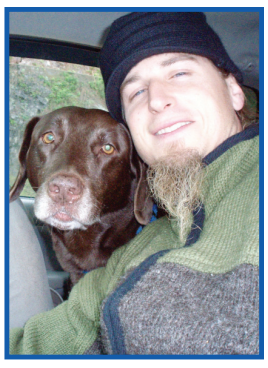
Client ID Number	Material Type	Sample Name	Jar Number	THCA (%g/g or mg/mL)	THC (g/g or mg/mL)	Total THC (%g/g or mg/mL)	CBDA (%g/g or mg/mL)	CBD (%g/g or mg/mL)	Total CBD (%g/g or mg/mL)	Total CBN (%g/g or mg/mL)	Total CBG (%g/g or mg/mL)
Omrita Rx3 by Design	Flower	Rx3	1	8.34%	0.97%	**8.29%**	8.91%	0.30%	**8.98%**	0.02%	0.18%
	Flower	BB3	2	18.70%	0.52%	**17.20%**	0.07%	1.09%	**1.15%**	0.01%	1.34%
"7 weeks"	Flower	BB3	3	16.30%	0.27%	**15.00%**	0.05%	0.70%	**0.77%**	0.01%	1.18%
"7 weeks"	Flower	BB5	4	4.03%	0.10%	**3.66%**	8.45%	0.92%	**8.33%**	0.02%	0.41%
	Flower	BB7	5	14.00%	0.76%	**13.04%**	0.02%	0.42%	**0.49%**	ND	ND
"7 weeks"	Flower	BB7	6	13.50%	0.10%	**12.00%**	0.07%	0.37%	**0.43%**	0.03%	0.38%
	Flower	BB8	7	6.51%	0.65%	**6.44%**	8.19%	0.16%	**7.35%**	ND	ND
"7 weeks"	Flower	BB8	8	6.51%	0.08%	**5.80%**	7.33%	0.14%	**6.60%**	0.02%	0.24%
	Flower	G1	9	5.13%	0.14%	**4.68%**	10.40%	0.88%	**10.00%**	0.02%	0.43%
"7 weeks"	Flower	G1	10	5.52%	0.10%	**4.95%**	11.20%	0.72%	**10.60%**	0.04%	0.57%
"7 weeks"	Flower	G2	11	4.23%	0.12%	**3.82%**	9.15%	0.07%	**4.60%**	0.00%	0.08%
	Flower	G6	12	7.21%	0.12%	**6.44%**	7.47%	0.12%	**6.67%**	ND	ND
"7 weeks"	Flower	G6	13	7.17%	0.14%	**6.43%**	8.47%	0.13%	**7.56%**	0.01%	0.19%
	Flower	P1	14	7.30%	0.08%	**6.40%**	14.80%	0.03%	**13.30%**	0.01%	0.26%
	Flower	P2	15	0.82%	0.05%	**0.60%**	13.06%	1.06%	**12.51%**	ND	ND
	Flower	P3	16	8.34%	0.16%	**7.47%**	8.35%	0.13%	**7.47%**	ND	ND

Samples Received By: Jake Fritchett — Date Received: 3/3/11 — Number Samples Received: 16 (Three cols)

Data Approved By: Eric Taylor — Date Approved: 3/4/11

CANNABINOID CONTENTS OF OMRITA Rx3 (TOP ROW) AND OFFSPRING as reported by California Botanicals to Miguel A. The lab uses high-pressure liquid chromatography, which does not involve heating samples. THC Acid and CBD Acid are measured and THC and CBD totals projected. Flowers from 11 different plants were tested; five were tested twice, at seven weeks and at harvest (8-9 weeks). One sample, P2, had a CBD:THC ratio of 20:1. Three others are in the range of 1:20 (very high THC). In the middle range are four samples with approximately equal CBD and THC contents, and three are approximately 1:2. The remarkable P2 strain is being grown out for use in a tincture, Miguel says, and to cross with other plants in an effort to reduce THC content even further.

LOVELY OMRITA RX3



The Return of Stinky (Pink) Purple

In the winter of 2009/10, Steep Hill lab tested a sample of "Stinky Purple" for Harborside Health Center and found it to contain 9.3% CBD and only 1.2% THC —the highest CBD-to-THC ratio yet observed, by far. According to Karen Byars, who had brought it in to Harborside, the breeder had not kept a mother plant.

This was very disappointing news, because Stinky Purple seemed uniquely lacking in psychoactivity. An SCC doctor treating a terminal cancer patient who disliked —and was very sensitive to— the effects of THC, was able to tolerate Stinky Purple, and used it beneficially on several occasions. (This patient had not been able to tolerate two other CBD-rich strains.)

Earlier this year, the breeder, Mark Thies of Dos Rios, located some seeds of the type that had produced his exceptional plant in '09. He sprouted them and gave four females to Byars to grow out. She arranged for Pure Analytics lab to test them when they were 16 weeks old.

"Three of the four show CBD dominance," Byars' reports. She hopes that one will equal in CBD:THC ratio the one that got away in '09. She intends to use the plants as mothers and to have flowers, tinctures and clones to distribute through her newly formed "CBD-Rich Collective" by the spring of 2012.

Thies is growing a male and a female for seed production. One of the parents was "Stinky Pink," he says. His cross is dubbed "Stinky Pink Purple."

STINKY PINK PURPLE female will be pollinated by "a male counterpart that looked exactly like her, with deep purple stems holding up the fan leaves," according to breeder Mark Thies.

Take the Survey!

cannabisclinicians.org

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