

# Psychedelic Therapeutics Sector Outlook

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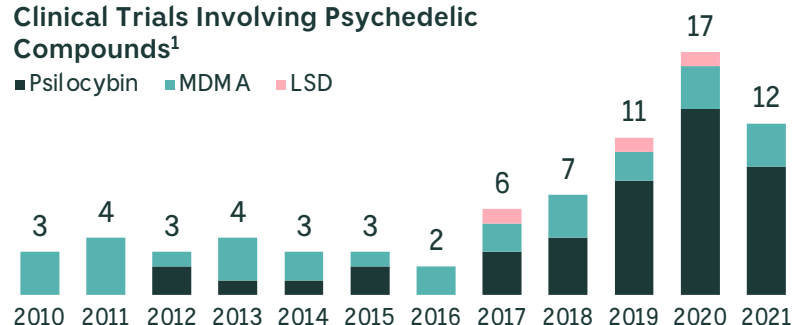
# Psychedelics are entering a modern renaissance after over half a century of criminalization and stigmatization

1

The number of clinical trials involving psychedelic compounds has **dramatically increased** over the past decade.

Clinical Trials Involving Psychedelic Compounds<sup>1</sup>

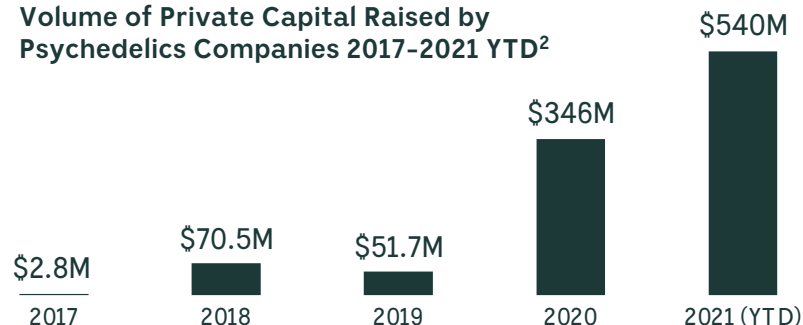
■ Psilocybin ■ MDMA ■ LSD



2

The volume of private investment into psychedelic therapeutics companies in **2021 YTD is in excess of \$540M.**

Volume of Private Capital Raised by Psychedelics Companies 2017-2021 YTD<sup>2</sup>



# The global mental health crisis is driving the psychedelic renaissance

- Roughly half of young adults aged 18–34 are concerned about their own mental health.<sup>3</sup>
- Roughly two-thirds of young adults aged 18–34 are concerned about the mental health of those around them.<sup>3</sup>
- **Today, the need for better mental health treatment options is at its greatest and most urgent.**

13%

of the world's population is affected by mental health & substance abuse disorders<sup>4</sup>

43%

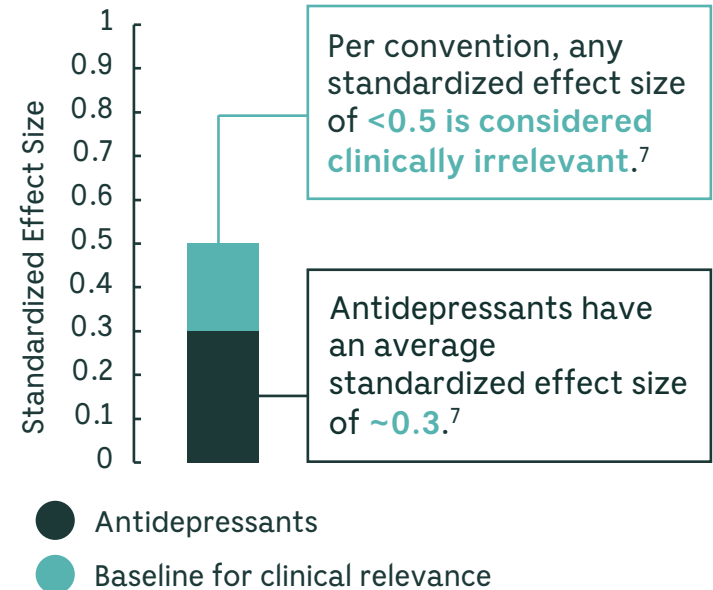
of Americans' mental health seriously affected by COVID-19<sup>5</sup>

\$1T

in annual lost productivity due to depression and anxiety<sup>6</sup>



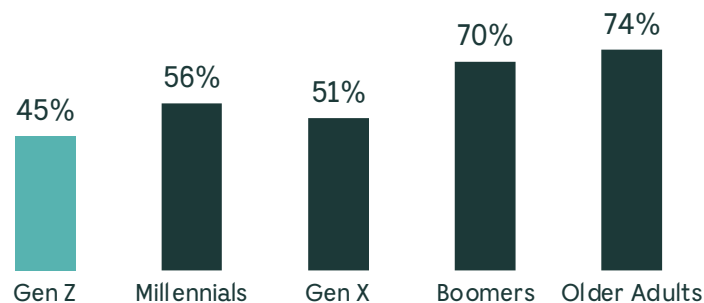
Only **1 out of every 9** patients taking antidepressants benefits from their treatment.<sup>7</sup>



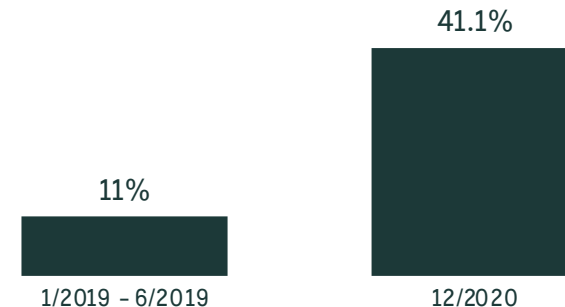
# Younger generations suffer disproportionately from mental health issues

- **Gen Z is the most depressed generation** – however they are also the most likely to seek help; **37% of Gen Z and 35% of Millennials** reported seeking mental health treatment compared to **26% and 22% respectively for Gen X and Baby Boomers.**<sup>8</sup>
- Financial and housing insecurity, social isolation, and unemployment caused by COVID-19 will have long-term effects on mental health.

Likelihood of Reporting Very Good or Excellent Mental Health<sup>8</sup>



US Adults Reporting Symptoms of Anxiety or Depression<sup>9</sup>

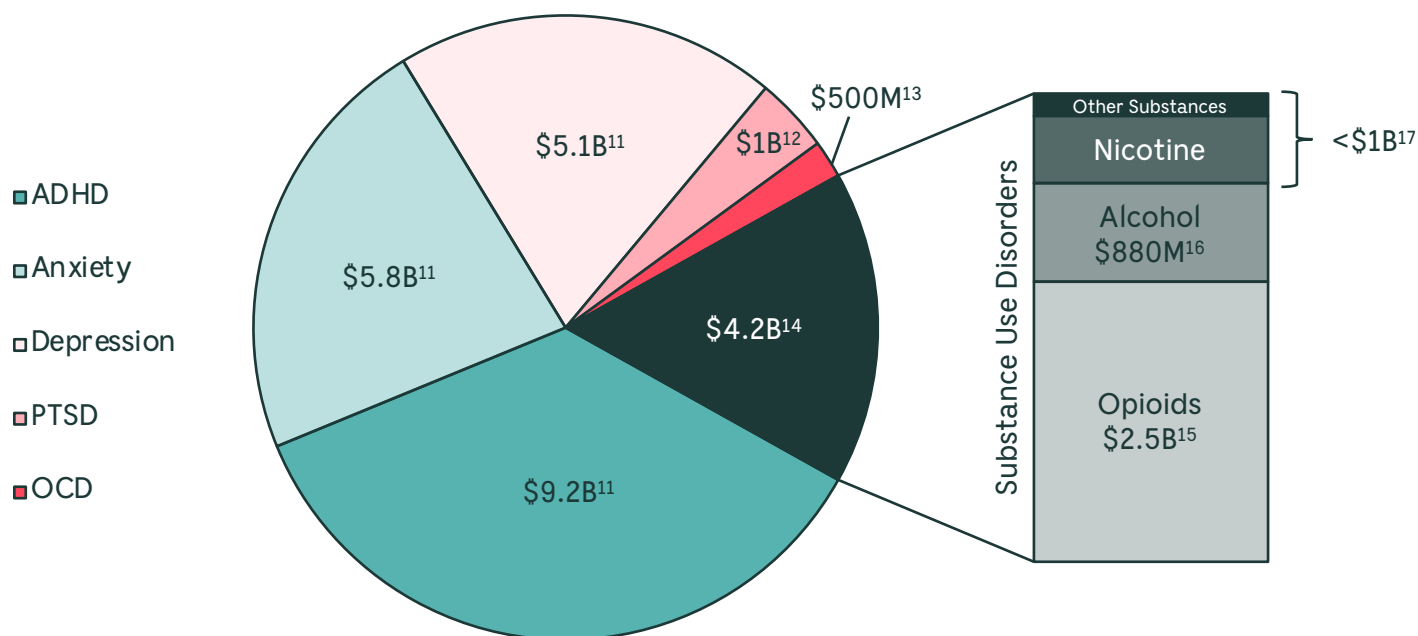




# Drug sales for mental health indications represent a global total addressable market of \$25B+<sup>10</sup>

Psychedelic therapeutics have an opportunity to capture a **minimum of 10% to as much as 80% of the \$25B+ annual spend** on drugs prescribed for mental health indications.

Global Annual Drug Sales for Mental Health Indications

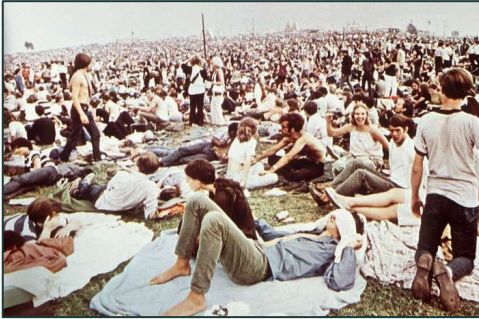


# Incumbent mental health treatment options are ineffective and ripe for disruption

	Medications (Annual Sales)			Side Effects
Anxiety	<b>Xanax®</b> alprazolam tablets  \$1.3B	 <b>VALIUM</b> (diazepam) \$1B	 <b>PROZAC®</b> \$2.2B	<ul style="list-style-type: none"> <li>- Drug dependence and withdrawal</li> <li>- Suicidal ideation</li> <li>- Memory and concentration problems</li> </ul>
Addiction	<b>ANTABUSE</b> -	<b>METHADOSE™</b> \$52M	<b>Vivitrol®</b> \$20M	<ul style="list-style-type: none"> <li>- High risk of overdose</li> <li>- Rapid heartbeat</li> <li>- Uncontrollable vomiting</li> </ul>
ADHD	 <b>ADDERALL</b> \$1.8B	<b>Ritalin</b> \$1.4B	<b>Vyvanse®</b>  \$2.5B	<ul style="list-style-type: none"> <li>- Abuse and addiction</li> <li>- High blood pressure</li> <li>- Irregular heartbeat</li> </ul>
Depression	 <b>PROZAC®</b> \$2.2B	 <b>Zoloft</b> (sertraline HCl) \$2.2B	<b>WELLBUTRIN® XL</b> <small>bupropion HCl</small> \$2B	<ul style="list-style-type: none"> <li>- Sexual problems</li> <li>- Insomnia</li> <li>- Weight loss</li> </ul>
Chronic Pain	<b>METHADOSE™</b> \$52M	<b>OXYCONTIN®</b>  \$1.8B	<b>TRAMADOL</b> \$1.2B	<ul style="list-style-type: none"> <li>- Drug dependence and withdrawal</li> <li>- Reduced effect over time</li> <li>- Changes in mood</li> </ul>



# Evolution of Societal Attitudes and Regulation of Psychedelics

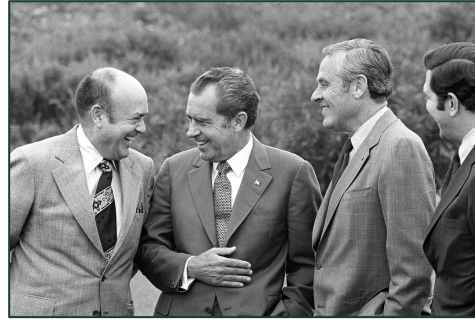


## Pre-1968: Unregulated Use

For at least 11,000 years cultures around the world used psychedelics freely for everything from religious ceremony to personal healing.

**In the 1960s and 70s mainstream health institutions studied the therapeutic potential of psychedelics including LSD and psilocybin.** The use of psychedelics became more prevalent in the Western world in the mid-20th century and became associated with the counterculture movement.

Politicians in the 1960s saw this as a threat to the status quo and Nixon's War on Drugs thrust psychedelics into a 50-year period of strict prohibition.



## 1968-2016: Prohibition

Deemed Schedule I controlled substances in 1971, **psychedelics were banned completely for all uses at the federal level.**

Scientific research on psychedelic compounds went dormant for half a century while billions globally suffered from myriad mental health disorders.

During this period, the U.S. government disseminated misinformation regarding the risks of psychedelics while **big pharma developed ineffective mental health treatments including selective serotonin reuptake inhibitors (SSRIs)** which became the standard of care for most forms of depression and anxiety.



## 2017-Present: Renaissance

In 2017 after over 30 years in operation, the Multidisciplinary Association for Psychedelic Studies (MAPS) **received breakthrough designation for its MDMA-assisted psychotherapy.**

This was a turning point for psychedelic medicine. In 2018 Compass Pathways, which is backed by renowned Silicon Valley investor Peter Thiel, received similar breakthrough therapy designation for its synthetic psilocybin drug COMP360.

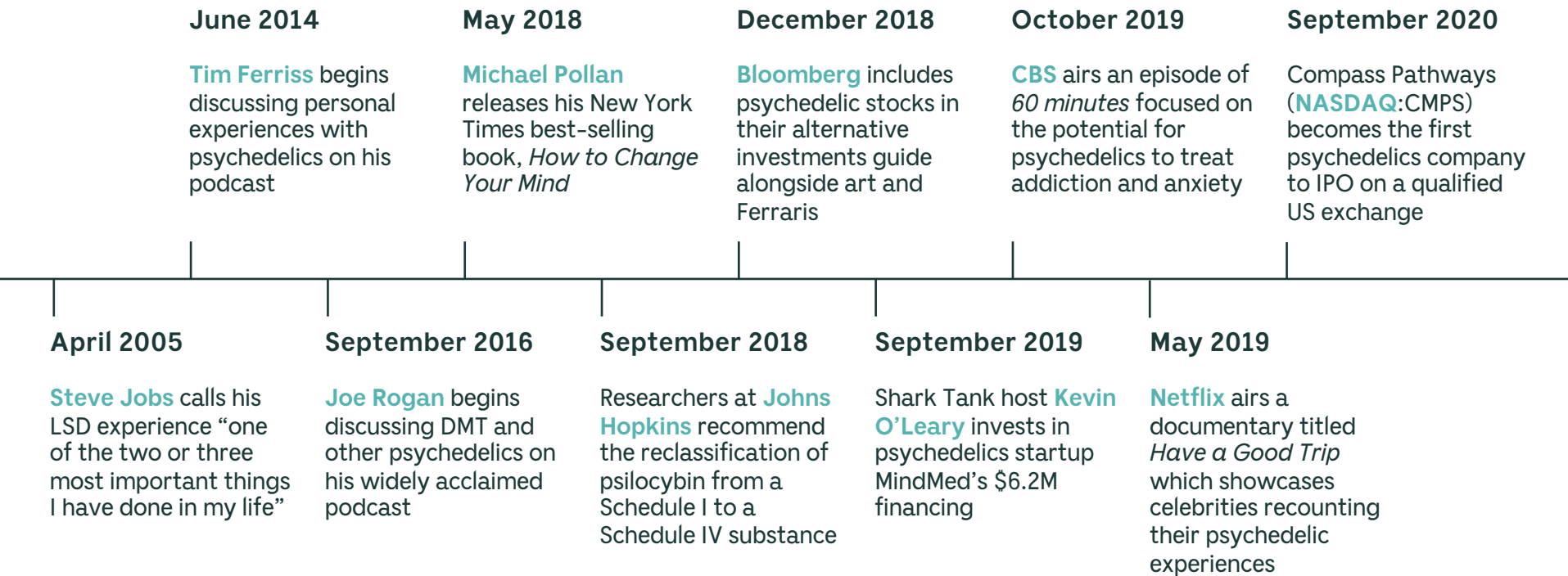
Multiple cities and states across the U.S. have also since **effectively decriminalized psychedelics and now allow therapeutic use.**





# Timeline of Catalysts for the Psychedelic Renaissance

Openness to public discussion of psychedelic experiences, celebrity investment into psychedelic companies, and a stronger understanding of the impact of psychedelics have all contributed to a **broader cultural acceptance of psychedelics for medicinal and adult use.**



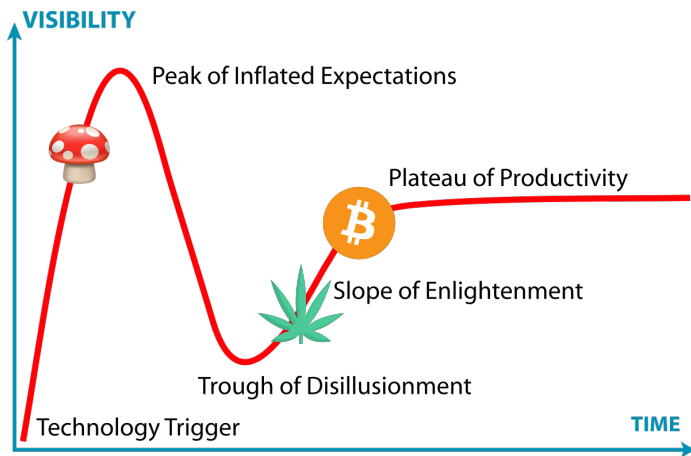
Source: Psilocybin Alpha (2021)

- Legalization, Decriminalization, and Regulation Statute
- Reduced Penalties for Possession
- Legislation Under Review
- Working Groups to Study Therapeutic Use
- Local Deprioritization of Enforcement

A bill passed in February 2021 **reduced the penalty for possession of psilocybin for personal use.**

# Assessing the Trajectory of the Psychedelics Hype Cycle

The psychedelics market is heading toward the “**Peak of Inflated Expectations**” phase of the industry’s hype cycle.



Frontier markets driven by underlying societal movements often closely follow Gartner’s “hype cycle” based on increased media coverage and retail trading. Recent examples include cannabis and crypto, both of which reached their peak around early 2018 followed by dramatic 85%+ selloffs in 2019.

Similar to legal cannabis from 2016 to 2018, the number of psychedelics companies traded on the Canadian public markets has skyrocketed with 23 such listings occurring since the start of 2020.<sup>2</sup> **Most companies in the space appear overvalued based on their management teams and underlying IP.**

MEDIA

FT FINANCIAL TIMES

Advances in psychedelics could change investors’ minds

Potential treatments for addiction and mental illnesses are gathering pace

The Economist

Shroom to grow

Investors hope psychedelics are the new cannabis. Are they high?

Money is going into medical use of mind-altering drugs

Bloomberg

QuickTake

Why Psychedelics, Big in the 1960s, Are Drawing New Interest Now

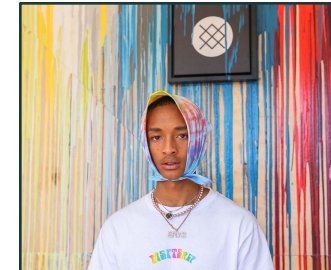
By Tiffany Kary.  
April 30, 2021, 12:01 AM EDT

CULTURE

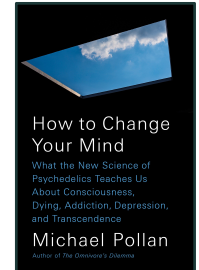
Joe Rogan



Jaden Smith



Michael Pollan





# Landscape of Key Players in the Psychedelics Space

## Drug Developers



## Retreats, CPGs & Adult Use



## Diversified Platform Companies



## Clinics



## HealthTech Providers



## Cultivation & Manufacturing



# Key Verticals within the Psychedelics Space

## Drug Developers

- Conduct clinical R&D to discover, study, and develop psychedelic drugs

## Diversified Platform Companies

- Build out vertically-integrated platforms across the psychedelic value chain either in-house or via M&A

## Clinics

- Build out networks of therapy centers for the administration of FDA-approved (Ketamine) and/or yet-to-be-approved psychedelic compounds

## HealthTech

- Develop ancillary software, technology, and services around the psychedelic therapeutics market

## Retreats, CPGs & Adult Use

- Non-psychedelic mushroom-based nutraceuticals for general wellness
- Psychedelic “micro-dosing” products
- Psychedelic “retreats” and “journeys” for both recreational and therapeutic purposes

## Cultivation & Manufacturing

- Develop cultivation and manufacturing infrastructure for GMP-certified psychedelic compounds



# Classification of Hallucinogenic Compounds

## Psychedelics

- **Serotonergic agonists that are currently classified as Schedule I substances in the United States**
- Historically used by indigenous cultures for religious purposes
- Varieties include serotonergic, tryptamines, and phenylamines
- Preliminary evidence indicates that one or more of these compounds may be useful in treating depression, anxiety, cluster headache, substance use disorders, and OCD
- Includes LSD, Psilocybin, Mescaline, and DMT

## Dissociative Anesthetics

- **Glutamatergic NMDA antagonists, some of which are restricted, but commonly used as anesthetics**
- One of the enantiomers of ketamine, esketamine, has been approved by the FDA as a nasal spray for treatment-resistant depression in the United States
- Additional therapeutic uses are currently being explored in a variety of areas including depression and substance use disorders
- Includes Ketamine, DXM, and Nitrous Oxide

## Entactogens

- **Monoamine releasers and reuptake inhibitors known for their ability to evoke emotional openness and connection**
- Currently classified as Schedule I substances in the United States
- Preliminary evidence suggests that MDMA in particular may be useful in treating PTSD, and is being evaluated as a treatment for social anxiety in adults with autism as well as end-of-life anxiety
- Includes MDMA and MDA

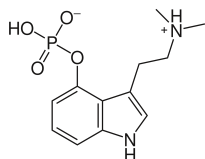
## Atypical

- **Pharmacologically distinct substances with some hallucinogenic properties and diverse mechanisms of action**
- Ibogaine, which is a Schedule I substance in the United States, has exhibited potential as an anti-addiction agent for opioids
- KOR agonist have failed multiple clinical trials due to unpleasant hallucinations
- THC is the main psychoactive chemical in cannabis and has recognized therapeutic use for nausea and vomiting due to chemotherapy, chronic neuropathic or cancer pain, and spasticity due to multiple sclerosis



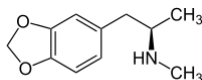


# Primary Molecules of Interest for R&D



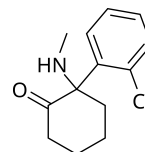
**Psilocybin**

- Naturally occurring hallucinogen that works by activating serotonin receptors, most often in the prefrontal cortex (the part of the brain that affects mood, cognition, and perception)
- Quickly converted by the body to psilocin, which has mind-altering effects somewhat similar to those of LSD, mescaline, and DMT
- Undergoing research for the treatment of depression, anxiety, PTSD, alcohol-use disorder, and other mental health indications



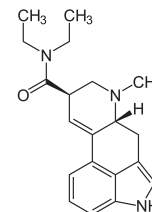
**MDMA**

- Induces serotonin release by binding primarily to presynaptic serotonin transporters
- Enhances fear memory extinction, modulates fear memory reconsolidation, and bolsters social behavior in animal models
- In 2017, MAPS' MDMA-assisted therapy for PTSD was designated by the FDA as a Breakthrough Therapy
- Undergoing research for the treatment of PTSD, eating disorders, end-of-life anxiety, social anxiety in autistic adults, alcohol-use disorder, and other mental health indications



**Ketamine**

- Noncompetitive NMDA receptor antagonist
- Dissociative injected anesthetic available by prescription in the U.S. since the 1970s for human and veterinary uses
- Janssen completed clinical studies of intranasal esketamine (S-ketamine), the S-enantiomer of ketamine and received FDA approval for Spravato™ for treatment-resistant depression in 2019
- Undergoing research for the treatment of Levodopa-induced dyskinesia in patients with Parkinson's disease

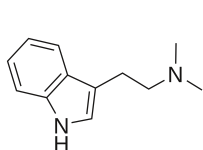


**LSD**

- Extremely potent hallucinogen made synthetically from lysergic acid, which is found in ergot, a fungus that grows on rye and other grains
- Extensively investigated in humans in the 1950s and '60s and was shown to attenuate depressive symptoms
- Clinical research with LSD ended in the '70s due to regulatory prohibition
- Undergoing research for the treatment of cluster headaches, anxiety, ADHD, Alzheimer's, and other mental health indications

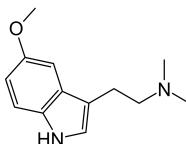


# Primary Molecules of Interest for R&D (continued)



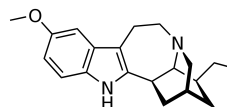
**DMT**

- Hallucinogenic tryptamine drug that occurs naturally in thousands of plants and in every mammal that has been investigated thus far
- In the 60s DMT was discovered in the human body, with research suggesting it is synthesized in lungs and the pineal gland in the brain
- Undergoing research for the treatment of substance-use disorder, treatment-resistant depression, and other mental health indications



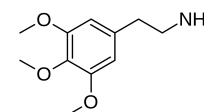
**5-MeO-DMT**

- Psychedelic tryptamine drug most commonly identified in the venom of the Sonoran Desert toad
- Also found in some plants species and can be produced synthetically
- Synthetic version found to be associated with unintended improvements in self-reported depression and anxiety when given in a ceremonial group setting
- Undergoing research for the treatment of treatment-resistant depression and other neuropsychiatric disorders



**Ibogaine**

- Psychoactive alkaloid with dissociative properties naturally occurring in the West African shrub iboga
- Used in healing ceremonies and initiations by members of the Bwiti religion in various parts of West Africa
- Acts as a mild stimulant in small doses and in larger doses can put users into a severe psychedelic state
- Undergoing research for the treatment of opioid-use disorder and other substance-use disorders



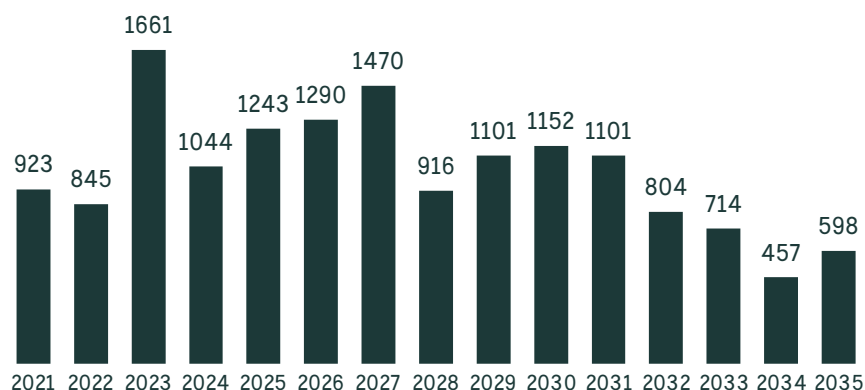
**Mescaline**

- Psychedelic hallucinogen obtained from the peyote cactus, San Pedro cactus, Peruvian torch cactus, and other cacti
- Also found in certain members of the Fabaceae (bean family) and can be produced synthetically
- Used by Native Americans for millennia in religious ceremonies and to treat various ailments
- Undergoing research for the treatment of alcohol-use disorder, depression, and other mental health indications

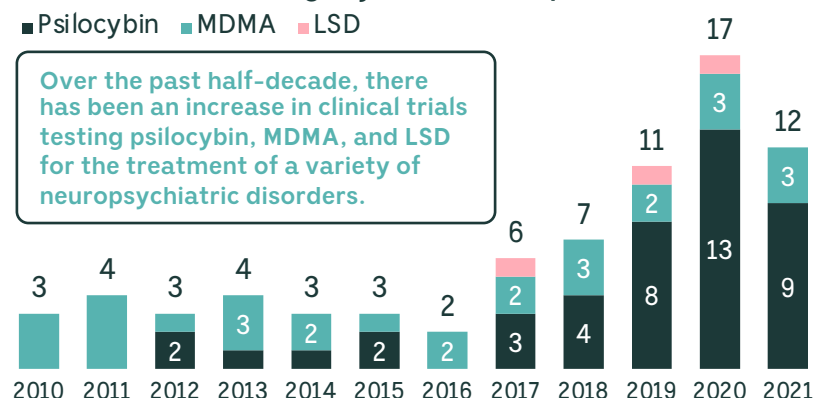
# Clinical Research into Psychedelic Therapeutics Skyrocketing while Big Pharma Confronts Patent Cliff

- **April 2019:** Imperial College of London raised £3M to launch its Center for Psychedelic Research, the first formal center for psychedelic research.
- **September 2019:** Johns Hopkins launched its Center for Psychedelic & Consciousness Research with \$17M from the Steven & Alexandra Cohen Foundation, author Tim Ferriss, WordPress Founder Matt Mullenweg, TOMS Founder Blake Mycoskie, and investor Craig Nerenberg.
- **September 2020:** UC Berkeley announced the launch of its Center for the Science of Psychedelics with \$1.25M in collaboration with UCSF faculty and Graduate Theological Union.
- **Incumbent pharmaceutical companies are increasingly exploring psychedelics and their effects on depression as existing antidepressant patents begin to expire and the need for more efficacious mental health treatment rises.**

FDA Drug Patents Expiring Per Year<sup>18</sup>



Clinical Trials Involving Psychedelic Compounds<sup>1</sup>





# Big Pharma and Governments Increasingly Interested in Psychedelic Therapeutics

- SSRIs were introduced to the market in 1987 and have since become the most widely prescribed type of antidepressant<sup>19</sup>
- Big pharma is exploring psychedelic drugs largely for the treatment of depression as the efficacy and safety of SSRIs continue to be questioned – **SSRIs and benzodiazepines are completely ineffective in treating depression and anxiety in ~33% of patients**<sup>20</sup>
- SSRIs also **decrease the brain's sensitivity to serotonin over time and cause myriad negative side effects**<sup>21</sup>
- DARPA, which develops emerging technologies for use by the U.S. military, invested in psychedelic drug research led by researchers at UNC Chapel Hill for the treatment of veterans suffering from PTSD, chronic depression, and substance abuse

March 5, 2019

**FDA approves Johnson & Johnson's ketamine-based Spravato** (esketamine) for treatment-resistant depression

March 7, 2019

Allergan's Rapastinel, a non-psychedelic NMDA receptor modulator, **fails phase III clinical trials for depression**

June 16, 2020





**DARPA invests \$27M into psychedelic research** to develop better ways to treat PTSD, anxiety, depression, and addiction

October 2019

**Merck partners with Novamind** to conduct phase II clinical trials of psychedelic MK-1942 for treatment-resistant depression



# 40+ Psychedelic Compounds in Phase I Trials or Later

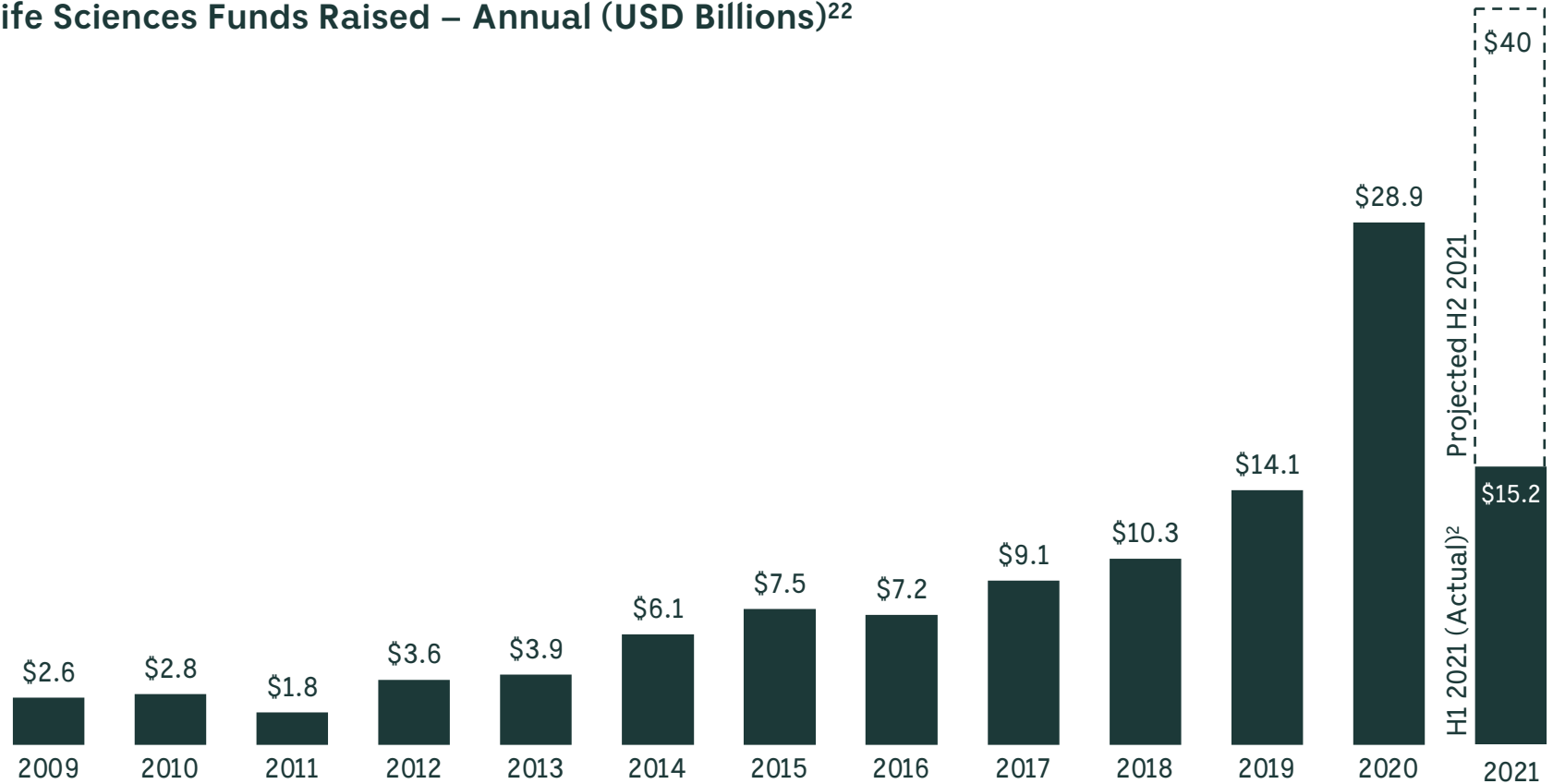
Organizer	Indication	Trial Phase II III	Organizer	Indication	Trial Phase II III
 MAPS MULTIDISCIPLINARY ASSOCIATION FOR PSYCHEDELIC STUDIES	Post-traumatic stress disorder (PTSD)	MDMA	Awakn™	Alcohol use disorder	MDMA
 COMPASSION Navigating Mental Health Pathways	Treatment-resistant depression (TRD)	COMP360	 NYU Langone Health	Alcohol use disorder	Psilocybin
 Usona Institute	Major depressive disorder (MDD)	Psilocybin	 Cybin	Major depressive disorder (MDD)	CYB001
 MAPS MULTIDISCIPLINARY ASSOCIATION FOR PSYCHEDELIC STUDIES	Anorexia nervosa and binge-eating disorder	MDMA	 DemeRx	Opioid-use disorder	DMX-NB1
 MAPS MULTIDISCIPLINARY ASSOCIATION FOR PSYCHEDELIC STUDIES	Anxiety associated with a life-threatening illness	MDMA	 eleusis	Major depressive disorder (MDD) – adjunctive treatment	ELE-Ket+
 MAPS MULTIDISCIPLINARY ASSOCIATION FOR PSYCHEDELIC STUDIES	Social anxiety in autistic adults	MDMA	 Filament Health	Major depressive disorder	PEX010
 MindMed	Anxiety	LSD	 MAPS MULTIDISCIPLINARY ASSOCIATION FOR PSYCHEDELIC STUDIES	CBCT for PTSD	MDMA
 MindMed	Cluster headaches	LSD	 MindMed	ADHD	LSD
 SEELOS THERAPEUTICS	Acute suicidal ideation and behavior (ASIB) in MDD	SLS-002	 MindMed	Undisclosed severe pain indication	LSD



# Backdrop to the Psychedelic Renaissance: Surging Investor Allocations to Life Sciences Funds and Companies

Over \$10B flowed into life science venture capital funds in Q2 2021 – an all-time high.

Life Sciences Funds Raised – Annual (USD Billions)<sup>22</sup>

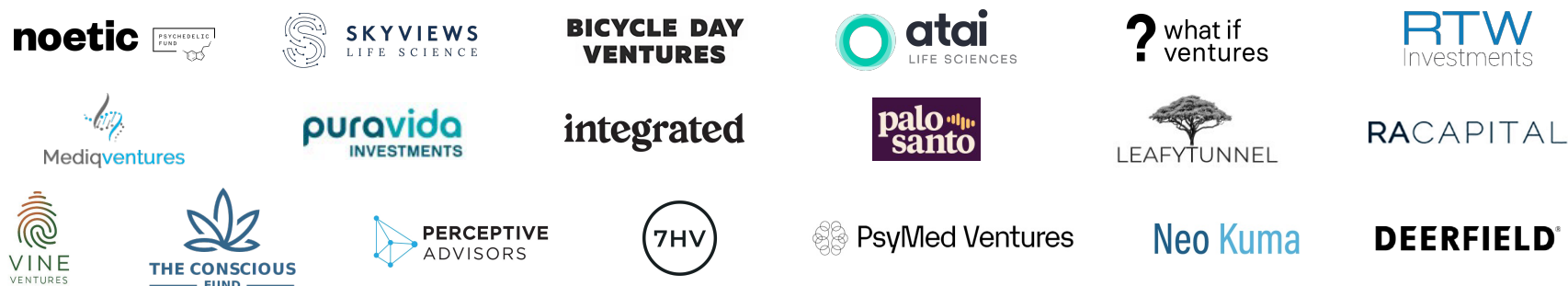


# Wide Range of Investors Deploying into the Psychedelics Space

## Generalist & Tech-focused Investors






















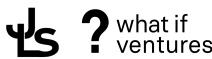













## Life Sciences & Psychedelics-focused Investors













































# >\$540M Deployed into Private Psychedelic Therapeutics Companies in 2021 YTD

VC deals in psychedelics have risen substantially in the last three years – 2018 and 2019 saw less than \$80M of capital invested in psychedelic start-ups while 2020 saw \$346M.

Date	Name	HQ	Stage	Size	Lead(s)	Other Investors
Oct	 delix	Boston, MA	Series A	\$70M	 ARTIS VENTURES ACAPITAL	NEG-EV CAPITAL  A PEIRON® INVESTMENT GROUP PRESIGHT CAPITAL  
Sept	 CaaMTech	Issaquah, WA	Series A	\$22M	 	
Sept	 journey colab	SF, CA	Series A	\$12M	 Delphi	UPRISING  A POLLO Drew Houston Founder & CEO, Dropbox
Aug	 Beckley Psytech	Oxford, UK	Series B	\$80.4M	 BICYCLE DAY VENTURES	Adage Delphi  NEG-EV CAPITAL  Prime Movers Lab
July	 osmind	San Jose, CA	Series A	\$15M	 AME CLOUD VENTURES	GENERAL CATALYST TIGERGLOBAL
July	 psilera BIOSCIENCE	Tampa, FL	Seed	\$2.5M	 BAIRD INC	
May	 WovenScience	NY, NY	Seed	\$8.5M	 	
April	 GILGAMESH	NY, NY	Series A	\$34.7M	 noetic	 GRØN VENTURES  ROUTE 66 VENTURES
April	 GH Research	Dublin, IR	Series B	\$125M	RACAPITAL RTW investments	BVF PARTNERS L.P. BOXER CAPITAL LOGOS CAPITAL CITADEL DEERFIELD venrock
March	 TERRAN BIOSCIENCES	NY, NY	Series A	Undisclosed	Undisclosed	   PsyMed Ventures
March	 atai LIFE SCIENCES	Berlin, DE	Series D	\$157M	A PEIRON® INVESTMENT GROUP THIEL	CATALIO CAPITAL MANAGEMENT FALCON EDGE CAPITAL FEARLESS VENTURES Highline Capital Neo Kuma puravida INVESTMENTS SUBVERSIVE CAPITAL WOODLINE PARTNERS



# \$346M Deployed into Private Psychedelic Therapeutics Companies in 2020 – 569% Increase over 2019

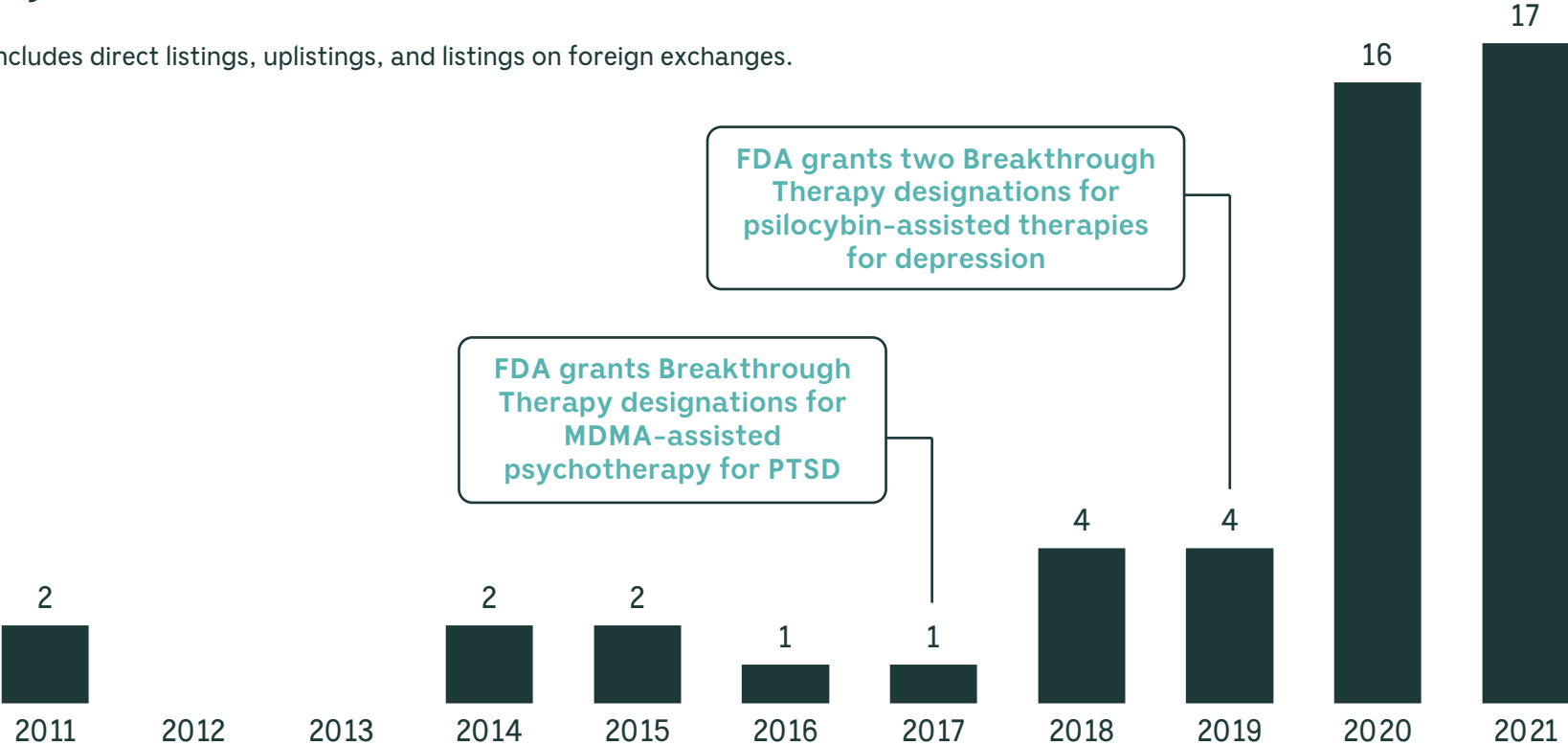
Date	Name	HQ	Stage	Size	Lead(s)	Other Investors
Dec	 Beckley Psytech	Oxford, UK	Series A-2	\$18.9M	 noetic Bail Capital	 BICYCLE DAY VENTURES
Nov	 atai LIFE SCIENCES	Berlin, DE	Series C	\$125M	 APEIRON® INVESTMENT GROUP THIEL	 CATALIO CAPITAL MANAGEMENT FALCON EDGE CAPITAL  GALAXY DIGITAL  Neo Kuma puravida INVESTMENTS  FUTURE VENTURES 
Oct	 osmind	San Jose, CA	Seed	\$2M	GENERAL  CATALYST	 ? what if ventures 
Aug	 field trip	Toronto, CA	Series B	\$11M	Undisclosed	 ? what if ventures  7HV  BIG CAPITAL
June	 Beckley Psytech	Oxford, UK	Series A	\$4.1M	Undisclosed	 BICYCLE DAY VENTURES  ORYX VENTURES  Mediqventures  Berti INVESTMENTS
June	 GILGAMESH	NY, NY	Accelerator	\$125K	 Y Combinator	
April	 COMPASSION Navigating Mental Health Pathways	Cheshire, UK	Series B	\$80M	 atai LIFE SCIENCES  MSRD McQuade Center for Strategic Research and Development	 able FOUNDERS FUND  PERCEPTIVE ADVISORS CAMDEN PARTNERS  SKYVIEWS LIFE SCIENCE
April	 TERRAN BIOSCIENCES	NY, NY	Seed	Undisclosed	Undisclosed	Undisclosed
April	 atai LIFE SCIENCES	Berlin, DE	Bridge	\$24M	Undisclosed	 APEIRON® INVESTMENT GROUP  GALAXY DIGITAL  FUTURE VENTURES THIEL
Feb	 field trip	Toronto, CA	Series A	\$8.5M	 SINGHAL Foundation	 BOLT SUBVERSIVE CAPITAL  SILVER SPIKE CAPITAL



# Red Hot Exit Environment for Psychedelics Companies with Skew Toward Public Listings

## Psychedelic IPOs Per Year<sup>2</sup>

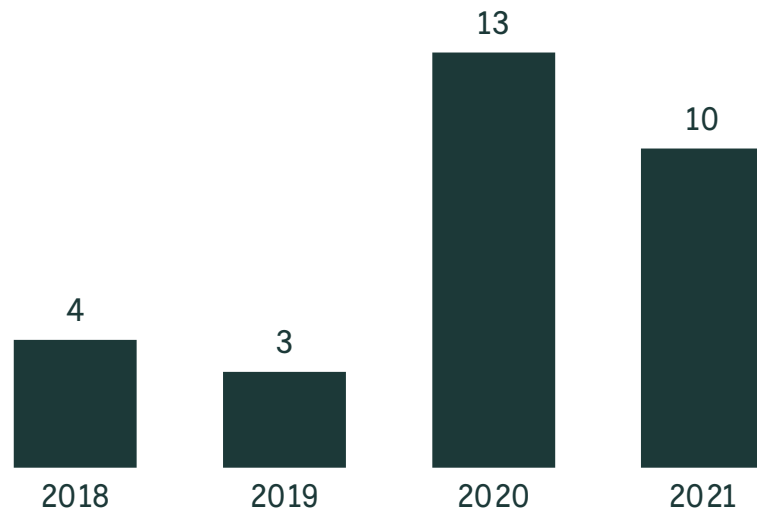
Includes direct listings, uplistings, and listings on foreign exchanges.



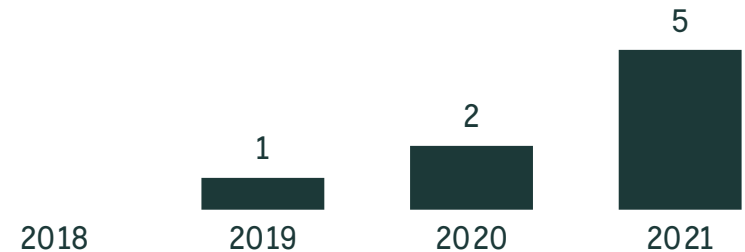
# Divergence in Quality of U.S. vs. Canadian Exchange Listings for Psychedelics Companies

- Investors should use caution when allocating capital to companies traded on Canadian public markets as they are known to have at minimum venture-style risk
- Some companies also “uplist” to the NASDAQ or NYSE after having been publicly traded in Canada upon reaching milestones in funding and/or clinical progress

Canadian Psychedelic IPOs<sup>2</sup>









NASDAQ or NYSE Psychedelic IPOs<sup>2</sup>



# Several Notable Listings on Both U.S. and Canadian Exchanges over Past 12 Months

- Foreign and OTC public listings provide earlier-stage companies an opportunity to raise capital and provide liquidity through the sale of stock while avoiding higher fees and stricter regulations associated with listing on qualified U.S. exchanges
- ~15% Of publicly traded psychedelic companies are listed on qualified U.S. exchanges<sup>2</sup>

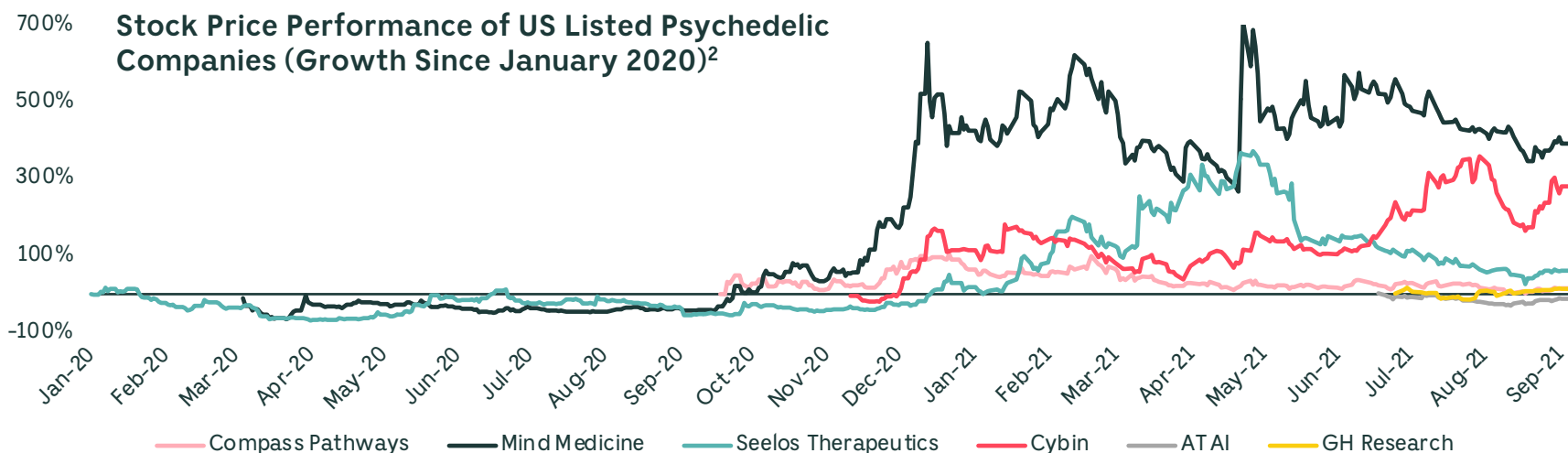
Date	Company	Ticker	HQ	Segment	IPO Deal Size
July 2021	 <b>field trip</b>	NASDAQ: FTRP	Toronto	Drug Developers	N/A (Uplisting)
June 2021	 <b>GH Research</b>	NASDAQ: GHRS	Dublin	Drug Developers	\$160M
June 2021	 <b>atai</b> LIFE SCIENCES	NASDAQ: ATAI	Berlin	Drug Developers	\$225M
April 2021	 <b>MindMed</b>	NASDAQ: MNMD	NY, NY	Drug Developers	\$143.4M
October 2020	 <b>field trip</b>	TSX: FTRP	Toronto	Drug Developers	N/A (RTO)
September 2020	 <b>COMPASSION</b> Navigating Mental Health Pathways	NASDAQ: CMPS	Cheshire, UK	Drug Developers	\$127.5M





# Valuation Growth of Psychedelics Companies Plateaus as Investors Start to Look Beyond the Hype

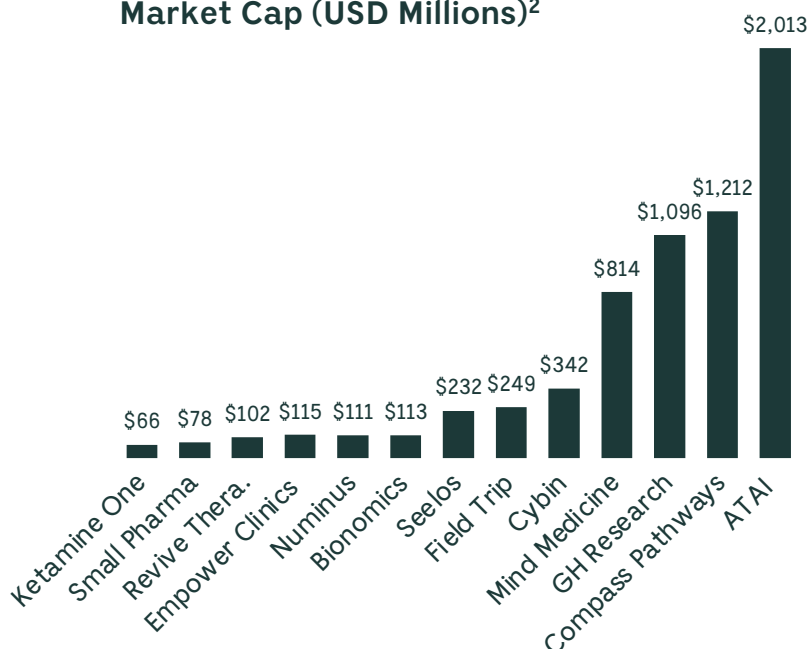
- The current field of publicly traded psychedelics companies is defined by poorly qualified management teams with weak scientific and technical expertise
- **Psychedelics companies have taken advantage of the tailwind of industry hype in order to raise substantial amounts of capital despite lacking true scientific innovations or competitive IP**
- Downside risk of multiple contraction if key players including ATAI, MMED, CMPS, or others miss milestones or fail to generate significant revenues
- Valhalla believes we are approaching the peak of the psychedelics hype cycle with room for another 12 to 24 months of valuation growth, depending on macro factors as well as companies reaching key milestones



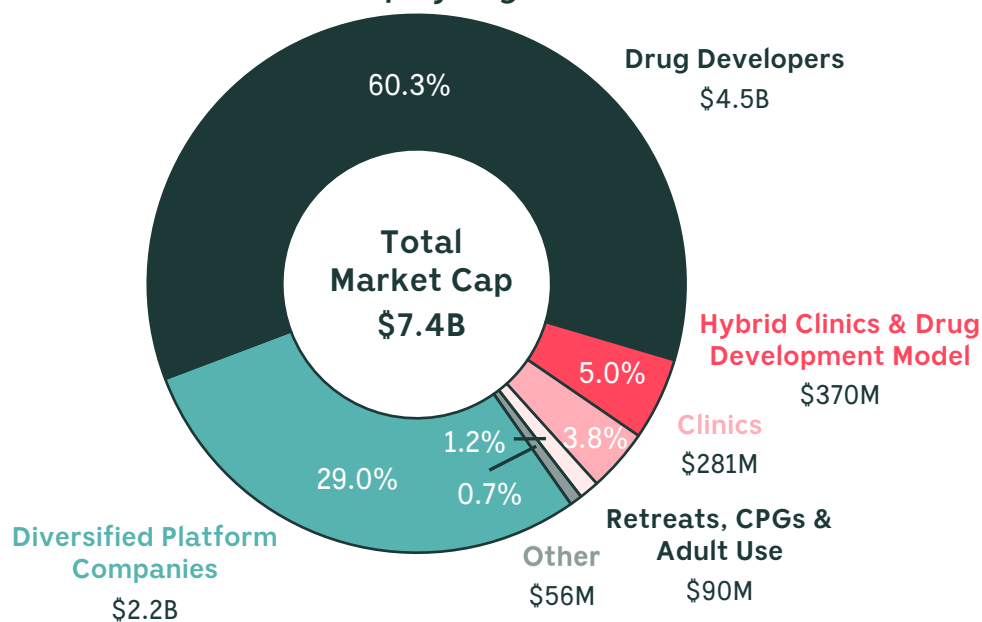
# Market Value of Psychedelics Companies Concentrated in Drug Developers and Diversified Platform Models

- Markets have clearly identified drug development as the psychedelics subvertical with the greatest potential for outsized returns
- Increased investment from traditional biotech and life sciences investors (RA Capital, RTW Investments, etc.) in psychedelic drug developers is also a positive signal for the sector

**Largest Psychedelics Companies by Market Cap (USD Millions)<sup>2</sup>**



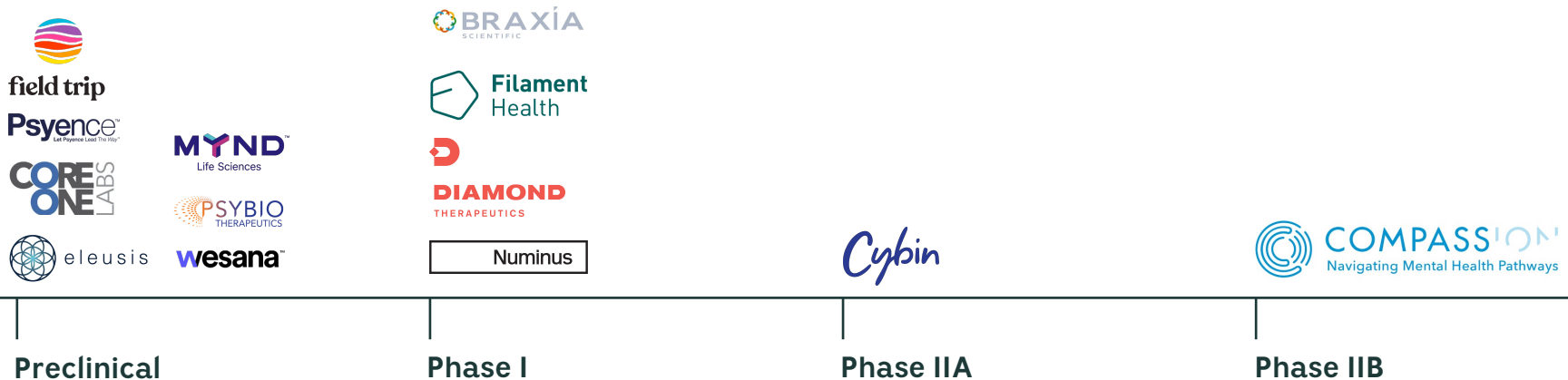
**Market Cap by Segment<sup>2</sup>**



# Unsustainable Competition for Limited Set of Psychedelic Compounds and Mental Health Indications

- Next to impossible for any company to reach FDA-approval for psilocybin for treatment-resistant depression before COMPASS – which is currently wrapping up phase IIB trials for its COMP360 compound and is exceedingly well-funded
- If approved, COMPASS will hold exclusivity for 5 years in the U.S. and 10 years in the EU
- Another limiting factor in the psychedelics space is the shortage of adequately trained and qualified psychedelic clinicians

## Companies Publicly Attempting to Develop Psilocybin for Treatment-Resistant Depression



# Multiple Companies Developing the Same Molecules for the Same Indications

## Psilocybin for Treatment-Resistant Depression (TRD)



## DMT / 5-MeO-DMT for TRD



## Psilocybin for Other Indications

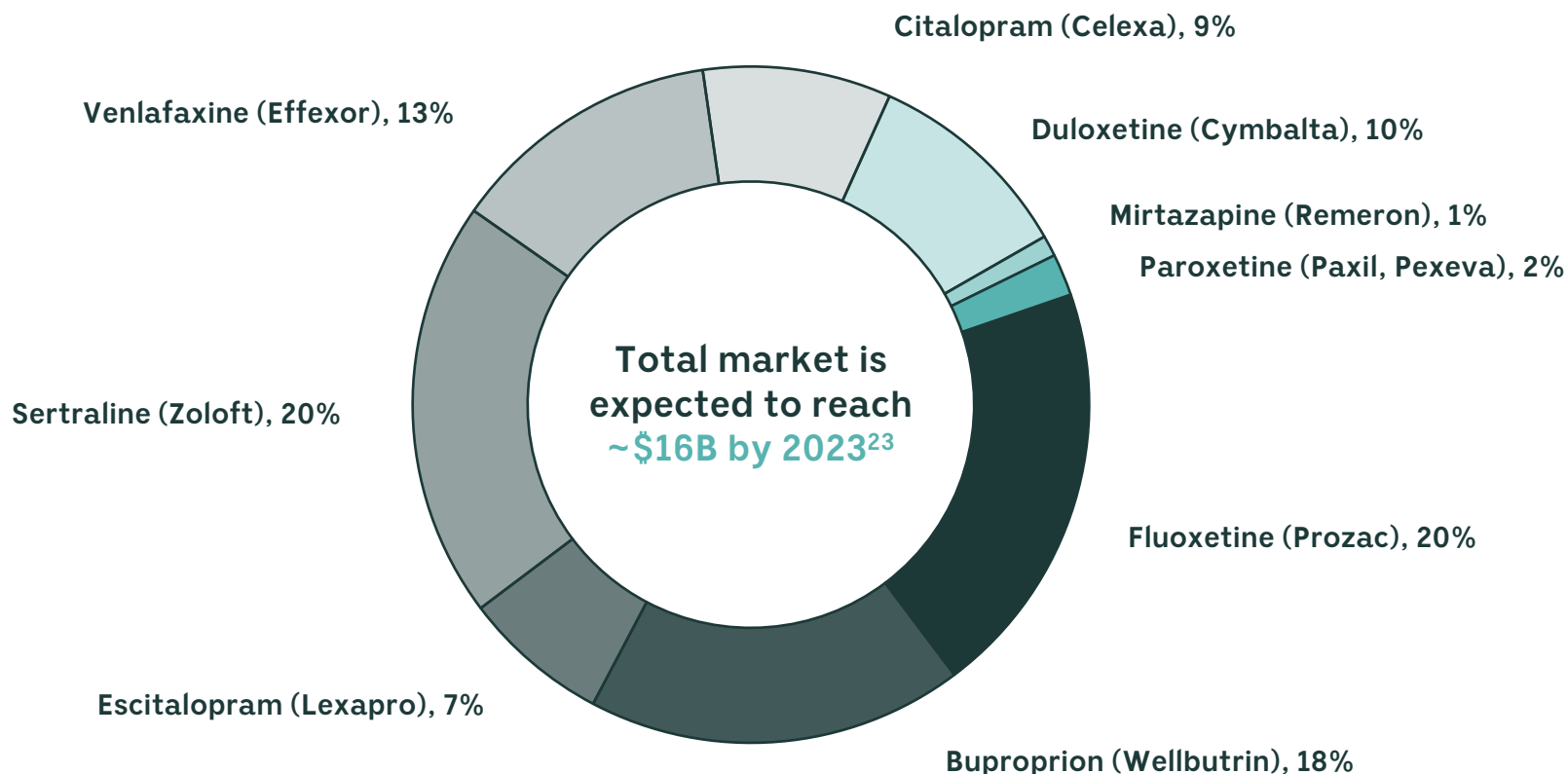


## DMT / 5-MeO-DMT for Other Indications



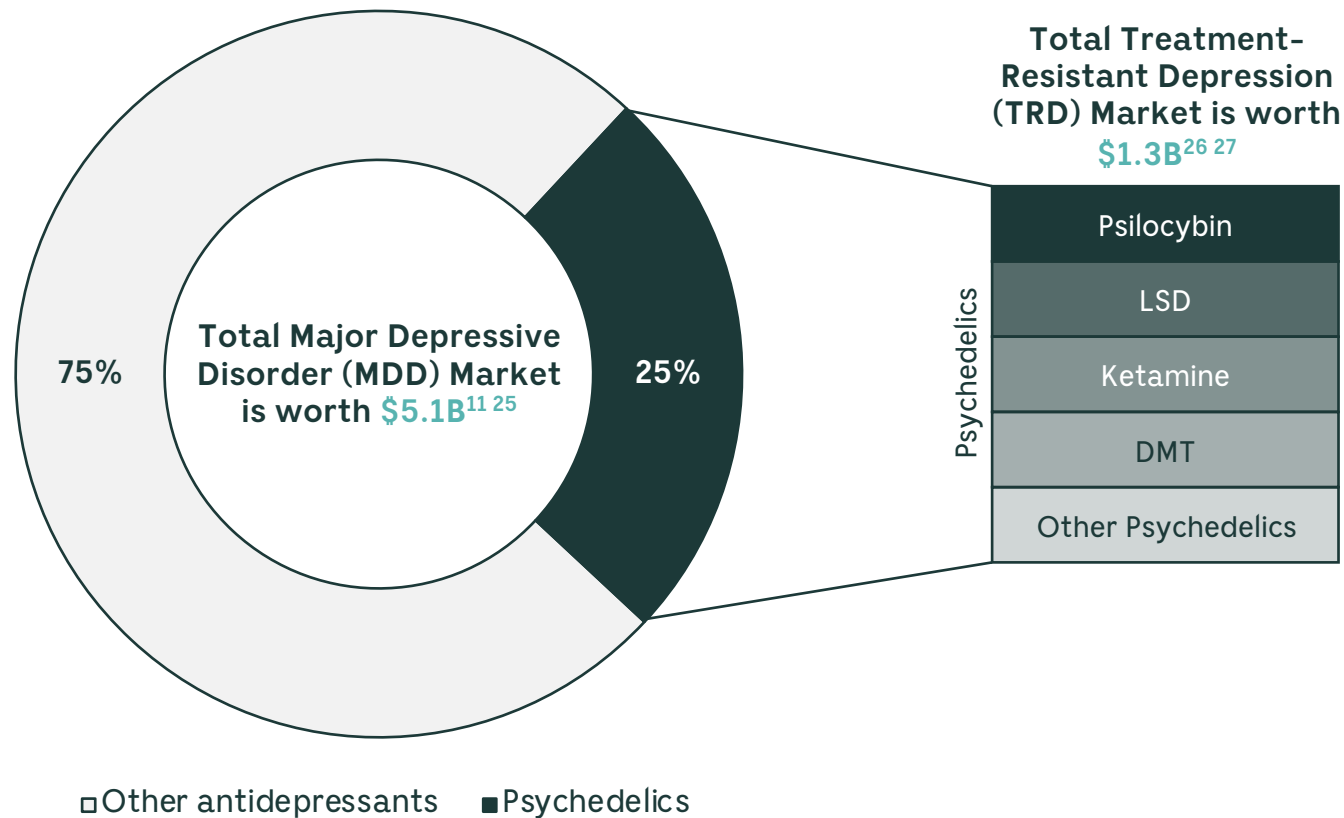
# Global Antidepressant Drug Market was \$14.1B in 2017<sup>23</sup>

## 2017 U.S. Antidepressant Market Share Breakdown<sup>24</sup>





# As second or third-line therapies for TRD, psychedelics will only capture ~25% of the depression market



# Psychedelic therapeutics face significant hurdles that will limit their potential and prevent widespread uptake

- 1 Psychedelics must be administered as inpatient therapy **limiting their use to second or third-line treatment**
- 2 **There is risk of a bad trip** as evidenced by the Johns Hopkins study<sup>23</sup> of ~2000 people with psilocybin
- 3 Many psychedelics induce long-acting psychedelic trips **limiting the number of patients that individual doctors can treat**

“A Johns Hopkins University study<sup>23</sup> of 1,993 people who reported bad trips found that **11% said they had put themselves or others in harm’s way** during the experience, and **8% had sought treatment for what they believed were enduring psychological symptoms** related to the event.”

## However...

Psychedelic therapeutics that do not involve a psychedelic trip 1) **increase the potential for broader clinical use**, 2) **enable the benefits of psychedelics to be shared with a larger population**, and 3) **increase the addressable market size for psychedelics**.



# Investors should seek out companies with a diversified portfolio of IP and truly differentiated approaches to drug development and go-to-market

1



Valhalla sees a significant opportunity in companies developing **non-hallucinogenic psychedelic therapeutics** – this opens the door to psychedelics being prescribed as a **first-line therapy** for target indications.

2



MindMed



With the high-risk of FDA clinical trials and the dozens of companies racing to develop the same small set of compounds, **Valhalla prefers companies with a portfolio-based, multi-strategy approach over single-asset companies.**

3



Few companies have partnerships with Big Pharma. **These partnerships will be a key driver for future acceptance, success, and commercialization of psychedelic therapeutics.**



# What are the key takeaways?

1

Financial and housing insecurity, social isolation, unemployment, and other lasting socioeconomic disruption caused by **the COVID-19 pandemic has exacerbated the need for improved mental health treatment options.** Incumbent treatments have low efficacy and often come with undesirable side effects.

3

Dozens of companies are working toward developing the same compounds for the same indications. **IP exclusivity will limit the number of companies that will generate outsized revenues and returns** – there is an unsustainable level of competition in the space and many existing players will fail.

2

**The Psychedelic Renaissance has brought investor interest in companies in the psychedelic therapeutics space to an all-time high.** With over \$540M invested in psychedelics companies in 2021 alone, the market is rapidly approaching the peak of the industry hype cycle.

4

Investors should conduct rigorous diligence to validate innovation claims made by companies and **seek out differentiated approaches including companies developing non-psychoactive formulations and companies focused on portfolio-based strategies.**





# Appendix



VALHALLA VENTURES



# Trading Comparables – Drug Developers<sup>2</sup>

Data as of 10/11/2021

Company	Market Cap	Share Price (\$)			Cash	Debt	Enterprise Value	EV / LTM Revenue	HQ	Year Founded
<i>All figures in \$USD Millions unless otherwise noted</i>		Current	52-Week High	52-Week Low						
Compass Pathways	\$1,211.7	\$29.06	\$61.69	\$28.58	\$316.33	--	\$895.33	--	Altrincham, United Kingdom	2020
GH Research	\$1,095.6	\$21.06	\$26.91	\$15.08	\$292.63	--	\$802.93	--	Dublin, Ireland	2018
Mind Medicine	\$814.5	\$2.21	\$5.77	\$0.72	\$157.10	--	\$657.37	--	New York, United States	2019
Cybin	\$341.7	\$2.14	\$3.38	\$0.49	\$44.45	--	\$297.25	--	Toronto, Canada	2019
Field Trip	\$249.2	\$4.32	\$7.82	\$1.78	\$22.30	\$9.80	\$179.92	126.0x	Toronto, Canada	2008
Seelos Therapeutics	\$232.3	\$2.27	\$6.60	\$0.72	\$87.20	\$0.07	\$145.13	--	New York, United States	2016
Bionomics	\$113.3	\$0.11	\$0.35	\$0.07	\$21.37	\$0.65	\$93.33	138.8x	Eastwood, Australia	1996
Revive Therapeutics	\$102.0	\$0.32	\$0.73	\$0.14	\$15.12	\$0.33	\$87.30	--	Toronto, Canada	2012
Bright Minds	\$84.7	\$7.16	\$8.52	\$3.44	\$17.76	--	\$67.31	--	Vancouver, Canada	2019
Small Pharma	\$77.9	\$0.25	\$0.87	\$0.25	\$43.68	--	\$36.18	NM	London, United Kingdom	2015
Ketamine One	\$66.0	\$0.55	\$1.46	\$0.00	\$4.64	\$0.02	\$60.97	--	Vancouver, Canada	2017
Enveric Biosciences	\$57.1	\$1.82	\$7.00	\$1.54	\$20.62	\$0.15	\$36.65	--	Naples, United States	1994
Wesana	\$41.5	\$2.21	\$3.96	\$1.90	\$12.69	\$0.92	\$29.95	NM	Chicago, United States	2004
Mindset Pharma Inc.	\$41.2	\$0.55	\$1.74	\$0.26	\$2.58	\$0.64	\$39.30	--	Toronto, Canada	2011
PharmaTher	\$41.0	\$0.47	\$0.98	\$0.04	\$2.30	--	\$36.40	--	Vancouver, Canada	2020
Awakn Life Sciences	\$40.0	\$1.62	\$1.98	\$1.38	\$0.29	\$0.10	\$33.13	--	Vancouver, Canada	2020
Filament Health	\$39.9	\$0.24	\$0.32	\$0.23	--	--	\$41.56	--	Vancouver, Canada	-
Optimi Health	\$34.3	\$0.49	\$0.87	\$0.47	\$3.36	\$0.12	\$21.08	--	Vancouver, Canada	2020
Psybio Therapeutics	\$25.6	\$0.23	\$0.71	\$0.20	\$0.36	--	\$17.87	--	Coconut Creek, United States	2009
Clearmind Medicine	\$25.1	\$0.67	\$0.72	\$0.62	\$5.29	--	\$19.85	--	Vancouver, Canada	2017
MYND Life Sciences	\$24.3	\$0.53	\$1.98	\$0.47	--	--	\$24.52	--	Kelowna, Canada	2018
Mind Cure Health	\$23.0	\$0.25	\$0.86	\$0.25	\$15.13	--	\$8.56	--	Vancouver, Canada	2020
Tryp Therapeutics	\$22.2	\$0.33	\$1.04	\$0.27	\$0.78	\$0.00	--	--	Kelowna, Canada	2019
SiloPharma	\$21.8	\$0.22	\$0.59	\$0.13	\$4.15	--	\$17.05	110.7x	Englewood Cliffs, United States	2010
BetterLife Pharma	\$17.6	\$0.21	\$1.77	\$0.16	\$3.41	\$0.26	\$14.41	--	Vancouver, Canada	2002
Psyence Group	\$15.6	\$0.18	\$0.49	\$0.08	\$4.29	\$0.05	\$11.40	--	Toronto, Canada	2019
Core One Labs	\$15.2	\$0.98	\$9.37	\$0.92	\$0.38	--	\$14.75	--	Vancouver, Canada	2010
Entheon	\$11.0	\$0.21	\$2.00	\$0.20	\$3.40	--	\$7.61	NM	Coquitlam, Canada	2019
Lobe Sciences	\$10.7	\$0.05	\$0.21	\$0.03	\$1.92	--	\$1.77	2.5x	Vancouver, Canada	2010
Nova Mentis Life Science Corp.	\$8.8	\$0.08	\$0.35	\$0.06	\$0.91	--	\$7.93	NM	Vancouver, Canada	2004
Median	\$40.5	\$0.51	\$1.60	\$0.26	\$4.46	--	\$34.66	--		
Average	\$163.5	\$2.69	\$5.37	\$2.02	\$36.81	\$0.44	\$123.56	14.5x		





# Trading Comparables – Diversified Platform Companies & Clinics<sup>2</sup>

## Diversified Platform Companies

Data as of 10/11/2021

Company	Market Cap	Share Price (\$)			Cash	Debt	Enterprise Value	EV / LTM Revenue	HQ	Year Founded
<i>All figures in \$USD Millions unless otherwise noted</i>		<u>Current</u>	<u>52-Week High</u>	<u>52-Week Low</u>						
ATAI Life Sciences	\$2,012.7	\$13.00	\$22.91	\$12.85	\$453.62	\$3.62	\$1,572.70	79.1x	Berlin, Germany	2018
Mydecine Innovations Group	\$72.2	\$0.30	\$2.20	\$0.13	\$5.67	\$0.54	\$67.10	NM	Vancouver, Canada	N/A
Levitee Labs	\$28.5	\$0.36	\$0.51	\$0.28	--	--	--	--	Vancouver, Canada	2019
PharmaDrug	\$12.1	\$0.04	\$0.16	\$0.02	\$2.34	\$0.71	\$10.64	23.9x	Toronto, Canada	N/A
CFN Enterprises Inc	\$10.9	\$0.09	\$0.15	\$0.04	\$0.07	\$1.34	\$12.09	14.8x	Whitefish, United States	2001
Delic Holdings	\$14.2	\$0.21	\$0.63	\$0.20	\$3.56	\$0.13	\$10.86	74.2x	Vancouver, Canada	N/A
Silo Wellness	\$5.1	\$0.07	\$0.30	\$0.04	\$0.16	\$0.03	\$4.96	72.5x	Toronto, Canada	N/A
New Wave Holdings	\$2.0	\$0.33	\$4.27	\$0.32	\$0.43	\$0.98	\$2.51	32.7x	Toronto, Canada	2018
Median	\$13.2	\$0.25	\$0.57	\$0.16	\$1.39	\$0.63	\$10.75	32.7x		
Average	\$269.7	\$1.80	\$3.89	\$1.73	\$58.23	\$0.92	\$210.11	42.5x		

## Clinics

Data as of 10/11/2021

Company	Market Cap	Share Price (\$)			Cash	Debt	Enterprise Value	EV / LTM Revenue	HQ	Year Founded
<i>All figures in \$USD Millions unless otherwise noted</i>		<u>Current</u>	<u>52-Week High</u>	<u>52-Week Low</u>						
Field Trip	\$249.2	\$4.32	\$7.82	\$1.78	\$22.30	\$9.80	\$179.92	126.0x	Toronto, Canada	2008
Numinus	\$111.0	\$0.55	\$1.94	\$0.21	\$52.34	\$1.18	\$62.12	60.7x	Vancouver, Canada	N/A
Empower Clinics Inc.	\$115.0	\$0.34	\$1.98	\$0.03	\$5.19	\$2.61	\$112.48	19.5x	Vancouver, Canada	N/A
Ketamine One	\$66.0	\$0.55	\$1.46	\$0.00	\$4.64	\$0.02	\$60.97	--	Vancouver, Canada	2017
Awakn Life Sciences	\$42.9	\$1.75	\$1.91	\$1.39	\$0.29	\$0.10	\$42.67	--	Vancouver, Canada	N/A
Novamind	\$30.8	\$0.72	\$1.90	\$0.01	--	--	\$26.03	--	Toronto, Canada	N/A
Braxia Scientific	\$24.0	\$0.14	\$0.65	\$0.14	\$8.28	\$0.08	\$15.97	17.0x	Mississauga, Canada	N/A
Core One Labs	\$15.2	\$0.98	\$9.37	\$0.92	\$0.38	--	\$14.75	--	Vancouver, Canada	2010
Median	\$54.4	\$0.63	\$1.92	\$0.17	\$4.91	\$0.09	\$51.82	8.5x		
Average	\$81.8	\$1.17	\$3.38	\$0.56	\$11.68	\$1.72	\$64.36	27.9x		



# Trading Comparables – Retreats, CPGs & Adult Use, HealthTech Providers, and Cultivation & Manufacturing<sup>2</sup>

## Retreats, CPGs & Adult Use

Data as of 10/11/2021

Company	Market Cap	Share Price (\$)			Cash	Debt	Enterprise Value	EV / LTM Revenue	HQ	Year Founded
<i>All figures in \$USD Millions unless otherwise noted</i>		<u>Current</u>	<u>52-Week High</u>	<u>52-Week Low</u>						
Red Light Holland	\$57.1	\$0.16	\$0.55	\$0.05	\$24.33	\$0.71	--	--	Toronto, Canada	N/A
Havn Life	\$22.8	\$0.18	\$1.25	\$0.15	\$4.64	\$0.35	\$18.55	NM	Vancouver, Canada	2020
Neonmind	\$9.4	\$0.08	\$0.28	\$0.07	\$1.48	\$0.57	\$8.38	24.7x	Vancouver, Canada	2019
Median	\$22.8	\$0.16	\$0.55	\$0.07	\$4.64	\$0.57	\$8.38	12.4x		
Average	\$29.8	\$0.14	\$0.69	\$0.09	\$10.15	\$0.54	\$8.97	12.4x		

## HealthTech Providers

Data as of 10/11/2021

Company	Market Cap	Share Price (\$)			Cash	Debt	Enterprise Value	EV / LTM Revenue	HQ	Year Founded
<i>All figures in \$USD Millions unless otherwise noted</i>		<u>Current</u>	<u>52-Week High</u>	<u>52-Week Low</u>						
Ehave	\$2.4	\$0.02	\$0.47	\$0.02	\$1.87	\$1.00	\$1.50	--	Oakville, Canada	2011

## Cultivation & Manufacturing

Data as of 10/11/2021

Company	Market Cap	Share Price (\$)			Cash	Debt	Enterprise Value	EV / LTM Revenue	HQ	Year Founded
<i>All figures in \$USD Millions unless otherwise noted</i>		<u>Current</u>	<u>52-Week High</u>	<u>52-Week Low</u>						
Optimi Health	\$34.3	\$0.49	\$0.87	\$0.47	\$3.36	\$0.12	\$21.08	--	Vancouver, Canada	2020
Psyence Group	\$15.6	\$0.18	\$0.49	\$0.08	\$4.29	\$0.05	\$11.40	--	Toronto, Canada	2019
Minerco	\$1.3	\$0.00	\$0.02	--	\$0.00	\$2.37	--	--	Katy, United States	2007
Median	\$15.6	\$0.18	\$0.49	\$0.08	\$3.36	\$0.12	\$11.40	--		
Average	\$17.0	\$0.22	\$0.46	\$0.18	\$2.55	\$0.84	\$10.83	--		



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# Thank you.

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