



Ensuring Quality Control Through Cell-Based Testing

Testing services now available through exclusive partnership with Smithers

<http://cannametrix.org>

The Industry's Problem of Predicting Potency

CannaMetrix's Critical Consideration

The Entourage Effect is the Unique Body Response to Cannabinoids and is Determined By the Major and Minor Chemistries Acting in Concert in the Body

Facts


- There are large number of cannabinoids and terpenes in full spectrum products
- The body has a large diversity of cell systems that can respond to plant chemistries and produces its own cannabinoids (endocannabinoids)
- The body's responses, and therefore the potency of cannabis products, are due to multiple additive, synergistic or inhibitory interactions collectively known as the Entourage Effect

Example: CBD and THC Act Antagonistically in the Body




What Determines Potency?

The industry determines the quantities of the most abundant cannabinoids and terpenes as a measure of “potency”.



Focus is on THC/CBD but labs only test ~10-15% of the 110 cannabinoids



<https://www.cdslife.com/what-can-terpenes-do-for-you/>

~1/3 of the 80+ terpenes are monitored by most analytical testing labs, these may be bioactive

- However, chemical composition is not equivalent to potency when there is more than one cannabinoid and terpene in the product.
- **Potency manifests in biology and therefore, must be measured as such.**

Current Limitations Arising in Practice

- There are no commercially viable tests for cannabis biopotency.
- Product dose recommendations can be inaccurate as cannabinoids and terpenes act in concert, or as an entourage to produce an effect in the body, and therefore not proportional to their percent composition in the product.
- There are no commercial or scientific methods in place to predict the biopotency of novel cannabinoids, novel synthetic cannabinoids, and blends thereof.
- Formulations are being developed without determining their biopotency.
- Blood levels of cannabinoids and blood ratios of cannabinoids are uninterpretable without knowledge of the biopotency-concentration relationship.

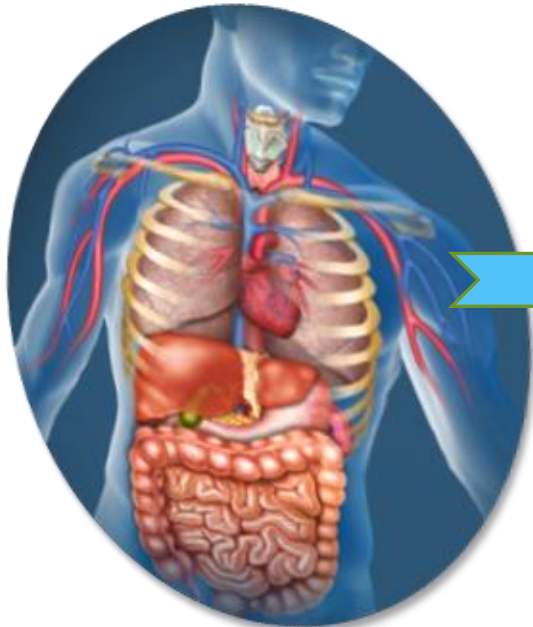
CannaMetric Opportunity

The limitations and weaknesses reveal an opportunity to revolutionize the cannabis and hemp industry with novel proprietary potency tests based exclusively on human biology that are uniquely able to guide product development, inform consumer choice, and predict medical use recommendations.

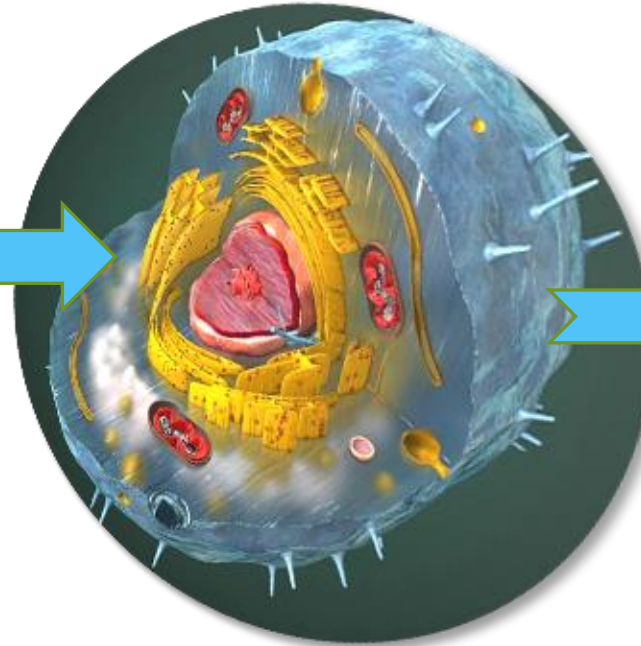
Cannametrix Sustainable Industry-wide Disruptive Technology

Plant Cannabinoids Communicate with Human Cells to Alter Receptor Activity

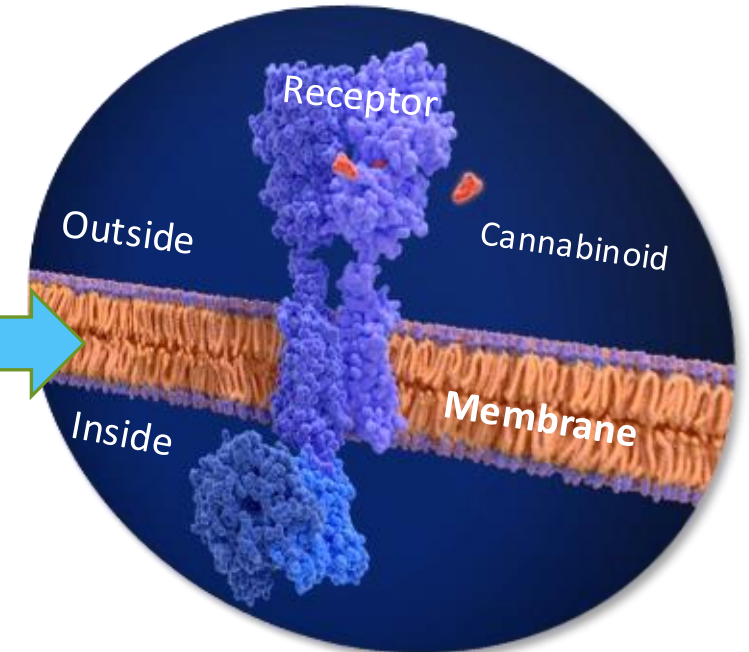
Organ Systems



Networks of Cells

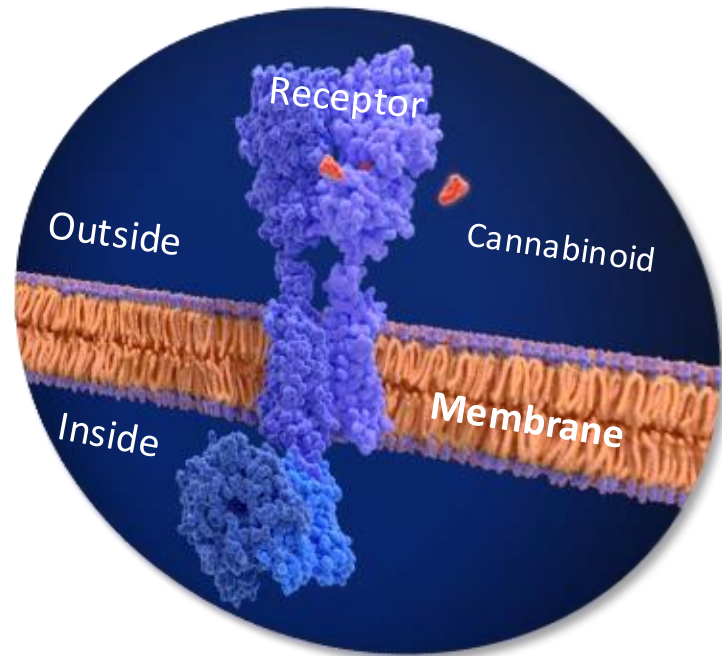


Cannabis Receptors Embedded in the Cell Surface

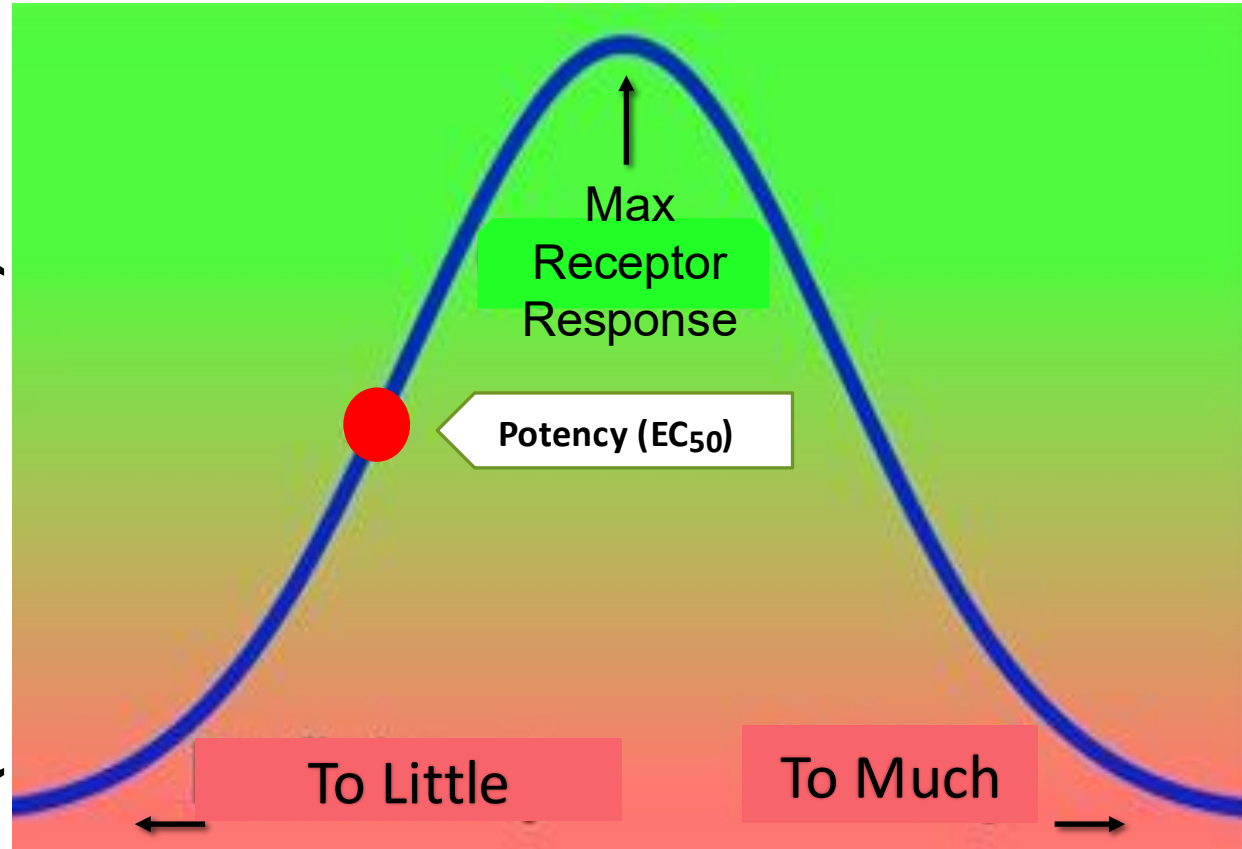


To understand the potency of cannabinoid products, it is essential to measure human cannabinoid receptor activity.

Biological Potency Guides Recommended Dosing



**Effect
(health benefit)**



Receptor Response to Increasing Doses of Cannabinoid

CannaMetrix Vision

Commercialize proprietary human cell-based methods specifically for natural product biological potency testing that rapidly and affordably anticipate how plant-based products will perform in human biology rather than inferring potency from chemical quantification.

A Unique and Competitive Investment Opportunity

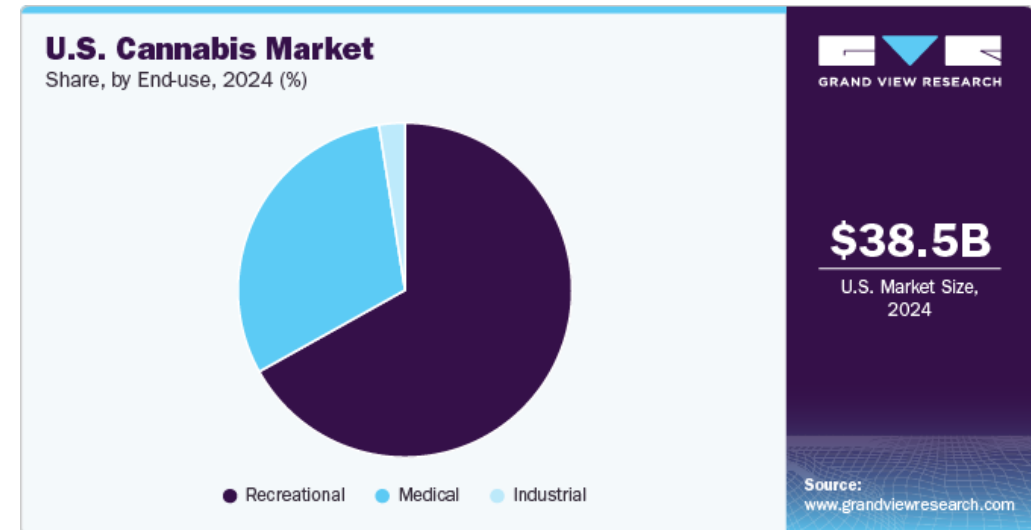
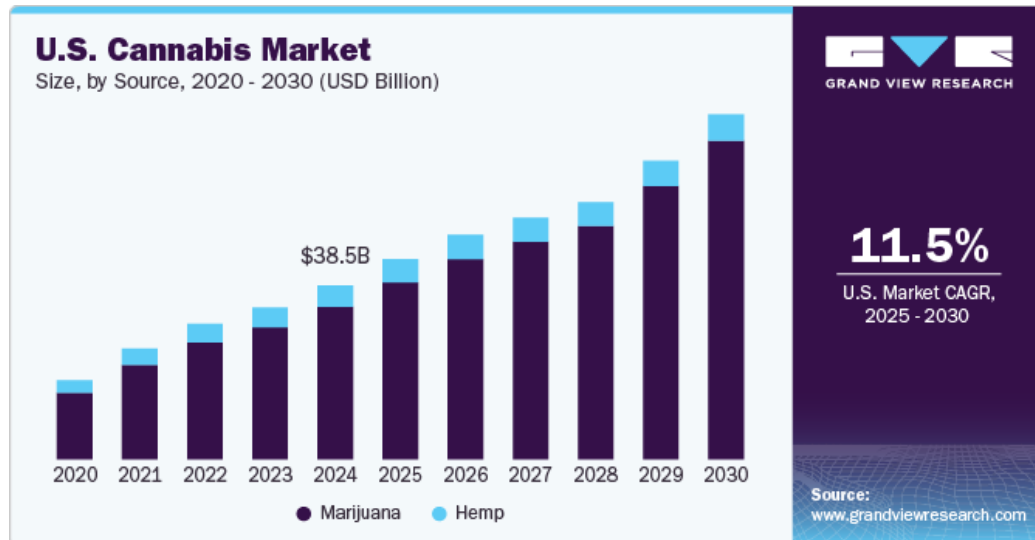
Brief Business Overview

Industry Drawbacks that Limit Growth Potential

- **Consumers are generally uninformed, their experiences with products are inconsistent, they have low product loyalty**
- **Physicians and consumers have become frustrated with package labeling that appear undifferentiated on the shelves and provide no rationale for a recommended dose**
- **Many customers report greater satisfaction from taking plant extracts (full spectrum or broad spectrum products) compared to pure isolates.**
- **Current compliance testing only requires chemical composition which does not reveal the product's potency in the body, especially for products consisting of blends of cannabinoid/terpenes.**
- **The absence of affordable methods for determining the true biological potency of products has left the industry having to infer potency from anecdotal experiences or limited academic research.**
- **Without biological potency testing, the shelf life of products value to consumers cannot be known.**
- **Bias and fraud have become rampant in reporting the chemical composition of products without vetting products for their potential biological potency.**

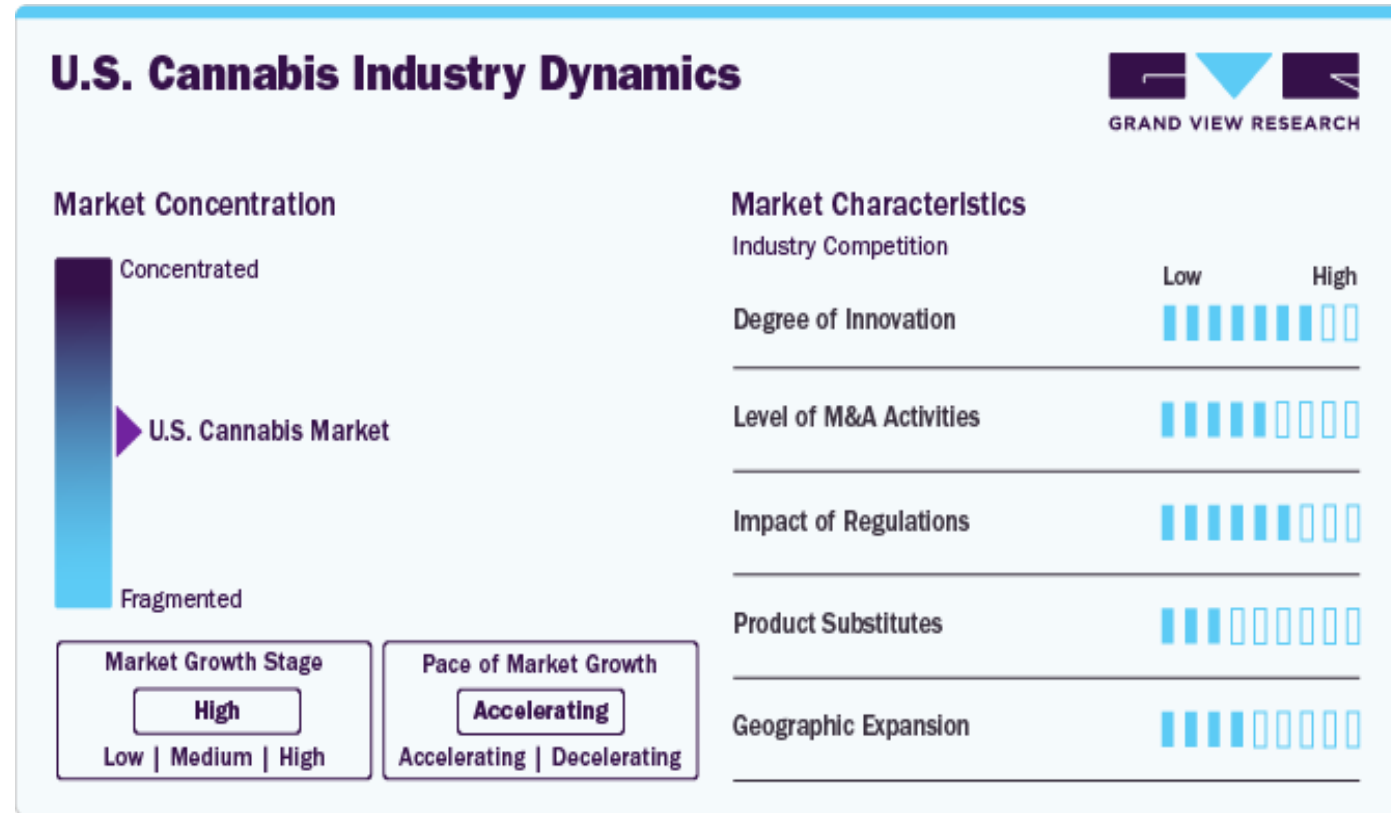
Market Trends

- The U.S. cannabis market size was estimated at USD 38.50 billion in 2024 and is expected to grow at a CAGR of **11.51%** from 2025 to 2030.
- The FDA is now approving clinical trials testing individual cannabinoids. Four products containing either THC or CBD have been approved in the USA for prescription use.
- More than half of 440 clinical trials involving cannabis since 2010 were performed in the United States.
- As of January 2025, 30 states have made cannabis fully legal and the remaining states have decriminalized or have restricted sales for medicinal purposes.
- The true potency and efficacy of most of the cannabis consumed globally is unknown because it is full spectrum.



Market Dynamics

- The U.S. cannabis market is characterized by a high degree of innovation owing to the rising legalization of cannabis, rising demand for cannabis-infused products, and growing awareness among people regarding the medicinal benefits of cannabis, increasing R&D activities on the use of cannabis and its medicinal properties.
- The market is characterized by a medium level of mergers and acquisitions (M&A) that shape the business landscape.
- Companies are seeking strategic partnerships and acquisitions to enhance their presence and drive growth in the industry.



CannaMetrix Technology Has No Competition

- Animal testing requires an infrastructure that is expensive, requires veterinarians and certifications and the studies take too long to be used as a routine method for quantifying cannabis product potency and batch-to-batch consistency. There is concern that the animal endocannabinoid system and cannabinoid metabolism are not comparable that in human biology.
- Human studies based on questionnaires are subjective and imprecise. Clinical studies require FDA approval, cost millions of dollars and have so far not evaluated broad or full spectrum products.
- The few cell-based assays that are commercially available or may be accessed through academic collaborations are designed for limited sample testing and are not evergreen. They are too costly for repetitive applications at industry scale. They frequently do not evaluate receptor response in a human cell endocannabinoid background.

CannaMetrix Will Drive a Revolution In Commercial Demand for BioPotency Testing

- Whether for inflammatory disease, pain relief, PTSD or recreational enjoyment, consumers want assurances of potency and product consistency.
- Cell-based disease models will identify the most effective and potent treatments for several major diseases.
- Our patented, human cell-based potency testing and product labeling will assure consumers that they are purchasing a product that will consistently deliver the results they expect. Satisfied customers will become life-long return buyers.
- Brand owners will want to have their products endorsed by CannaMetrix as having been laboratory tested in the human endocannabinoid system to have dose-dependent potency.
- CannaMetrix technology will disrupt and transform the industry with quantitative science where human cell-based methods anticipate product potency rather than inferring potency only from chemical quantification.

Clients for CannaMetrix Validated Products



Product Labeling That Differentiates

Trademark

Patent

US 2023/11,782,050 B2
published 09-05-2024:
Cell-based assay for
quantifying the potency and
efficacy of cannabinoids
and/or terpenes, and methods
of use thereof.

Canadian patent pending.



Product Labelling

*The biological potency of this
product at the recommended
dose has been validated through
laboratory cell-based testing*

Milestones of Success With Tranches for a \$5.4 MM Investment

Investment

\$2,100,000 USDS

\$1,700,000 USD

\$1,600,000 USD

Milestones

Year 1 Q1/2

Year 1 Q3/4

Year 2 Q1/2

Year 2 Q3/4

Year 3 Q1/2

Year 3 Q3/4

Expand infrastructure, Legal restructuring scientific and marketing staff



Establish a total of 5-6 additional cell-based cannabinoid receptor assays, Quantifying potency minor and novel cannabinoid potency



Identify blends of cannabinoids with therapeutic indications



Establish B-to-B service and contract relationships



Marketing, social media campaign, name brand recognition



Market expanded testing services to culinary and psychedelic mushrooms



Partner or build an AI platform with a good user interface for information, education and tracking and consumer informed product choices



Risk Reduction for Investors

- **There is no commercial competition for CannaMetrix's biopotency testing in the cannabis industry.**
 - ❖ Patent protection on the CannaMetrix platform of human cell biopotency tests.
 - ❖ CannaMetrix's tests stand out in the industry as being highly quantitative, high throughput, every green, and affordable.
 - ❖ High bar of entry for competitors in both the technology know-how and in setting up laboratory capabilities for running and maintaining the tests.
- **CannaMetrix achieved proof-of-concept of the efficacy of its biopotency assay and commercial viability.**
- **In 2026, the Company will be revenue positive from testing services, and Smithers support for R&D will defray the costs for expanding the testing platform offerings.**
- **Current cannabis potency testing will address disease states and attract pharma partners.**
- **Near-term expansion into other natural product biopotency testing using cell-based testing platforms and technology know-how.**
- **Across the pharmaceutical and natural product industries cell-based testing is trending over studies using animals as the method of choice for identifying and predicting the efficacy and safety drugs and drug combinations may have in humans.**

Significant Opportunity for Return on Investment

➤ Testing services have a large market share in the cannabis industry.

- ❖ Testing of cannabis products make up to ~50% of the industry value
- ❖ NY State Processors and Testing Services, Product Labelling and Trademark (current total market > \$3.5B)
- ❖ USA National Processors and Testing Services, Product labeling and Trademark (current total market > \$85B)
- ❖ Global Cannabis Potency Testing and Boutique Assay Development Services (current total market > \$300B)

➤ Biopotency testing will drive consumer product choice and demand that products meet a higher standard of validation.

- ❖ Biopotency testing based on human biology resonates with consumers
- ❖ Biopotency testing makes sense as a metric for product formulation
- ❖ Cannametrix will capitalize on the new understanding of biopotency through broad national marketing and sales
- ❖ Unique platform of several cell-based tests will screen products for healthcare applications
- ❖ Extended business opportunity through patent protection

Market Access Through CannaMetrix-Smithers Service Agreement

Smithers Group has a global outreach for specialized testing.

**Smithers has licensed cannabis processing and testing labs in 6 states:
Arizona, Illinois, Massachusetts, New Jersey, and New York**





Ensuring Quality Control Through Cell-Based Testing

Contact Information

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Appendix A1: Achievements from 2021 to 2023

CannaMetrix started in 2016 as a virtual company and in 2021 established a functional R&D laboratory

2021				2022				2023			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

- Filed a provisional patent claiming the potency of molecules and human cell-based testing
- Acquired 8 cannabinoid receptors in lentivirus vectors for expanded cell-based testing
- Increased testing throughput with the purchase of second FlexStation III
- Completed testing of plant sourced CBD from crude extract up to 99% pure product
- Completed first CNR1 assay screen against pure cannabinoids
- Completed second CNR1 assay screened against cannabinoid blends
- Validated CNR1 assay with a library of synthetic agonists
- Constructed and tested 8 novel chimeric G proteins for universal GPCR coupling
- Confirmed improved dynamic range and faster testing speed
- Validated assay consistency across day-to-day and prep-to-prep tests
- Presented CannaMetrix technology at Rochester Cannabis Science Conference
- Validated that CNR1 response is consistent with literature reported doses
- Validated that CNR1 response is consistent with physiologic doses
- Acquired unique cell lines for tissue-specific cell-based testing
- Constructed CNR1 assay
- Established requirements for long-term expression and function of assay components in evergreen cells
- Raised ~2MM research contract, licensing option agreement with XXII Century
- Optimized Cell-based reporter assays for cell-based systems
- Established Cannametrix.org website
- Raised \$200K in contract research with XXII Century
- Acquired high through-put robotics for receptor activity measurements
- Scheduled Laboratory with Federal DEA and NYS BNE Schedule I and II research for THC
- Acquired and renovated physical Laboratory in Rochester NY
- Transferred \$350K in Equipment and Supplies from Dr. Smith's Academic Laboratory Closeout

R&D
IP
Operations
Production
BD, Outreach

2021				2022				2023			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4



Appendix A2: Achievements from 2024 to present

CannaMetrix moved to its current laboratory location in 2024, began recruiting business partners, added substances scheduled under its DEA license, and is evaluating a variety of cannabinoids, alone and in combination, as it expands its testing platform to include multiple cell-based receptor assays and in a variety of cell types

R&D

IP

Operations

Production

BD, Outreach

National testing service through the Smithers Group

Scheduled Laboratory for DEA schedule I and II research for psilocybin

Vetted CNR1 assay against FDA cannabinoid Library

Perfecting the patent for cell-based cannabis potency testing

Hired Juan Sanchez Tamburino as COO

Began constructing cell lines for seven additional cannabinoid receptors

Launched social media promotion through SciTube

Expanded Laboratory scheduling to include schedule I psilocybin research

Established a relationship for testing with a Rochester compliancy testing lab

Presented CannaMetrix technology at Rochester Cannabis Science Conference

Completed SBIR research application submission

Launched multiple social media promotions through Research Outreach

Published Peer Reviewed article on CannaMetrix Technology

Designed and built expanded new research lab space and offices

Retained Steinbrener Law as our corporate attorney

Negotiated the termination agreement with XXII Century with complete retention of assets

Retained Foley and Lardner, LLP as our patent attorney

Published the patent on biological potency testing



CannaMetrix Technology Will Develop Cell Lines that Modeling Different Disease States to Identify the Most Potent Combinations of Cannabinoids for Therapeutic Indications

- Parkinson's Disease:** cannabinoid blends that reduce tremors, pain and fatigue
- Inflammation:** combinations of anti-inflammatory cannabinoids may reduce swelling and pain
- Cancer:** inhibit tumor cell growth
- Depression/PTSD:** cannabinoid combinations that alleviate depression and control mood swings with minimal psychotropic effects due to THC alone
- Pain management:** reduce the root causes of pain without psychotropic effects due to THC alone
- Fibromyalgia:** identify cannabinoids that reduce cramps, pain and reduce stress
- Metabolic and Eating Disorders:** enhancing appetite in the elderly and chemotherapy patients to prevent wasting without psychotropic effects

Commercialization Plan

Market Research & Validation



Intellectual Property (IP) Protection



Partnerships & Collaborations

- Smithers testing labs
- Cannabis industry leaders
- Pharmaceutical companies
- Plant genetic engineers
- Regulatory agencies

ongoing

planning

Licensing and Strategic Alliances

- Exclusive service agreement with Smithers and future licensing agreement or M&A
- Consulting and contract R&D for commercial, federal and academic labs

Smithers Market Research

- Demand/Customers
- Current solutions
- Customer validations
- Competitive analysis

IP
Trademark
Labeling



Growth and Expansion

- Equity Investors – take the company public
- Pharma and Industry
- Manufacturing and supply chain setup
- Marketing, product labeling and sales strategies
- Potency testing for mushrooms/natural products

Regulatory Approvals
and Certifications?

