SCIENTIFIC OVERVIEW

June 2019

STRAIN GENIE

81% of cannabis consumers ask for a recommendation[1]

Medical Marijuana **Doctors lack training** aside from providing recommendations for qualifying conditions

79% of dispensary staff lack any information[1] to provide a meaningful personalized recommendation

1) Peiper, N.C., Gourdet, C., Reiman, A., **Reggente, N**., Meinhofer, A., Novake, S.P. (2017) Medical Decision-Making Processes and Online Behaviors Among Cannabis Dispensary Staff. Substance Abuse: Research and Treatment (Cannabis special issue)

"It's more important to know what sort of person has a disease than to know sort of disease a person has" ⁻ **Hippocrates**
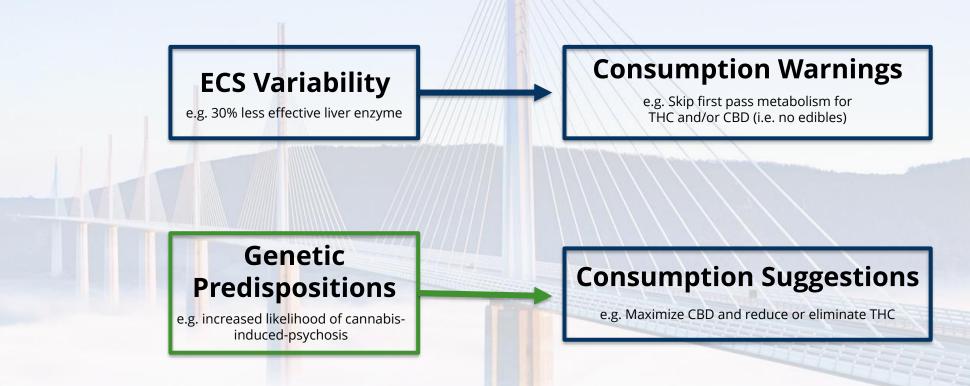
Individuals vary in their response to different cannabis products.

Over 100 Phytocannabinoids & Terpenes combine to form thousands of unique strains and products.

Individuals vary in the makeup and effectiveness of their **endogenous cannabinoid system (ECS)**

Strain Genie leverages genetics to guide personalized cannabis consumption.

ECS Variability

e.g. 30% less effective liver enzyme

→

Consumption Warnings

e.g. Skip first pass metabolism for THC and/or CBD (i.e. no edibles)

Genetic Predispositions

e.g. increased likelihood of cannabis-induced-psychosis

→

Consumption Suggestions

e.g. Maximize CBD and reduce or eliminate THC

Strain Genie only examines conditions that have been studied in the **context of cannabis.** For example, connecting genetic sleep studies to cannabis studies on sleep.

The cannabis plant expresses 100s of **cannabinoids** and **terpenes**.

DNA is the code used to create **amino acids**, which then go on to combine into **proteins**.

Different **strains** and **products** contain different **concentrations** and **combinations** of each cannabinoid and terpene.

Individual differences in DNA impacts the **quality**, **abundance**, and even **absence** of certain proteins in your brain / body.

When **ingested**, these chemicals enter your body and interact with your **ECS**, much like **keys fitting into locks**.

Many of these **proteins** are used to **create** your **endocannabinoid system**, creating a lock that only cannabinoids unlock.

STRAIN GENIE

Finding the right key requires knowing what kind of locks your body has.
Strain Genie uses your DNA (locks) to help find you the right cannabis products (keys).

The **Most Comprehensive** Cannabis-Health Report

Strain Genie looks at over **450** Biomarkers in DNA

Examining alleles at **120** SNPS

Spanning **90** Genes

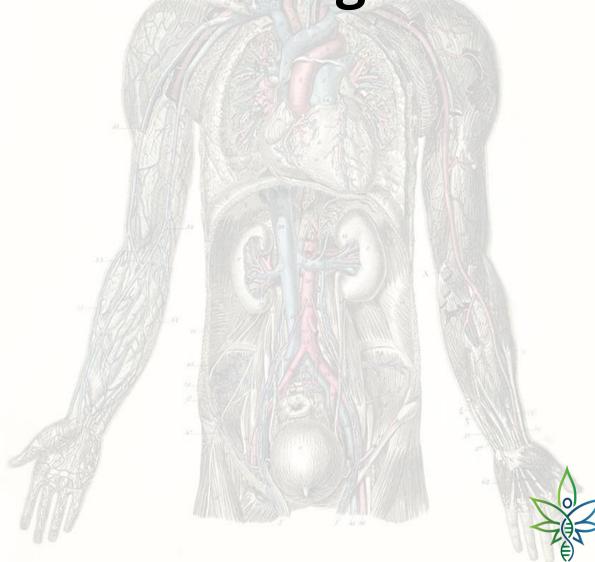With insights drawn from over

200

Peer-reviewed publications

Strain Genie looks at genetic predispositions for over **60** traits spanning over **17** medical categories

- **ECS Variability**
- **Neurodegenerative Diseases**
- **Sleep**
- **Digestive Health**
- **Substance Abuse / Addiction**
- **Mood / Personality**
- **Skin Health**
- **Cognition**
- **Eye Health**
- **Endocrine Health**
- **Cardiovascular Health**
- **Musculoskeletal Health**
- **Cancer**
- **More.**

Matching genetics to cannabis research

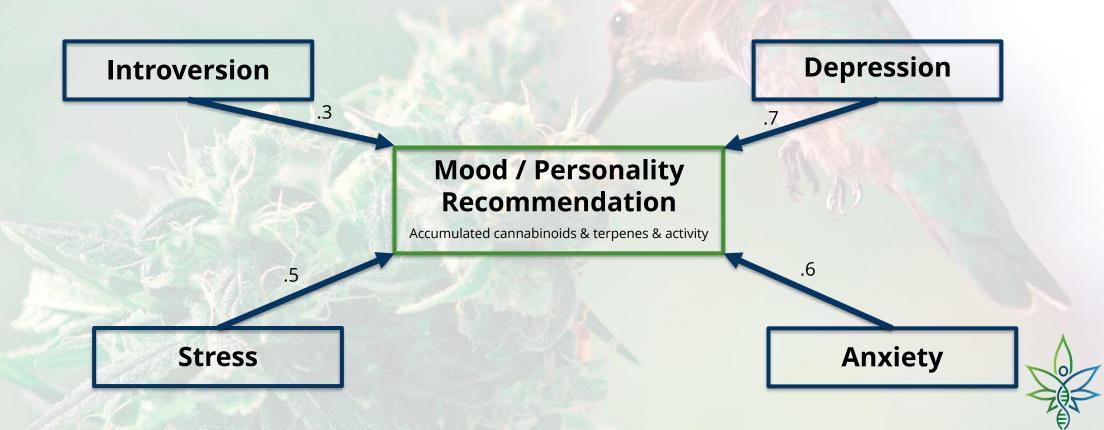Each allele at each SNP has a cannabis-based recommendation.

SNP	Allele	Cannabinoids	Terpenes	Severity	Restrictions
rs140701	TT	CBG	Caryophyllene	1	None
rs363043	CC	THCv, CBD	Alpha-pinene	1	None
rs4244285	AA	N/A	N/A	2	No CBD Edibles

Each allele is also given an Activity Group rating where relevant. For example, cognitive disorders may get Create and Energize assignments to encourage lifestyle choices that are also beneficial for the conditions (e.g. exercise promotes BDNF).

Matching cannabinoids/terpenes to symptoms

The **impact** of a SNP association (determined by the study size, statistical significance, and journal impact factor) and the **severity** of an individual's allele is **accumulated** within categories to create **category-specific recommendations**.
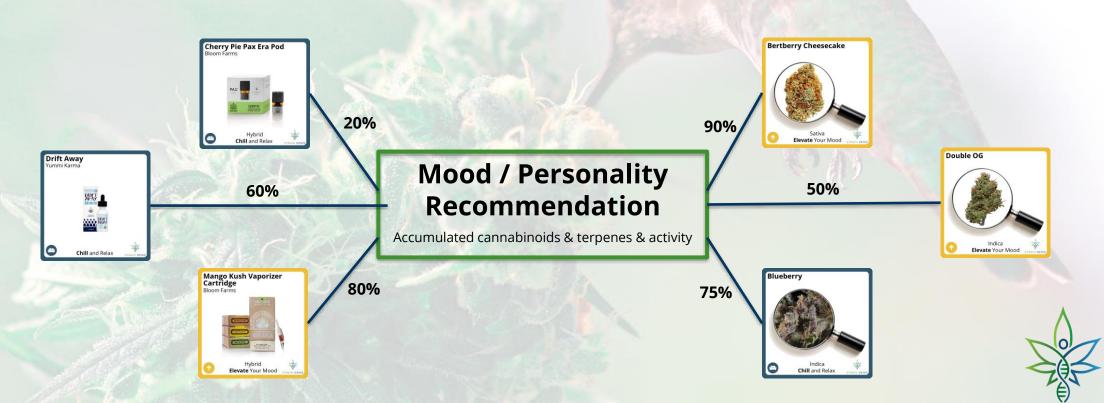
All accumulated "flags" / "warnings" related to consumption are displayed first.

Introversion

.3

Depression

.7

Mood / Personality Recommendation

Accumulated cannabinoids & terpenes & activity

.5

.6

Stress

Anxiety

Matching genetics to products

Each category-specific recommendation has an **ideal cannabis-cocktail**, specifically **formulated for an individual**. This can be leveraged by individuals to guide their in-store or online purchases when reviewing COAs and ingredient lists.

A **similarity calculation** is conducted to compare this ideal cocktail to **lab-testing** and **ingredient data** from over 15,000 products and strains currently available in medical and recreational markets to highlight the products that are **maximally similar**.

Matching genetics to products

In addition to cannabinoid, terpene, taxonomy, and product suggestions, Strain Genie also provides generalized recommendations defined as **Activity Groups** to provide additional general recommendations beyond specific products and strains.

These activity groups were discovered using a **deep-learning algorithm** that leveraged cannabinoid and terpene information, and sentiment analysis from thousands of strains and products– revealing **6 categories** that accounted for the most variance.

ENERGIZE **CREATE** **ELEVATE** **MEDICATE** **CHILL** **SLEEP**

Each SNP → Allele → Cannabis-based recommendation contains an Activity Group weighting based on the top-level category and weighted by severity. For example, sleep conditions will be mapped preferentially onto the **Sleep** activity group.

For additional information on Strain Genie's business model, please request an **Introduction Deck** from Compassionate Clinics of America Joseph Mazza, joseph@mycompassionateclinic.com or Patrick Mazza pj@mycompassionateclinic.com