


Client Name: John Smith
Client DOB: 1/1/1900
Vial Number: Sample Report
Client Sex: Male

Referring Account: Chad Yarbrough, DC
Sample Date: 11/2/2018
Report Date: 6/27/2019



MaxCannabinoid

Disclaimer: This test was developed by MaxGen Labs and has not been approved by the FDA. It is not intended to diagnose, treat, cure or prevent disease. This test should be considered for educational purposes only. Do not make decisions about your health without discussing it with a licensed practitioner. The information contained within the report does not consider other genetic variations or environmental factors that might contribute to someone's phenotype or symptoms. This test does not analyze all variations within a gene that someone might carry. The rs#'s contained within the report were picked from scientific literature, multiple physician collaborations, and clinical observation by MaxGen Labs and are subject to change at any time.



Basic Genetics

DNA

DNA can be described as your own personal cookbook. Full of recipes that create you as a human being, each page contains specific details about every cellular process in your body.

Proteins

Proteins are created by a series of amino acids that all code for specific functions in cells, tissues, and organs.

Genes

Genes should be considered the recipes of your cookbook. Each recipe is designed to produce a fully functional product. In this case, your product is a protein. You inherit your genes from your parents.

Your recipes need the appropriate ingredients. In this case, ingredients are called alleles.

Variations

Variations (or single nucleotide polymorphism – SNP) in allele pairing create regulatory issues within the body. Variations can be considered slight changes to your ingredients in the recipe. When you inherit genes from your parents, your alleles may join in a specific pattern. We call these patterns wild type, heterozygous, and homozygous. Wild type simply means that the pairing is most commonly found in nature. Heterozygous means you have one variation from a parent (different alleles). Homozygous means you have two variations (the same allele) from both parents.

Alleles

Alleles are the nitrogenous bases: adenine (A), thymine (T), cytosine (C), and guanine (G). When sequenced together correctly, they create the final product: proteins. Alleles also determine the visual expression of your genes. For example: curly hair, green eyes, etc. This is known as your phenotype.

Epigenetics

Epigenetics is the study of how the environment influences genetic expression. While we may have variations in our genetic code, our environment controls whether our genes are switched on or off. Our test does not account for environmental influences. We report genetic variations only. Work with a trained provider if you need help understanding the epigenetic influences.

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THC Metabolism

Every person has minor variations in how they metabolize, or break down, substances in the body. These variations can influence the speed at which you breakdown substances. In this section we look at genetic variants that may play a role in how you metabolize THC, the psychoactive substance within cannabis.

Some people may experience the effects from cannabis use longer than others. This should be taken into consideration with using THC containing cannabis products. In these individuals, it may require less-than-average dosing to achieve the desired response from cannabis products. Some individuals will be more likely to pass a THC drug test from these variants. Consult a licensed physician before consuming cannabis products or modifying any medical protocol.

Duration of THC Impact

You may metabolize THC slower than the average person. This variant does not, however, prolong the effects ("high") of THC.

Drug Testing

Your genetic profile suggests that you have an average chance of passing a drug test.

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In some people, cannabis can increase the risk of adverse emotional symptoms, or psychosis. Psychosis is defined as a disconnection from reality. One may start to believe something is occurring that is not actually true. Individuals who are at risk of psychosis or paranoia with cannabis use, should use cannabis products with caution. Low THC or THC-free cannabis products might be a safer option for some individuals. Consult a licensed physician before consuming cannabis products or modifying any medical protocol.

Psychosis Risks

You may experience psychosis with THC use.
Please use caution with THC products.

Schizotypal Score

You should have a normal schizotypy score with cannabis use.

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Cannabis containing products affect everyone differently. One common complaint is that cannabis use impairs memory and attentiveness. The genes in the section can provide insight into whether or not the use of cannabis products will affect problem solving skills, attention, and memory. Disclaimer: The use of THC in people under the age of 25 has been known to alter neural pathways, specifically as it pertains to memory and focus; however, it may not be purely age-dependent. Please consult a licensed physician when determining if cannabis is an appropriate therapeutic agent.

Problem Solving

Your genetic profile suggests that you may impede your problem solving skills if you use THC. Consider higher CBD:THC ratios.

Attention

You may experience a slightly decreased attention span when using cannabis. If you notice a change, consider higher CBD:THC products.

Memory Loss

Your genetic profile suggests you may have a slight risk of experiencing memory loss with cannabis use.

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Cannabis contains psychoactive chemicals that can change the way you think and act. Some people report feeling impulsive, which can make decision making difficult on a daily basis. Others notice the constant desire for more cannabis due to the impact on the reward cascade in the brain.

Symptoms of depression, anxiety, and happiness are also reported among cannabis users. In this section we look at certain genes that are associated with some of these feelings with cannabis use. Please consult a physician before using cannabis, especially if you suffer from any of these symptoms.

Reward Pathway

Your genetic profile suggests that THC should not affect the reward areas of your brain. You have two heterozygous variants.

Impulse Control

Your genetic profile does not create impulse control issues with cannabis use.

Happiness

Your genetic profile is associated with happiness and euphoria with cannabis use.

Depression

Your genetic profile suggests that you should not feel depression with cannabis use.

Dependence Risk

You have an average risk of developing dependency on cannabis.

Anxiety

Your genetic profile is not associated with cannabis-induced anxiety.

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Physical Effects

Cannabis use has an impact on a variety of physical responses in the body. From heart rate variability to muscle control, each bodily system may be affected. This section looks at some of the more common physical effects of cannabis use.

Motor Control

Your genetic profile suggests that cannabis may interfere with motor control. Use caution when operating motor vehicles or machinery that require fine motor control.

Sleep Response

You do not have an increased risk of sleep disturbances with cannabis use.

Brain Volume

Your genetic profile suggests you have a risk of lowered brain volume in the hippocampus region with cannabis use. Avoid using THC before the age

Brain Volume (Attention Area)

Your genetic profile suggests that cannabis use will potentially affect brain volume in the area responsible for attention. Consider THC-free

Heart Rate Response

You may have an increased heart rate 15 minutes after cannabis use.

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Your genes may control how much you crave cannabis, what your withdrawal response may be, and how often you are prone to using it. Please be aware that these are things well within your control. Consult with a licensed physician if you feel your need for cannabis is concerning.

Cannabis Cravings

You have an average response to craving cannabis.

Cannabis Withdrawal

Your genetic profile suggests you will have an average withdrawal experience when stopping cannabis use.

General Cannabis Use

Your genetic profile is associated with a higher than average use of cannabis.

DSM-5 Cannabis Use Disorder

You have a mild risk of developing Cannabis Use Disorder.

High School Usage

Individuals with your genotype have reported less frequent cannabis use while transitioning out of high school.

Generalized Lifetime Usage

You are less likely to use cannabis over the course of your life.

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There are multiple conditions that have a genetic link. Some of these conditions may also respond to specific cannabis use. In this section, we look at your genetic propensity for these conditions and whether or not cannabis use would be a good option for you should therapeutic intervention be required. Please consult with your physician if you are concerned about these conditions.

ADHD

Your genetic profile is associated with a higher prevalence of ADHD. Use caution with THC-containing products, as the effects may increase ADHD symptoms.

PTSD

Your genetic profile is not associated with PTSD.

Depression

Your genetic profile is not associated with generalized depression.

Sleep Quality

Your genetic profile is not associated with generalized sleep disturbances.

Pain Tolerance

Your genetic profile is associated with a normal pain tolerance.

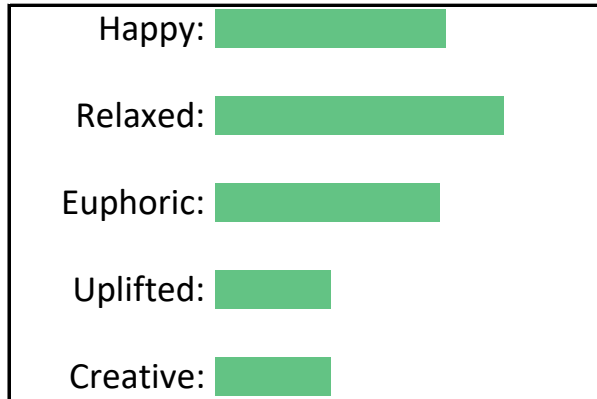
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Different strains of cannabis can have different emotional effects. A common cannabis app called Leafly rates the emotional properties of different strains into the following sections; Happiness, Relaxing, Euphoric, Uplifting, and Creative properties. In this section, we try to predict a cannabis strain profile that should be optimal for you. You can download the leafly app from the app store on your phone.

Your Optimal Cannabis Profile



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GENE	% Pop.	Result	Client	Minor	Description
THC Metabolism					
ABCB1	A=0.395	+ Heterozygous	GA	A	significantly lower plasma THC level
ABCB1	A=0.395	+ Heterozygous	GA	A	normal length high
CYP2C9	C=0.0485	-- Wild Type	AA	C	normal duration of THC effects
CYP2C9	C=0.0485	-- Wild Type	AA	C	normal likelihood to pass THC test
CYP2C9	C=0.0485	-- Wild Type	AA	C	normal THC metabolism rate
Memory & Attention					
COMT	A=0.3692	+ Heterozygous	GA	A	increased risk of THC induced memory and attention impairment
DRD2	A=0.2296	-- Wild Type	CC	A	normal working memory accuracy
intragenic	C=0.2392	-- Wild Type	TT	C	reduced working memory performance with cannabis use
PTGS2	G=0.1979	-- Wild Type	CC	G	normal dorsolateral prefrontal cortical response with marijuana use
AKT1	T=0.4259	+ Heterozygous	CT	T	lower attention
CNR1	C=0.0899	-- Wild Type	TT	C	normal attention with marijuana use
CNR1	C=0.0899	-- Wild Type	TT	C	normal problem solving with marijuana misuse
AKT1	T=0.4259	+ Heterozygous	CT	T	cannabis users normal on Continuous Performance Test
Paranoia & Cannabis Induced Psychosis					
DRD2	A=0.2296	-- Wild Type	CC	A	normal risk for for psychosis in the context of cannabis use
AKT1	T=0.4259	+ Heterozygous	CT	T	higher risk for psychosis if homozygous with DRD2 homozygous.
ZNF804A	C=0.3045	+ Heterozygous	CA	C	normal shizotypy scores with increased frequency of cannabis use
DRD2	A=0.2296	-- Wild Type	CC	A	normal risk of psychosis among cannabis users
AKT1	T=0.4259	+ Heterozygous	CT	T	increased risk of cannabis induced paranoia
Dependence					
intragenic (nov)	A=0.0136	-- Wild Type	GG	A	normal risk of cannabis dependence (A allele is protective)
SLC35G1	G=0.0112	-- Wild Type	AA	G	normal risk of cannabis dependence compared to G carriers
PENK	A=0.3700	+ Heterozygous	GA	A	higher risk of cannabis dependence
PENK	C=0.3307	+ Heterozygous	CT	C	higher risk of cannabis dependence
NRG1	T=0.0797	+ Heterozygous	CT	T	normal risk of cannabis dependence
FAAH	A=0.2616	+ Heterozygous	CA	A	increased risk for cannabis dependence
CNR1	C=0.2704	+ Heterozygous	CT	C	normal risk of cannabis dependence
ABCB1	A=0.395	+ Heterozygous	GA	A	normal risk of cannabis dependence
FAAH	A=0.2616	+ Heterozygous	CA	A	normal risk for being THC dependent (AA is reduced risk)
Cannabis Mental Effects					
DBH	T=0.2127	-- Wild Type	TT	C	normal cognitive impulsivity with marijuana use
FAAH	A=0.2616	+ Heterozygous	CA	A	A carriers reported decreased happiness after cannabis use
N/A	C=0.0240	-- Wild Type	AA	C	normal relationship between cannabis use and major depression
FAAH	A=0.2616	+ Heterozygous	CA	A	normal activity in reward-related areas of brain during cannabis use
HTR2B	T=0.1276	+ Heterozygous	CT	T	normal level of cannabis related aggression
CNR1	C=0.1779	+ Heterozygous	TC	C	greater activity in reward-related areas of brain during cannabis use
FAAH	A=0.2616	+ Heterozygous	CA	A	normal activity in reward-related areas of brain during cannabis use
FAAH	A=0.2616	+ Heterozygous	CA	A	normal anxiety risk.

Cannabis Physical Effects					
AKT1	T=0.3225	-+ Heterozygous	CT	T	increased psychomotor impairment associated with cannabis use
FAAH	A=0.2616	-+ Heterozygous	CA	A	normal sleep quality with cannabis use
FAAH	A=0.2616	-+ Heterozygous	CA	A	significantly higher heart rate 15 minutes after smoking
CNR1	C=0.1779	-+ Heterozygous	TC	C	increased risk for decreased brain volume with heavy cannabis use
AKT1	T=0.4259	-+ Heterozygous	CT	T	potential risk for smaller gray matter volumes with cannabis use
Cravings & Withdrawal					
FAAH	A=0.2616	-+ Heterozygous	CA	A	normal increase in craving after abstinence
CNR1	C=0.1779	-+ Heterozygous	TC	C	increased craving
FAAH	A=0.2616	-+ Heterozygous	CA	A	normal withdrawal
CNR1	C=0.1779	-+ Heterozygous	TC	C	increased withdrawal symptoms
Volume of Cannabis Use					
AKT1	T=0.4259	-+ Heterozygous	CT	T	associated with normal cannabis use.
FAAH	C=0.4541	-+ Heterozygous	CT	C	increased risk for DSM-5 CUD (cannabis use disorder)
FAAH	A=0.2616	-+ Heterozygous	CA	A	increased risk for DSM-5 CUD (cannabis use disorder)
	C=0.3998	-- Wild Type	TT	C	less likely to use cannabis frequently.
	A=0.3009	-+ Heterozygous	TA	T	normal
	G=0.1813	-+ Heterozygous	GA	A	normal
	T=0.1787	-+ Heterozygous	TC	T	normal
	A=0.3578	++ Homozygous	GG	G	associated with lifetime cannabis use
	C=0.1454	++ Homozygous	CC	C	associated with lifetime cannabis use
	T=0.4607	++ Homozygous	TT	T	associated with lifetime cannabis use
ZNF804A	C=0.3045	-+ Heterozygous	CA	C	no association with lifetime cannabis
BDNF	T=0.201	-+ Heterozygous	CT	T	less likely to have lifetime cannabis use
	C=0.3998	-- Wild Type	TT	C	normal risk for cannabis use during the transition out of high school
Non-Cannabis Related Genes					
CNR1	C=0.4902	++ Homozygous	CC	C	common variation in ADHD
CNR1	G=0.3141	++ Homozygous	GG	G	common variation in ADHD
CNR1	C=0.2704	-+ Heterozygous	CT	C	normal
CNR1	T=0.1294	-- Wild Type	CC	T	normal risk of PTSD
FAAH	A=0.2616	-+ Heterozygous	CA	A	normal depressive symptoms
FAAH	A=0.2616	-+ Heterozygous	CA	A	normal sleep quality
COMT	A=0.3692	++ Homozygous	AA	A	lower pain threshold.

Client: Your genotype.

Minor: The genotype that is found least in nature.

Wild Type: The genotype that is found most often in nature, this is reported as green. This isn't always ideal.

Homozygous: This means you tested for both copies of the minor type allele. This typically has more severe issues.

Heterozygous: This means you tested for one copy of the minor allele and one copy of the wild type allele.

Gene: This is the specific gene we are looking at for variations.

RS#: This is the specific variation within the gene. There are multiple locations within a gene for potential variations, all of which can indicate a different issue or severity.