



# Psychedelics Canada

*Sector Report 2022*

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# Executive Summary

**T**he following report assesses the economic impact of the Canadian psychedelic medicine and therapy sector.<sup>1</sup> Psychedelic drugs include a range of substances with different pharmacological profiles that have strong effects on conscious experience.<sup>2</sup> They can be used as treatments for physical pain, as adjuncts to psychotherapy or counselling for mental illness, and in some cases as antidepressant medications.<sup>3</sup> The psychedelic medicine and therapy sector includes companies in clinical treatment, drug development, and supply. It is supported by an ecosystem of Contract Research Organizations (CROs), insurance brokers, laboratories, law firms, academic institutions, advocacy groups, and regulators. It is a relatively new but rapidly maturing sector that is based on decades of scientific research and clinical evidence.

## The Canadian Psychedelic Medicine and Therapy Sector

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- **There are at least 85 Canadian psychedelic medicine and therapy organizations,** including 39 public companies, 38 private companies, and 9 not-for profit organizations (NFPs).<sup>4</sup>

- ***Employment Impact:* We estimate that the Canadian psychedelic medicine and therapy companies directly employs approximately 1000 people.**<sup>5</sup> The largest company has over 170 employees. Two other companies have over 60. Most have less than 25, and many less than 10.

Roughly 50% of the organizations are headquartered in British Columbia, 35% in Ontario, and 15% in other provinces. Over 50% of employees reside in Ontario.

- ***Financials & Market Valuations:* These 39 public companies have a total market capitalization of approximately \$1 billion.** They have around \$260M in cash and cash equivalents, \$555M in assets, and \$166M in liabilities.

***Canadian psychedelics companies are mostly small & medium sized enterprises having an outsized impact on healthcare innovation.***

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<sup>1</sup> It is based on publicly available data drawn from some 150 companies in Canada and abroad. Not all companies in the sector are included, and data may be skewed by information public companies are legally bound to release, where private companies may be under no such obligation. We have included cautionary notes where applicable for further context.

<sup>2</sup> Psychedelic medicine: a re-emerging therapeutic paradigm. Tupper, Wood, Yensen, and Johnson. CMAJ. 2015 Oct 6; 187(14): 1054–1059. [Link](#).

<sup>3</sup> Ibid.

<sup>4</sup> This report is up to date as of September 25, 2022.

<sup>5</sup> According to self-reported employment relationships in LinkedIn.

## Comparison of Canadian vs. International Public Companies

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- *Company size:* **The average and median company size of Canadian public companies in the sector is 15 and 8 employees respectively, compared to company sizes of 40 and 24 internationally.**
- *Financials:* **While there are many more Canadian companies, their 18 international peers tend to have stronger balance sheets:** more cash at hand—an average of \$63.4M vs. \$6.8M; higher asset value—an average of \$95.9M vs. \$14.4; better financial liquidity— an average current ratio of 16.7 compared to 7.6; and lower financial leverage (liabilities/assets)—0.25 vs. 0.55. 10 Canadian public companies (26%) have fewer current assets than liabilities and therefore face financial risk in the short term, compared to only 2 international public companies in the same situation (11% of international companies).
- *Market Valuations:* **Canadian companies have relatively smaller market valuations compared to international companies.** The average and median market capitalizations of Canadian companies are \$25.7M and \$12.3M, respectively, compared to \$235.9M and \$42.1M for international companies.

### Segmentation of the Psychedelic Sector

- The psychedelic sector is comprised of numerous complementary segments. This report identifies three key groups:
  1. **Drug Development**, including drug discovery as well as preclinical and clinical trials;
  2. **Clinical Treatments and Products**;
  3. **Supporting Ecosystem**: including developers of supporting technologies, substance and lab services providers, advocacy and public education organizations, integration and harm reduction services, and general service providers.

### Potential Savings to the Healthcare System from Psychedelic-Assisted Therapies

- One study based on the results of a phase 3 clinical trial of MDMA assisted therapy (MDMA-AT) for posttraumatic stress disorder (PTSD) found that for a normalized cohort of **1,000** patients, MDMA-AT **saves U\$46.6 million** based on the clinical improvements among trial participants compared with the current standard of care over a 10-year time horizon.
- Extrapolating the study results above, we estimate a hypothetical aggregate annual **cost savings of \$3.8 billion** based on the annual prevalence of PTSD among Canadians (1.7%) and the number of Canadians counted in the 2021 census.

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# 1. Introduction

The purpose of this report is to provide a high level overview of the Canadian psychedelic medicine and therapy sector. The sector is fairly new (public companies in the space have only existed for 2 years) and data is limited. This report attempts to address this knowledge gap by providing and analyzing the locations, sizes and key financial measures and economic impacts of Canadian companies.

**Methodology Notes:** There is significant uncertainty in many aspects related to this research, which warrants a careful reading of the data.

- While over 45 private companies, clinics and Not-for Profits (NFPs), were identified in the research, we assume there are many more organizations, (at least 50-100). The space is quickly evolving and new organizations are constantly entering. However, we believe we have identified over 90% of Canadian public companies (i.e. companies headquartered in Canada) in this report.
- The financial analyses of public companies presented in this report are based on Companies' self-reported financial statements.
- Market capitalization figures are volatile and subject to significant change over short periods.
- Employment information is derived from a LinkedIn based analysis. Though this may lack precision, this is the only public and reliable source to draw from in classifying companies according to number of employees.
- Companies were segmented according to data from their websites, press releases and SEC/SEDAR filings. The segments in which companies operate are also frequently subject to change.

*Monetary figures:* Unless stated otherwise, all dollar amounts in this report are denominated in Canadian dollars (CAD). For companies whose market cap or financial statements are denominated in USD or Australian dollars (AUD), the amounts were converted in rates of 1.3 CAD/USD and 0.9 CAD/AUD.

The rest of the report is as follows: Section 2 focuses on Canada companies; Section 3 on a comparison with international peers; Section 4 on industry segmentation and clinical trials in Canada; and section 5 on the potential benefits of MDMA-Assisted Therapy (MDMA-AT) for posttraumatic stress disorder (PTSD).

## 2. The Canadian Psychedelic Medicine & Therapy Sector

This section focuses on the Canadian psychedelic medicine and therapy sector. An analysis is provided of the types of organizations operating in the industry. The focus then turns to public companies, with an emphasis on key financial metrics.

### 2.1. Sector Overview

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We've identified 85 organizations, including 39 public companies and a similar number of private companies (including private clinics), as well as ~10 Not-For Profits (NFPs). In total, nearly 900 employees are working in these organizations, with an average of ~10 employees per organization, as illustrated in Table 2.1 below.

*Table 2.1: Organizations by Type*

Organizations by Type	Public	Private	NFP	Total
Number of companies	39	38	9	<b>86</b>
Number of employees	590	229	61	<b>880</b>
Average # of employees per company	15.1	6.0	6.8	<b>10.2</b>

**Organization Size:** Table 2.2 below shows the distribution of the sector in terms of company size. Field Trip Health (170+ employees), Cybin, and Numinus Wellness (both with 60+ employees) are the three large companies in Canada. No other company is larger than 25 employees as of Sep. 7, 2022. Those whose sizes are unknown are assumed to have less than 10 employees.

*Table 2.2: Distribution by Number of Employees*

Employees in the Company	50+	10-25	<10	Unknown	Total
Number of companies	3	29	43	11	<b>86</b>

**Geographic Distribution:** 50% of the organizations are headquartered in British Columbia and only 35% are from Ontario, but as Table 2.3 reveals, more employees work in companies whose headquarters are in Ontario (51% vs. 41% in British Colombia).

*Table 2.3: Geographic Distribution*

<b>Geographic Location</b>	<b># of Companies</b>		<b># of employees</b>	
British Columbia	43	50%	361	41%
Ontario	30	35%	449	51%
Other	13	15%	72	8%
<b>Total</b>	<b>86</b>	<b>100%</b>	<b>882</b>	<b>100%</b>

\* "Other" includes Quebec, Saskatchewan, Alberta, NS

## 2.2. Canadian Psychedelic Public Companies

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**Company Size:** As seen in Table 2.4 below, except 3 companies, all other public companies in the sector have less than 20 employees, with over 50% of them having fewer than 10 employees.

*Table 2.4: Distribution by Number of Employees (Public Companies)*

<b>Number of Employees in the Company</b>	<b>50+</b>	<b>10-20</b>	<b>&lt;10</b>	<b>Total</b>
Number of companies	3	14	22	<b>39</b>
Share of total	7.7%	35.9%	56.4%	<b>100%</b>

**Geographic distribution:** The geographic distribution of public companies shows similar patterns to what was seen within all organization types (Table 2.3). While there are more companies headquartered in BC, more employees are working in the Ontario headquartered companies. This is because the latter group (Ontario companies) have more employees on average, as shown in Table 2.5 below.

Table 2.5: Geographic Distribution (Public Companies)

Geographic Location	# of Companies		# of Employees		Emp. Per Company
British Columbia	23	59%	245	42%	10.7
Ontario	16	41%	345	58%	21.6
<b>Total</b>	<b>39</b>	<b>100%</b>	<b>590</b>	<b>100%</b>	

### 2.2.1. Key Balance-Sheet Items

This subsection highlights the financial positions of public companies in the psychedelic sector. The analyses in this section are based on the most recent financial reports (from March 31, 2022 – June 30, 2022) of 38 public companies<sup>6</sup> headquartered in Canada.

**Cash Analysis:** The aggregate amount of cash and cash equivalents of the 38 public companies is nearly \$260M, with average and median company having \$6.8M and \$1.1M within a range of \$20K- \$42M for all companies. Table 2.6 below segments these companies based on their cash positions, with \$1M and \$10M thresholds. It shows that the cash isn't split equally. Out of the \$260M, over 80% (\$210M) are kept by 7 companies with cash >\$10M, while other 14 companies split 17% of the cash (\$42M) and the last 17 companies hold only \$6M of the aggregate cash (\$0.4M per company on average).

Table 2.6: Segmentation by Cash & Cash Equivalents

Cash & Cash Equivalents	Over \$10M	Between \$1M and \$10M	Less than \$1M	Total
# of companies	7	14	17	<b>38</b>
Average cash (\$M)	30.0	3.1	0.4	<b>33.5</b>
Aggregate cash (\$M)	210.2	42.8	6.2	<b>259.2</b>
Aggregate cash – share in total	81%	17%	2%	<b>100%</b>

Table 2.7 below shows balance sheet statistics on companies' current assets and liabilities, working capital and current ratio. **Current ratio** and **working capital** are two

<sup>6</sup> While 39 public companies are included in this research, the financial statements of only 38 companies are included in the balance sheet analysis, since the last financial statements of Field Trip Health were published before the company split to two companies.



indicators of financial strength in the short term, as they represent a company's ability to pay its current liabilities using its current assets.

- **Current ratio** is a relative amount that is equal to current assets **divided by** current liabilities.
- **Working Capital** is a monetary amount that is equal to current assets **minus** current liabilities.

If the current ratio is below 1, or the working capital is negative, it implies that a company may have difficulty in the short term paying its debts.

These different methods of analysis yield different perspectives—current ratios enable comparison across different sized companies, and working capital offers insights about the aggregate liquidity of the sector as a whole.

*Table 2.7: Current Assets & Liabilities, Working Capital and Current Ratio*

Financials	Current Assets (\$M)	Current Liabilities (\$M)	Working Capital (\$M)	Current Ratio
Aggregate	312.6	91.7	221.0	
Average	8.2	2.4	5.8	7.6
Median	2.6	1.3	1.3	2.4
Minimum	0.3	0.1	-5.5	0.1
Maximum	49.4	11.1	48.4	64.9

The table above also shows that the average and median values of the current ratio are well above 1, indicating the resilience of the average company. However, as can be seen in Table 2.8 below, there are 10 companies whose financials show current liabilities exceeding current assets (i.e. current ratio below 1), and therefore may be under financial stress in the short term.

*Table 2.8: Segmentation of Canadian Companies by Current Ratio*

Current Ratio	<1	Between 1-3	>3
# of companies with current ratio:	10	12	16

**Total Assets & Liabilities, Shareholders Equity and Financial Leverage:** The aggregate value of assets held by the 38 public psychedelic companies is \$555M, with liabilities of \$167M, which results in an aggregate owners' equity of nearly \$390M as seen in Table 2.9 below.

*Table 2.9: Assets, Liabilities, Shareholders' Equity and Financial Leverage*

Financials	Assets (\$M)	Liabilities (\$M)	Shareholders Equity (C\$M)	Liabilities / Assets
Aggregate	555.3	166.7	388.6	
Average	14.6	4.4	10.2	1.02*
Median	6.9	2.2	4.2	0.2
Minimum	0.4	0.1	-6.2	0.025
Maximum	88.1	34.7	68.2	18.3

\* The average financial leverage is 1.02 due to an outlier (18.3 at BetterLife Pharma). Without this outlier, the average financial leverage would be 0.55 —meaning assets are funded by 45% shareholders' equity and 55% debt.

**Segmentation Based on Financial Leverage:** As can be seen in Table 2.10 below, the segmentation of the sector based on financial leverage is as follows:

- 7 companies are in great shape, with financial leverage lower than 0.1. The assets of these companies are almost exclusively funded by equity.
- 21 companies are with financial leverage of 0.1-0.5, which is relatively low and still a healthy financial position.
- 3 companies have relatively high financial leverage of 0.5-1. High financial leverage may result in high financing costs and increased financial risk for the company.
- 7 companies have financial leverage above 1, which means negative shareholders' equity and is not healthy.

*Table 2.10: Segmentation by Financial Leverage*

Financial Leverage	0.1<	0.1-0.5	0.5-1	>1
# of companies	7	21	3	7

## 2.2.2. Listing and Market Capitalization

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**Listing on Canadian Exchanges:** As seen in Table 2.11 below, the vast majority of Canadian public companies are listed on the Canadian Securities Exchange (CSE) and the rest are listed on the Neo Exchange, Toronto Stock Exchange (TSX), and the TSX Venture (TSXV) exchange.

*Table 2.11: Listing of Public Companies on Canadian Exchanges*

Exchange	TSX	TSXV	Neo Exchange	CSE	Foreign Exchanges	Total
# of companies	2	2	5	29	1	<b>39</b>

There are a further ~10 foreign companies listed on Canadian stock exchanges not included above.

**Markets Capitalization of Canadian Companies:** The aggregate market capitalization of the 39 Canadian-headquartered psychedelic companies is approximately \$1 billion. For each company, the market capitalization ranges \$200K to \$214M (as of August 28, 2022). The average market capitalization is nearly \$26M and the median is just over \$12M, as seen in Table 2.12 below.

*Table 2.12: Market Capitalization Highlights – Canadian Public Companies*

Aggregate (\$M)	Average (\$M)	Median (\$M)	Range (\$M)
1,000	25.7	12.3	0.2-214

**Market capitalizations are roughly distributed as follows:**

- **7** companies with market cap > **\$50M**
- **15** companies with market cap **between \$10M-\$50M**
- **17** companies with market cap < **\$10M**.

Detailed market capitalization figures for each company can be found in [Appendix B](#).

# 3. International Psychedelic Medicine and Therapy Companies

Our research identified 18 public companies headquartered in either the United States, United Kingdom, Australia, or Germany. A few dozen private companies, NFPs and Private Business Corporations (PBC) were identified in the previously noted countries in addition to the Netherlands (mainly psilocybin retreats) Mexico, Denmark, Jamaica, Costa Rica and Brazil.

The focus of our comparisons in this section will remain on publicly traded companies for which data is readily available, despite many additional privately-held companies being identified internationally.

## 3.1. Focus on International Public Companies

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18 companies were included in the analysis: 8 from the U.S, 5 from the UK, 3 from Australia, and 1 from Germany. Key financial highlights are contained in Table 3.1 below.

*Table 3.1: Financial Highlights – International Public Companies*

Financials	Cash (\$M)	Current Ratio	Total Assets (\$M)	Shareholders Equity (\$M)	Liabilities / Assets
Aggregate	1,141.4	-	1,727.1	1,548.8	-
Average	63.4	16.8	95.9	86.0	0.25
Median	26.8	11.0	47.0	31.7	0.12
Minimum	0.1	0.1	1.2	0.04	0.01
Maximum	344.9	86.0	453.6	416.2	0.98

**Market Capitalization - International Companies:** The aggregate market capitalization of these 18 psychedelic international companies (headquartered outside Canada) is nearly \$4.25B (CAD), as of August 28, 2022. The average and median market capitalizations of companies in this group are \$236M and \$42M respectively, as seen in table 3.2 below.

*Table 3.2: Market Capitalization Highlights – International Companies*

<b>Aggregate (\$M)</b>	<b>Average (\$M)</b>	<b>Median (\$M)</b>	<b>Range (\$M)</b>
4,245.8	235.9	42.1	3.2-1,011

**Further distribution by market capitalization follows:**

- 3 companies have market capitalizations around \$1B: GH Research, Atai Life Sciences, and Compass Pathways.
- There are 5 companies have market capitalizations ranging from \$50M-\$500M. Mind Medicine (Mindmed) leads this group with a market capitalization of \$461M, with the others ranging from \$63M-\$288M.
- 10 companies have market capitalizations of <\$50M, ranging between \$3M and \$41M.

### 3.2. Comparison of Canadian vs. International Public Psychedelic Companies

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This subsection provides a high-level comparison of Canadian public companies with their international peers in terms of a) company size; b) key financials (balance sheet items), and; c) market capitalization statistics.

#### 3.2.1. Comparison by Company Size

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Public international companies are larger than their Canadian counterparts, as seen in Table 3.3 below, which compares the average and median company size.

*Table 3.3: Comparison of Company Size by Number of Employees*

	<b>Average</b>	<b>Median</b>
Canadian (n=38)	15.1	8.0
International (n=18)	40.4	24.0

### 3.2.2. Comparison of Key Balance Sheet Items

While there are many more Canadian companies, the international public companies have significantly stronger balance sheets, with more cash at hand, larger asset values, better financial liquidity, and lower financial leverage.

**Cash & Cash Equivalents:** As can be seen in Table 3.4 below, international companies have significantly higher cash balances compared to their Canadian counterparts.

*Table 3.4: Comparison of Cash & Cash Equivalents*

	<b>Total (\$M)</b>	<b>Average (\$M)</b>	<b>Median (\$M)</b>	<b>Range (\$M)</b>
38 Canadian Companies	259M	6.8	1.1	0.02-42
18 International companies	1,141M	63.4	26.8	0.1-245

**Current Ratio:** International companies have much higher currents ratios (both median and average), and as can be seen in Table 3.5 below, there are many more Canadian companies (in both absolute and relative terms) that are facing short-term financial risk, as implied by current ratios below 1.

*Table 3.5: Comparison of Current Ratio*

<b>Current Ratio</b>	<b>Average (\$M)</b>	<b>Median (\$M)</b>	<b>Range (\$M)</b>	<b>Current Ratio &lt; 1</b>
38 Canadian Companies	7.6	2.4	0.1-64.9	10 companies (26%)
18 International companies	16.8	11.0	0.1-86	2 companies (11%)

**Financial Leverage:** Table 3.6 below shows that international companies have lower (better) financial leverage across all measures. 7 companies have financial leverage higher than 1, with more liabilities than assets—not a healthy state.

*Table 3.6: Comparison of Financial Leverage*

<b>Financial Leverage (Liabilities / Assets)</b>	<b>Average (\$M)</b>	<b>Median (\$M)</b>	<b>Range (\$M)</b>	<b>Financial Leverage &gt;1</b>
38 Canadian Companies	0.55*	0.23	0.025-18.3	7 companies (18%)
18 International companies	0.25	0.12	0.01-0.98	None

\* The average is computed excluding an outlier observation of 18.3.

### 3.2.3. Comparison of Market Capitalization

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Table 3.7 below shows the market capitalization data of Canadian and international companies. As we see in the comparison of financial positions in subsection 3.2.2, international companies have much larger market valuations/

*Table 3.7: Comparison of Market Capitalizations*

<b>Market Capitalization</b>	<b>Total (\$M)</b>	<b>Average (\$M)</b>	<b>Median (\$M)</b>	<b>Range (\$M)</b>
39 Canadian Companies	1,000.8	25.7	12.3	0.2-214
18 International companies	4,245.8	235.9	42.1	3.2-1,011

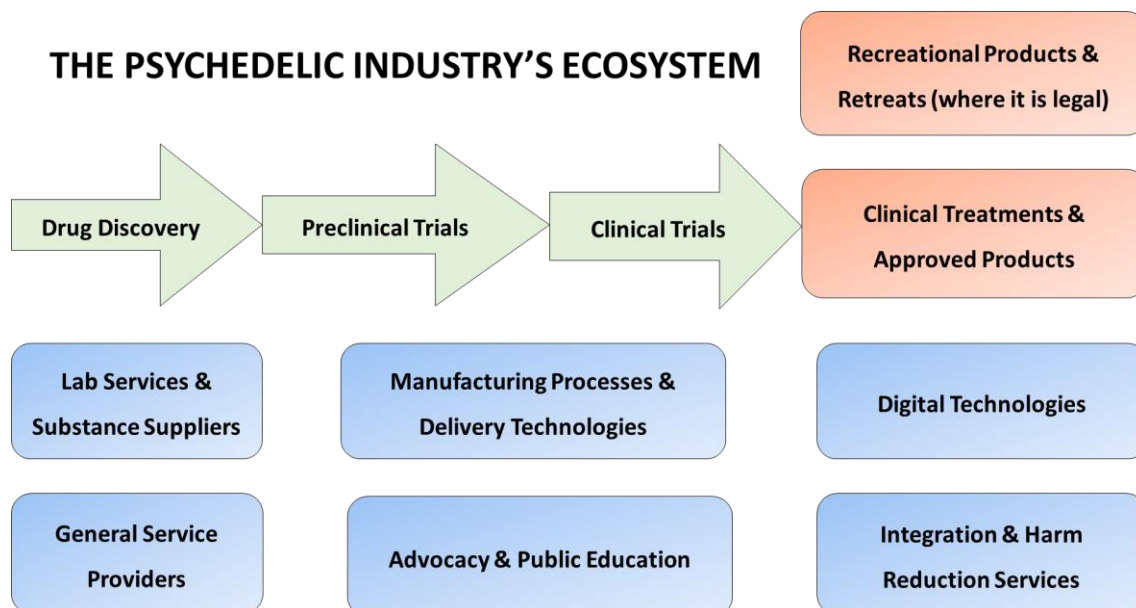
## 4. Segmentation of the Psychedelic Medicine & Therapy Sector

This section provides a brief qualitative overview of the various segments of the psychedelic sector. It provides some additional details regarding clinical trials with psychedelic drugs that are being conducted in Canada.

### 4.1. Segments of the Psychedelic Medicine & Therapy Sector

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The psychedelic medicine and therapy sector has several main pillars and a diverse supporting ecosystem with various subsegments, as seen in Figure 4.1. below.



*Figure 4.1: The Various Segments Within the Psychedelic Space & Supporting Ecosystem*

The figure above groups the various segments into three key areas: 1) the drug development sequence (green); 2) clinics, retreats and products (orange); and 3) the supporting ecosystem (blue).



## 1) The drug development sequence

- *Drug Discovery*: Drug discovery is the first stage in the drug development sequence. This stage includes various processes: identification of a target (indication/disease), a process of screening potential drug candidates, finding a lead candidate, and optimizing the selected lead.
- *Preclinical trials*: Preclinical trials include various studies in animals, such as safety and efficacy studies or studies to identify ideal drug delivery mechanisms, proof of concept, dose range finding, and studies in preparation for a clinical trial application (CTA).
- *Clinical trials*: Clinical trials are studies conducted on humans (as opposed to preclinical trials). This part includes 4 phases.
  - **Phase I** includes studies in small group of healthy volunteers, mostly for various safety purposes.
  - **Phase II** studies are conducted on a relatively small group belonging to the patient population.
  - **Phase III** studies are conducted with a much larger group belonging to the patient population, which enables to investigate. More broadly and with greater diversity. Following successful results of this phase, companies will apply to approve the drug.
  - **Phase IV** consists of post-approval studies of the drug.

We identified several dozen Canadian companies, both private and public, involved in drug discovery and preclinical trials related to psychedelic substances, and >10 Canadian companies involved in various phase I, II and III clinical trials. A few leading Canadian companies involved in clinical trials, either in Canada or abroad, are Cybin, Braxia Scientific, Numinus Wellness, Filament Health and Reunion Neuroscience (Formally Field Trip Health).

## 2) Clinical Treatments & Products (Medical / Recreational)

- *Medical Treatments and Products*: This segment includes clinical treatments and products that are legal for medical purposes. Currently, clinics are providing mostly Ketamine assisted therapy but are also tapping into treatments with other psychedelic substances (mostly MDMA and Psilocybin) via the Special Access Program (SAP) and Section 56 exemptions. Key Canadian companies operate in this space are Numinus Wellness and Field Trip Health.
- *Recreational Space*: - *Retreats and Product Sales*: Companies that operate in this space provide treatments in a recreational capacity (e.g. retreats and ceremonies) or selling products with controlled substances, in countries where it's legal to do so. An example for a company that operates in this segment is Red Light Holland, a Canadian headquartered company that sells products in the Netherlands where some psilocybin related products ("magic truffles") are legal.

### 3) Supporting Ecosystem

- *Lab Services & Substance Suppliers:* This segment includes companies that either have Health Canada Dealer's License to manufacture and/or sell controlled substances, or companies that provide various lab and other services to support the clinical research. There are **>10** Canadian companies in this area, including companies such as Optimi Health, Psygen, HavnLife, Numinus Wellness and Pharmala Biotech.
- *Development of Manufacturing Processes and Delivery Mechanisms:* Companies in this group focus on the development of various extraction and synthesis processes, as well as the development of various drug delivery mechanisms for commercial use. Some examples for Canadian companies operating in this segment are PharmaTher Holdings, Revive therapeutics, Core One Labs, Mindset Pharma and HavnLife Sciences.
- *Digital Technologies:* This segment includes companies that develop a variety of digital technologies, from imaging technologies, to various telemedicine platforms and analytics applications. Entheon Biomedical and Wellbeing Digital Sciences are two examples for Canadian companies operating in this segment.
- *Advocacy, Training & Public Education:* This segment is composed of both for-profit or not-for-profit organizations that focus on advocacy on behalf of the sector and public education by organizations such as MAPS Canada and Psychedelics Canada. In addition, it includes services of training and education to future practitioners in the psychedelic space (by companies such as Atma Journey for example).
- *Integration & Harm Reduction Services:* This segment is comprised of many small organizations that support the healing process and provide harm reduction services based on psychedelic experiences but without the direct involvement of or access to controlled substances.
- *General Service Providers:* Companies that provide a variety of functional services to organizations operating in the sector, such as accounting services, legal counsel, public relations, financial services, public & government relations, etc. These companies do not necessarily operate exclusively in the psychedelic medicine and therapy sector.

#### 4.2. Highlights of Clinical Trials in Canada

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While many Canadian companies are currently pursuing trials with regulators outside of Canada (e.g. FDA, EMA, etc.), some are progressing clinical trials in Canada. This subsection highlights some of the leading domestic clinical trials of psychedelics.

**Braxia Scientific** is conducting the largest clinical trial in Canada (159 individuals)—a Phase II, randomized clinical trial to evaluate the feasibility, safety, tolerability, and efficacy of multi-dose psilocybin-assisted therapy for Treatment-Resistant-Depression (TRD)<sup>7</sup>.

**Clairvoyant Therapeutics** has initiated the 1<sup>st</sup> of 15 planned sites for the company's Phase 2 clinical trial investigating psilocybin in the treatment of alcohol use disorder (AUD, formerly called alcoholism)<sup>8</sup>.

**Diamond Therapeutics** is moving towards completion of its Phase 1 clinical trial of low doses of psilocybin in 56 individuals. This randomized, double-blind trial is the first systematic, placebo-controlled, single ascending dose study to investigate very low doses of psilocybin in humans. The study assesses psilocybin's safety and tolerability, with the aim of identifying an active, non-psychedelic dosage<sup>9</sup>.

**Filament Health and ATMA Journey** are collaborating on a clinical trial in 14 healthy subjects with Filament's natural psilocybin drug candidate, as a part of a Health Canada-approved clinical trial and ATMA's psychedelic-assisted therapist training program<sup>10</sup>. In addition, Filament entered into a co-development and exclusive licensing agreement with EntheoTech to provide its drug candidate for two of EntheoTech's upcoming clinical trials.<sup>11</sup> It also partnered with the Canadian Centre for Psychedelic Science and the University of Toronto to provide its candidate for the centre's Phase II clinical trial.<sup>12</sup>

Lastly, it is worth noting that Health Canada has cleared a single-arm, open-label safety and feasibility study evaluating MDMA-assisted therapy (MDMA-AT) for post-traumatic stress disorder (PTSD). MDMA-AT for PTSD is currently the most advanced clinical trial out of all psychedelics related studies and is expected to be approved in United States and Canada in the next 1-2 years. The last section of the report thus provides an illustration for the potential benefits and cost-savings that can be introduced into the health care system if such treatments become available to Canadians suffering from PTSD.

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<sup>7</sup>[Link for more information.](#)

<sup>8</sup>[Link for more information.](#)

<sup>9</sup>[Link for more information.](#)

<sup>10</sup>[Link for more information.](#)

<sup>11</sup>[Link for more information.](#)

<sup>12</sup>[Link for more information.](#)

## 5. Healthcare System Savings: PTSD and MDMA

While psychedelic substances show tremendous potential to treat various mental and physical health conditions, there is only limited economic analysis attempting to quantify the health benefit of psychedelic-assisted therapy in monetary terms (e.g. cost savings to the healthcare system and increases in productivity).

One attempt that was done is a cost effectiveness analysis study which monetized the potential health benefits of PTSD patients that participated in the MAPS PBC's MDMA Assisted Therapy (MDMA-AT) Phase 3 of clinical trials.<sup>13</sup> The study found that based on the clinical improvements among trial participants, for a normalized cohort of **1,000** patients, *“Using a **10-year** horizon, MDMA-AT generates 2,163 QALYs, averts 27.5 deaths, and saves **US\$46.6 million** compared with standard of care.”*

Based on these results, we can offer some sense of MDMA-AT's potential impact on the health care system if it substituted the current standard of care for Canadian PTSD patients. The following exercise is a simple theoretical illustration.

**To provide a quantitative illustration to the potential cost saving of MDMA-AT, the following steps were taken, as per table 5.1 below.**

1. A Phase III MDMA-AT study found that for a normalized 1000-patient population, cost savings would be US\$46.557M over a 10-year horizon (a potential cost savings of US\$46,557 per average patient).
2. We've taken the figure of US\$46.557 and converting it to Canadian dollars at a rate of \$1.3 CAD/USD provides \$60,524 in health case cost saving compared to standard care.
3. Assuming 1.7% PTSD annual prevalence rate among the Canadian population (37M in the 2021 Census), provides an annual prevalence estimate of 630,000 Canadians.
4. Based on \$60,524 in potential cost savings per patient for nearly 630,000 patients – the potential cost saving of the Canadian healthcare system for a 10-year horizon would be ~38 billion discounted dollars.

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<sup>13</sup>Marseille et al., Updated cost-effectiveness of MDMA-assisted therapy for the treatment of posttraumatic stress disorder in the United States: Findings from a phase 3, 2022 (retrieved from: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0263252>).

*Table 5.1: Calculation of Aggregate Benefits from MDMA-AT for PTSD*

Item	Value	Sources / Notes
A) 2021 Population	36,991,981	Statistics Canada
B) Annual Prevalence Rate Estimates	1.70%	<a href="https://www.journalcswb.ca/index.php/cswb/article/view/6/12">https://www.journalcswb.ca/index.php/cswb/article/view/6/12</a>
C) Annual Prevalence Estimates	628,864	Calculation - A*B
D) Benefit of MDMA-AT for 1,000 patients	\$46,557,834	<a href="https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0263252">https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0263252</a>
E) Benefit for 1 patient	\$46,557.83	Calculation - D/1000
F) Benefit for 1 patient - CAD)	\$60,525.18	Calculation - E*1.3
Benefit for all Canadian PTSD patients in a 10 year horizon	\$38,062,089,887	Calculation - C*F

The potential cost savings of MDMA-AT to treat PTSD for a 10-year horizon compared to the current standard of care is a theoretical **\$3.8B annually**. While this thought experiment is simplistic, it gives a sense of the potential cost savings that psychedelic assisted therapy could introduce into the Canadian healthcare system.

This analysis addresses only the potential of one psychedelic substance (MDMA) to assist in one condition (PTSD). Many other psychedelic substances are being investigated for therapeutic and medical applications. It is plausible that additional health-economics literature, when becomes available, could yield similar results to the study mentioned above, and reinforce the potential of psychedelics to provide value to the healthcare system.

## **Data Sources**

This report is based on data that was retrieved from the following sources:

- i. Companies' websites and press releases;
- ii. Public companies' financial statements (SEDAR/SEC filings);
- iii. Yahoo Finance;
- iv. LinkedIn;
- v. MarketWatch.com;
- vi. Statistics Canada;
- vii. Wilson et al., On the economics of post-traumatic stress disorder among first responders in Canada, 2016 (retrieved from:  
<https://www.journalcswb.ca/index.php/cswb/article/view/6/12>);
- viii. Marseille et al., Updated cost-effectiveness of MDMA-assisted therapy for the treatment of posttraumatic stress disorder in the United States: Findings from a phase 3, 2022 (retrieved from:  
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0263252>).

# **APPENDICES**

## **Appendix A: Details of Canadian Public Companies**

### **Legend for exchange:**

- “TO” – Toronto Stock Exchange (TSX)
- “V” – TSX Venture Exchange (TSXV)
- “NE” – Neo Exchange
- “CN” – Canadian Securities Exchange (CSE)
- A ticker without a “.” Means it's an American Exchange (Mostly applies for international companies)

#	Company (TICKER.EXCHANGE)	# of Emp.	HQ / Key Location	Listing
1	Field Trip Health & Wellness Ltd. (FTHW.V)	171	Toronto, ON	TSXV
2	Numinus Wellness Inc. (NUMI.TO)	67	Vancouver, BC	TSX
3	Cybin Inc. (CYBN.NE)	62	Toronto, ON	Neo Exchange
4	Psyence Group Inc. (PSYG.CN)	17	Toronto, ON	CSE
5	Optimi Health Corp. (OPTI.CN)	16	Vancouver, BC	CSE
6	Filament Health Corp. (FH.NE)	15	Vancouver, BC	Neo Exchange
7	Mydecine Innovations Group Inc. (MYCO.NE)	14	Vancouver, BC	Neo Exchange
8	Empower Clinics Inc. (CBDT.CN)	13	Vancouver, BC	CSE
9	Biomind Labs Inc. (BMND.NE)	11	Toronto, ON	Neo Exchange
10	Universal Ibogaine Inc. (IBO.V)	11	Vancouver, BC	TSXV
11	FSD Pharma Inc. (HUGE.CN)	10	Cobourg, ON	CSE
12	HAVN Life Sciences Inc. (HAVN.CN)	10	Richmond, BC	CSE
13	Levitee Labs Inc. (LVT.CN)	10	Vancouver, BC	CSE
14	Psyched Wellness Ltd. (PSYC.CN)	10	Toronto, ON	CSE
15	Pure Extracts Technologies Corp. (PULL.CN)	10	Pemberton, BC	CSE
16	Silo Wellness Inc. (SILO.CN)	10	Toronto, ON	CSE
17	BetterLife Pharma Inc. (BETR.CN)	10	Vancouver, BC	CSE
18	Braxia Scientific Corp. (BRAX.CN)	9	Toronto, ON	CSE
19	Clearmind Medicine Inc. (CMND.CN)	8	Vancouver, BC	CSE



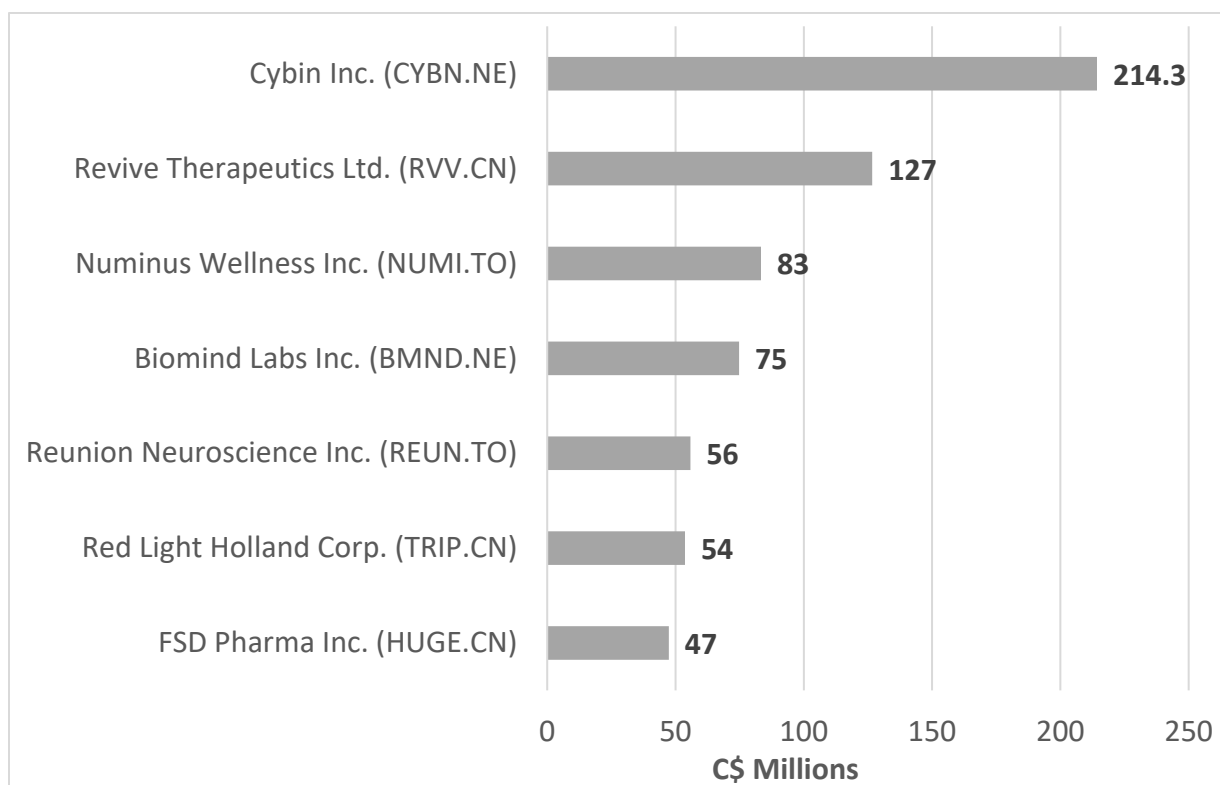
20	Pharmala Biotech Holdings Inc. (MDMA.CN)	8	Toronto, ON	CSE
21	Tryp Therapeutics Inc. (TRYP.CN)	8	Kelowna, BC	CSE
22	Reunion Neuroscience Inc. (REUN.TO)	8	Toronto, ON	TSX
23	Delic Holdings Corp. (DELCF)	8	Vancouver, BC	
24	MYND Lifesciences Inc. (MYND.CN)	7	Kelowna, BC	CSE
25	Entheon Biomedical Corp. (ENBI.CN)	6	Vancouver, BC	CSE
26	Mindset Pharma Inc. (MSET.CN)	6	Toronto, ON	CSE
27	NeonMind Biosciences Inc. (NEON.CN)	6	Vancouver, BC	CSE
28	Revive Therapeutics Ltd. (RVV.CN)	6	Toronto, ON	CSE
29	TripSitter Clinic Ltd. (KETA.CN)	6	Toronto, ON	CSE
30	Algernon Pharmaceuticals Inc. (AGN.CN)	5	Vancouver, BC	CSE
31	Pharmadrug Inc. (PHRX.CN)	5	Toronto, ON	CSE
32	Better Plant Sciences Inc. (PLNT.CN)	5	Vancouver, BC	CSE
33	Lobe Sciences Ltd. (LOBEF)	4	Vancouver, BC	CSE
34	Wellbeing Digital Sciences Inc. (MEDI.NE)	4	Vancouver, BC	Neo Exchange
35	Core One Labs Inc. (COOL.CN)	3	Vancouver, BC	CSE
36	Origin Therapeutics Holdings Inc. (ORIG.CN)	3	Vancouver, BC	CSE
37	PharmaTher Holdings Ltd. (PHRM.CN)	3	Toronto, ON	CSE
38	Red Light Holland Corp. (TRIP.CN)	3	Toronto, ON	CSE
39	Nova Mentis Life Science Corp. (NOVA.CN)	2	Vancouver, BC	CSE

## **Appendix B: Market Capitalization of Canadian Public Companies**

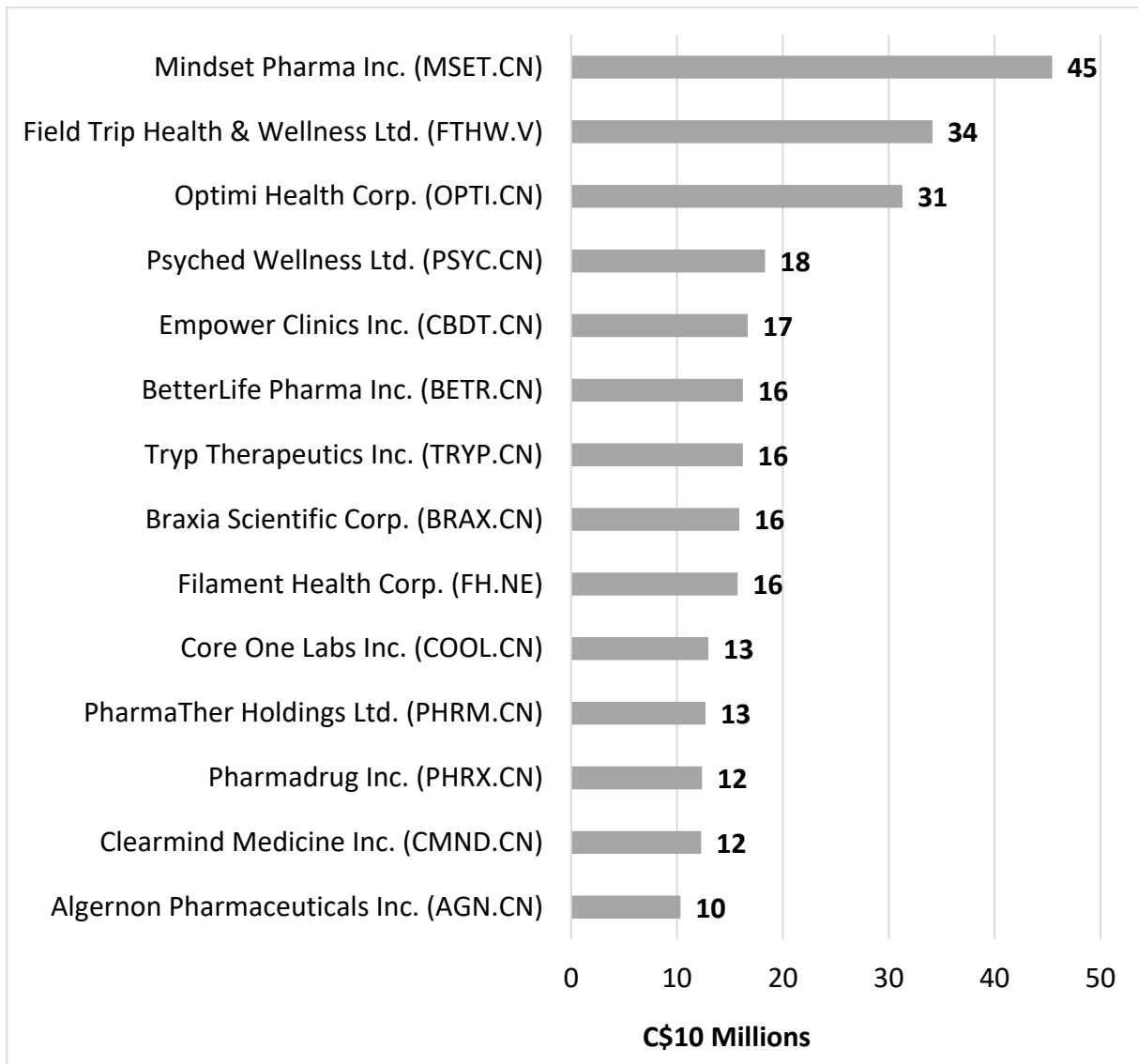
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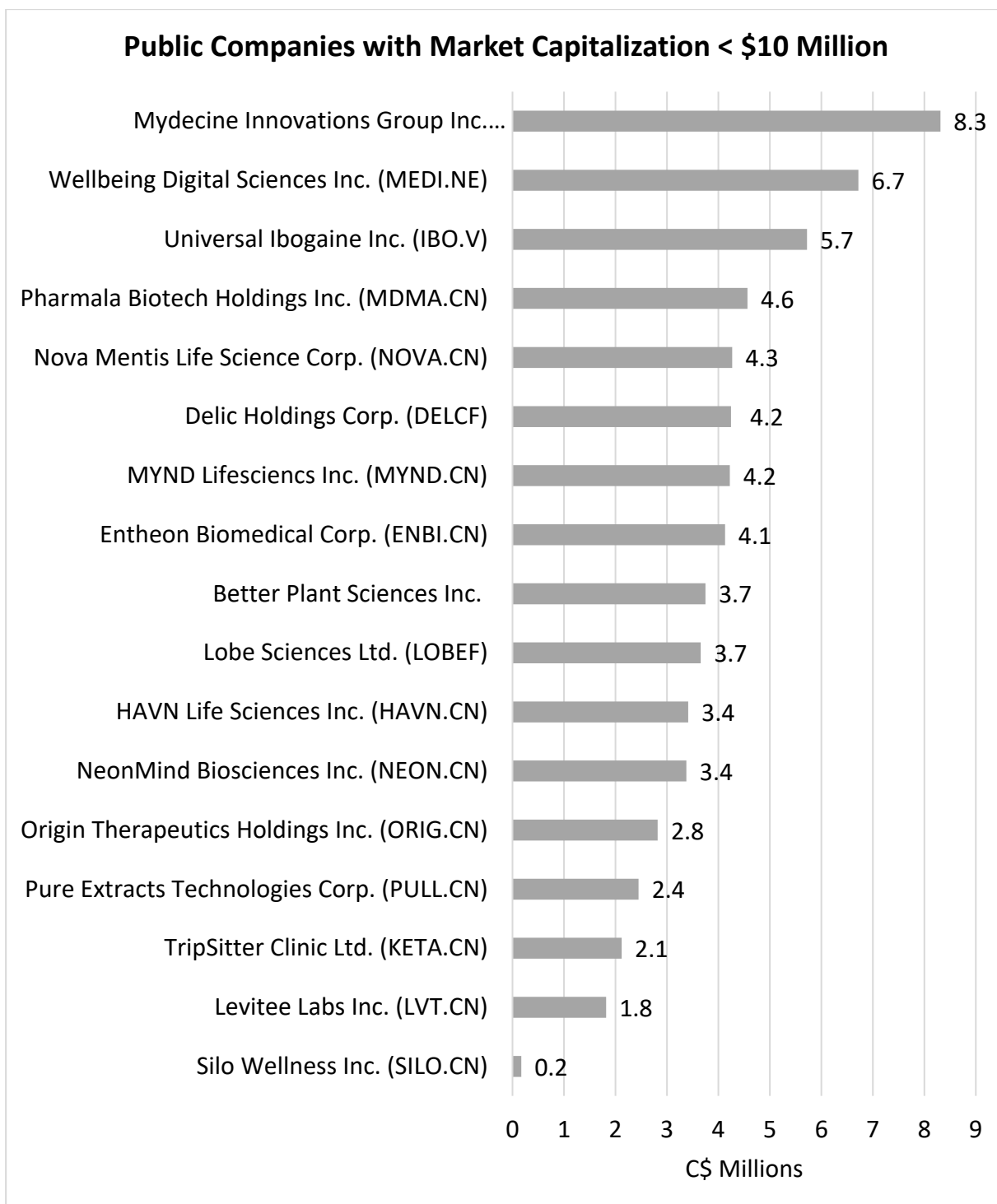
### **1) Canadian Companies with Market Capitalization larger than \$50 Million**



**2) Canadian Companies with Market Capitalization larger than \$10M but small than \$50M**



### 3) Canadian Companies with Market Capitalization smaller than \$10M



## **Appendix C: Details & Market Capitalization of International Public Companies**

### **1) International Companies' Details**

#	Company	# of Emp. (LinkedIn)	HQ / Key Location	Country
1	Albert Labs International Corp. (ABRT.CN)	11	London, UK	The UK
2	Atai Life Sciences N.V. (ATAI)	143	Berlin	Germany
3	Awakn Life Sciences Corp. (AWKN.NE)	26	London	The UK
4	Bionomics Limited (BNOX)	24	Eastwood, SA	Australia
5	Bright Minds Biosciences Inc. (DRUG.CN)	15	New York, NY	United States
6	COMPASS Pathways plc (CMPS)	174	London	The UK
7	Creso Pharma Limited (COPHF)	18	Barangaroo, New South Wales	Australia
8	CURE Pharmaceutical Holding Corp. (CURR)	52	Oxnard, CA	United States
9	Enveric Biosciences, Inc. (ENVB)	11	Naples, FL	United States
10	GH Research PLC (GHRF)	28	London	The UK
11	Incannex Healthcare Limited (IXHL)	9	Melbourne, Victoria	Australia
12	Mind Medicine (MindMed) Inc. (MNMD)	80	New York, USA	United States
13	Pasithea Therapeutics Corp. (KTTA)	9	Miami Beach, FL	United States
14	PsyBio Therapeutics Corp. (PSYB.V)	10	Coconut Creek, FL	United States
15	Seelos Therapeutics, Inc. (SEEL)	18	New York	United States
16	Silo Pharma, Inc. (SILO)		Englewood Cliffs, NJ	United States
17	Small Pharma Inc. (DMT.V)	31	London	The UK
18	Wesana Health Holdings Inc. (WESA.CN)	27	Chicago, IL	United States

## 2) Market Capitalizations of International Psychedelic Companies (C\$M)

