

InMed Pharmaceuticals

Development update

Acquiring BayMedica

InMed has announced that it has entered into a definitive agreement to acquire BayMedica, a private US-based company that is focusing on the manufacture and commercialization of rare cannabinoids. This is an all-stock transaction in which InMed will issue 1.78m shares to BayMedica's equity and convertible debt holders. At the current stock price, this values BayMedica at approximately US\$4m. Following the closure of the transaction, the combined company will have expertise in both yeast and bacteria biosynthesis as well as chemical synthesis of cannabinoids. Additionally, it will be a commercial company with cumulative revenues of over US\$2.5m since December 2019 stemming from the sale of cannabichromene (CBC). The acquisition is expected to close in the coming weeks.

Year end	Revenue (US\$m)	PBT* (US\$m)	EPS* (US\$)	DPS (US\$)	P/E (x)	Yield (%)
06/19	0.0	(9.2)	(1.77)	0.00	N/A	N/A
06/20	0.0	(9.0)	(1.73)	0.00	N/A	N/A
06/21e	0.0	(10.2)	(1.55)	0.00	N/A	N/A
06/22e	0.0	(10.9)	(0.90)	0.00	N/A	N/A

Note: *PBT and EPS are normalized, excluding amortization of acquired intangibles, exceptional items and share-based payments.

A leading manufacturer of rare cannabinoids

The combined company will have multiple tools to produce rare cannabinoids at meaningful yields and at attractive costs. BayMedica provides expertise in the use of chemical synthesis and yeast to manufacture cannabinoids while InMed provides expertise in using *E. coli* (bacteria) through its IntegraSyn platform.

A growing commercial product

BayMedica is currently the global leader in large batch (currently 200kg but with the ability to scale up to metric tonnes) supply of CBC, a rare non-intoxicating cannabinoid. It is currently being marketed to consumer health and wellness companies focused on nutraceuticals, cosmetics, functional food/beverages and animal health. Cumulative revenues since the launch in December 2019 are over US\$2.5m.

Additional rare cannabinoids scaling up

Besides CBC, which is already at commercial scale, BayMedica is currently scaling up on tetrahydrocannabivarin (THCV), cannabidiol (CBDV) and cannabidiol (CBN). Each has its own set of benefits and once manufactured at scale will likely have meaningful margins, in our view.

Valuation: US\$242m or US\$20.03 per basic share

We have adjusted our valuation to US\$242m or US\$20.03 per basic share, from US\$236m or US\$29.27 per basic share. The total valuation rose due to higher net cash following a US\$12m (gross) calendar Q221 financing, while the per-share value decreased due to a higher number of shares outstanding.

Pharma & biotech

20 September 2021

Price **US\$2.0**

Market cap **US\$24m**

Net cash (US\$m) at 31 March 2021 + offering 20.5

Shares in issue 12.1m

Free float 82.9%

Code INM

Primary exchange Nasdaq

Secondary exchange N/A

Share price performance



% 1m 3m 12m

Abs (10.0) (31.6) (46.5)

Rel (local) (9.6) (34.9) (59.5)

52-week high/low US\$6.8 US\$2.0

Business description

InMed Pharmaceuticals is a Canada-based biopharmaceutical company focused on manufacturing and developing cannabinoids. Its biosynthesis platform may be able to produce cannabinoids for less cost and with improved purity compared to currently used methods. The company is also developing a proprietary pipeline, including INM-755 for epidermolysis bullosa, a serious, debilitating orphan indication.

Next events

INM-755 Phase II initiation Q3 CY21

Analysts

Maxim Jacobs +1 646 653 7027

Jyoti Prakash +91 981 880 393

healthcare@edisongroup.com

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Becoming a leading rare cannabinoid manufacturer

InMed has announced a [definitive agreement to acquire BayMedica](#), a company it had previously signed a collaboration with in November 2020 and for which it announced a [non-binding letter of intent to acquire in June of this year](#). The combined company will have multiple tools to produce rare cannabinoids at meaningful yields and at attractive margins. BayMedica provides expertise in the use of chemical synthesis and yeast to manufacture cannabinoids while InMed provides expertise in using *E. coli* (bacteria) through its IntegraSyn platform. This acquisition put InMed in an attractive position to take advantage of the biosynthesis market. As mentioned in the recent Edison report on biosynthesis ([‘Biosynthesis – Taking the cannabinoid market to new heights’](#)), the global market for consumer packaged goods (CPG) and pharma cannabinoid biosynthesis products is predicted to reach C\$10bn in 2025 (~US\$8bn) and C\$115bn (~US\$90bn) by 2040 according to Raymond James.

The need to find alternative methods to manufacture cannabinoids, especially rare cannabinoids, is clear. Plant-based extraction of cannabinoids is time consuming (it takes three to 10 months just to cultivate the plant), which also requires a high degree of purification as otherwise the product would likely have unwanted pesticides, molds, fungi or bacteria, residual solvents, and non-target cannabinoids. For example, it was noted during the FDA advisory committee meeting to discuss the potential approval of GW Pharmaceuticals’ Epidiolex (CBD) for pediatric epilepsies that there was as much THC in its pharmaceutical grade compound as some of the lower doses of dronabinol, an FDA-approved THC product. Additionally, only a few cannabinoids, such as THC and CBD, are plentiful enough in the plant to be extracted in an economically viable fashion.

BayMedica has already demonstrated an ability to manufacture rare cannabinoids at scale. BayMedica is currently the global leader in large batch (currently 200kg but with the ability to scale up to metric tonnes) supply of CBC, a rare non-intoxicating cannabinoid. Preclinical studies have shown its ability to inhibit the growth of cancer cells,¹ block pain,² potentially promote brain health,³ combat depression⁴ and inhibit acne.⁵ It is currently being marketed to consumer health and wellness companies focused on nutraceuticals, cosmetics, functional food/beverages and animal health. The company has indicated that cumulative revenue since the December 2019 launch was US\$2.5m. However, we do not have information on the burn rate or cash needs of BayMedica.

Besides CBC, which is already at commercial scale, BayMedica is currently scaling up on THCV, CBDV and CBN with an expectation to launch additional products in the next six to 12 months.

1 Ligresti et al., Antitumor Activity of Plant Cannabinoids with Emphasis on the Effect of Cannabidiol on Human Breast Carcinoma. *Journal of Pharmacology and Experimental Therapeutics*, 2006 318(3), 1375–1387.

2 Maione et al., Non-psychoactive cannabinoids modulate the descending pathway of antinociception in anaesthetized rats through several mechanisms of action. *British Journal of Pharmacology*, 2011 Feb;162(3):584-96.

3 Shinjyo et al., The effect of cannabichromene on adult neural stem/progenitor cells. *Neurochemistry International*. 2013 Nov;63(5):432-7.

4 El-Alfy et al., Antidepressant-like effect of delta9-tetrahydrocannabinol and other cannabinoids isolated from *Cannabis sativa* L. *Pharmacology, Biochemistry and Behavior*. 2010 Jun;95(4):434-42.

5 Olah et al., Differential effectiveness of selected non-psychoactive phytocannabinoids on human sebocyte functions implicates their introduction in dry/seborrheic skin and acne treatment. *Experimental Dermatology* 2016 Sep;25(9):701-7.

THCV has been shown in preclinical studies to have an impact on obesity,⁶ epilepsy⁷ and Parkinson's disease.⁸ Additionally, human clinical data demonstrated the potential for THCV to improve glycemic control in Type 2 diabetics.⁹ CBDV is being investigated by GW Pharmaceuticals (acquired by Jazz Pharmaceuticals in May 2021) in a number of indications. A Phase IIa study in adults with focal seizures did not meet its primary endpoint but trials are ongoing in [autism](#) and [Prader-Willi Syndrome](#). GW/Jazz has also indicated interest in the treatment of Rett syndrome.

With regards to CBN, it has been the focus of InMed's pharmaceutical pipeline with INM-755, which is entering Phase II for epidermolysis bullosa (EB) and INM-088, in preclinical development for glaucoma. Broadly, there is evidence of efficacy across a plethora of indications. Key for the treatment of EB (a rare debilitating genetic dermatologic disorder characterized by skin fragility where just wearing normal clothing can lead to wound formation), CBN has been shown in a variety of published preclinical studies to have an effect on pain,¹⁰ inflammation (due to the inhibition of the expression of cytokines)¹¹ and bacterial infection.¹² In addition, and recently presented at the 2020 EB World Congress in London, InMed has demonstrated in its own preclinical studies an effect on both pain and inflammation. In pain, InMed's research has demonstrated a positive impact in nerve growth factor (NGF) induced pain models in rats. With regards to inflammation, CBN was tested on IL-8 and MMP-9, markers of inflammation suspected of having links with blister formation in EB simplex (both IL-8 and MMP-9 are upregulated in blisters) and in chronic cutaneous inflammation. Depending on dose, IL-8 was reduced by 35–54% and MMP-9 was reduced by 22–40%.

CBN has also previously been shown to have efficacy in glaucoma. In cats, CBN has previously been shown to significantly reduce intraocular pressure (IOP) by around 27% after nine days.¹³ Also, InMed recently disclosed in vivo animal data for INM-088 at the [H.C. Wainwright Ophthalmology Virtual Conference](#), which indicated a significant lowering of IOP at days 7 and 17 compared to the vehicle treated group.

BayMedica also has an extensive suite of new naturally occurring rare cannabinoids and cannabinoid analogs which can be developed as pharmaceutical products. This may potentially strengthen InMed's pipeline going forward.

With regards to the current pipeline, InMed has filed Clinical Trial Applications in multiple countries for the Phase II of INM-755 in EB (Germany, France, Italy, Austria, Israel, Greece and Serbia) and anticipates the trial will begin in Q321.

6 Riedel et al., Synthetic and plant-derived cannabinoid receptor antagonists show hypophagic properties in fasted and non-fasted mice. *British Journal of Pharmacology* (2009), 156, 1154–1166

7 Dos Santos et al., Phytocannabinoids and epilepsy. *Journal of Clinical Pharmacy and Therapeutics* 2015, 40, 135–143

8 Garcia et al., Symptom-relieving and neuroprotective effects of the phytocannabinoid Δ^9 -THCV in animal models of Parkinson's disease. *British Journal of Pharmacology* 2011 Aug;163(7):1495-506.

9 Jadoon et al., Efficacy and Safety of Cannabidiol and Tetrahydrocannabivarin on Glycemic and Lipid Parameters in Patients With Type 2 Diabetes: A Randomized, Double-Blind, Placebo-Controlled, Parallel Group Pilot Study. *Diabetes Care* 2016 Oct;39(10):1777-86.

10 Zygmont et al., Δ_9 -Tetrahydrocannabinol and Cannabinol Activate Capsaicin-Sensitive Sensory Nerves via a CB1 and CB2 Cannabinoid Receptor-Independent Mechanism. *Journal of Neuroscience*. 1 June 2002, 22 (11) 4720-4727

11 Jan et al., Attenuation of the ovalbumin-induced allergic airway response by cannabinoid treatment in A/J mice. *Toxicology and Applied Pharmacology*, 188 (2003), 24–35.

12 Appendino et al., Antibacterial Cannabinoids from Cannabis sativa: A Structure–Activity Study. *Journal of Natural Products*, 2008 71(8), 1427–1430.

13 Colasanti et al., Intraocular pressure, ocular toxicity and neurotoxicity after administration of cannabidiol or cannabigerol. *Experimental Eye Research*, 1984 39(3), 251–259.

Valuation

We have adjusted our valuation to US\$242m or US\$20.03 per basic share from US\$236m or US\$29.27 per basic share. The total valuation rose due to higher net cash following a calendar Q221 financing (described below), while the per-share value decreased due to a higher number of shares outstanding. We have not made any adjustments to our model yet to take into account the BayMedica acquisition, but may do so once it closes in the coming weeks.

Exhibit 1: InMed valuation model					
Program	Stage	Probability of success	Launch year	Peak sales (US\$m)	rNPV (US\$m)
Biosynthesis (manufacturing)	Development	23%	2022	1,243	\$198
INM-755	Phase II	10%	2026	313	\$24
Total					\$221.8
Net cash and equivalents (as of 31 March plus offering) (US\$m)					\$20.5
Total firm value (US\$m)					\$242.35
Total basic shares (as of 7 September 2021, m)					12.10
Value per basic share (US\$)					\$20.03
Options and warrants (m)					7.4
Total diluted shares (as of 7 September 2021, m)					19.5
Value per diluted share (US\$)					\$12.43

Source: Edison Investment Research

Financials

InMed is acquiring BayMedica in an all-stock transaction in which InMed will issue 1.78m shares to BayMedica's equity and convertible debt holders. At the current stock price, this values BayMedica at approximately US\$4m. This may be reduced in the event that BayMedica's net liabilities exceed a certain negotiated threshold at the closing of the transaction. BayMedica's equity and debt holders will also receive Series A warrants to purchase up to 800,000 shares with an exercise price equal to 125% of the 20-day volume-weighted average closing price of InMed shares prior to the third business day before the closing of the proposed transaction (the 'Deal Price') and Series B warrants to acquire up to 800,000 common shares of InMed priced at 200% of the 'Deal Price'.

InMed reported a net loss of US\$3.1m in Q321 (the period ending 31 March 2021), up from US\$2.0m in the same period in the prior year due to higher R&D and SG&A expenses. R&D expenses were US\$1.8m in the quarter compared to US\$1.3m a year ago thanks to preparations for the INM-755 Phase II clinical trial. G&A was US\$1.3m, up from US\$0.9m in Q321. Our R&D estimates for FY21 and FY22 are now US\$5.5m and US\$6.3m, respectively (as compared to US\$4.3m and US\$5.0m previously). Our SG&A estimates are substantially unchanged.

InMed had US\$9.5m in cash and marketable securities at 31 March and subsequently (in July 2021) raised approximately US\$12m in gross proceeds (US\$11m net) from a private placement of 4.036m units, priced at US\$2.973 per unit, with a unit including a common share and a warrant (the warrants have an exercise price of US\$2.848 per share, are exercisable immediately after issuance and have a term of five years).

Based on the cash level following the offering, we believe InMed has funding into FY23. However, the exact level of funding requirement will depend on the expense level for the combined companies. We will update our financial model once the acquisition closes and we have some clarity on cash needs.

Exhibit 2: Financial summary

	US\$'000s	2019	2020	2021e	2022e
Year end 30 June		US GAAP	US GAAP	US GAAP	US GAAP
PROFIT & LOSS					
Revenue		0	0	0	0
Cost of Sales		0	0	0	0
Gross Profit		0	0	0	0
Research and development		(5,126)	(5,811)	(5,465)	(6,285)
Selling, general & administrative		(4,297)	(3,227)	(4,305)	(4,477)
EBITDA		(9,423)	(9,038)	(9,770)	(10,762)
Operating Profit (before amort. and except.)		(9,542)	(9,151)	(9,890)	(10,882)
Intangible Amortization		0	0	0	0
Exceptionals/Other		(34)	82	65	68
Operating Profit		(9,576)	(9,069)	(9,825)	(10,814)
Net Interest and financial expense		328	130	(345)	0
Other (change in fair value of warrants)		0	0	0	0
Profit Before Tax (norm)		(9,215)	(9,021)	(10,235)	(10,882)
Profit Before Tax (IFRS)		(9,248)	(8,939)	(10,170)	(10,814)
Tax		0	0	0	0
Deferred tax		0	0	0	0
Profit After Tax (norm)		(9,215)	(9,021)	(10,235)	(10,882)
Profit After Tax (IFRS)		(9,248)	(8,939)	(10,170)	(10,814)
Average Number of Shares Outstanding (m)		5.2	5.2	6.6	12.1
EPS - normalized (US\$)		(1.77)	(1.73)	(1.55)	(0.90)
EPS - GAAP (US\$)		(1.78)	(1.71)	(1.54)	(0.89)
Dividend per share (c)		0.0	0.0	0.0	0.0
Gross Margin (%)		N/A	N/A	N/A	N/A
EBITDA Margin (%)		N/A	N/A	N/A	N/A
Operating Margin (before GW and except.) (%)		N/A	N/A	N/A	N/A
BALANCE SHEET					
Fixed Assets		1,264	1,490	1,442	1,345
Intangible Assets		1,221	1,087	1,086	1,086
Tangible Assets		43	403	341	245
Other		0	0	15	15
Current Assets		14,173	6,312	7,885	8,788
Stocks		0	0	0	0
Debtors		65	45	70	70
Cash		13,784	5,848	6,488	7,391
Other		324	419	1,327	1,327
Current Liabilities		(1,194)	(1,676)	(1,714)	(1,714)
Creditors		(1,194)	(1,676)	(1,714)	(1,714)
Short term borrowings		0	0	0	0
Long Term Liabilities		0	(248)	(216)	(216)
Long term borrowings		0	0	0	0
Other long term liabilities		0	(248)	(216)	(216)
Net Assets		14,243	5,878	7,396	8,202
CASH FLOW					
Operating Cash Flow		(6,624)	(7,375)	(10,776)	(10,074)
Net Interest		0	0	0	0
Tax		0	0	0	0
Capex		(27)	(43)	(21)	(23)
Acquisitions/disposals		0	0	0	0
Financing		205	(31)	10,938	11,000
Dividends		0	0	0	0
Other		0	1	0	0
Net Cash Flow		(6,446)	(7,448)	141	903
Opening net debt/(cash)		(20,179)	(13,784)	(5,848)	(6,488)
HP finance leases initiated		0	0	0	0
Exchange rate movements		(17)	416	(495)	0
Other		69	(905)	994	0
Closing net debt/(cash)		(13,784)	(5,848)	(6,488)	(7,391)

Source: company reports, Edison Investment Research

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Frankfurt +49 (0)69 78 8076 960
Schumannstrasse 34b
60325 Frankfurt
Germany

London +44 (0)20 3077 5700
280 High Holborn
London, WC1V 7EE
United Kingdom

New York +1 646 653 7026
1185 Avenue of the Americas
3rd Floor, New York, NY 10036
United States of America

Sydney +61 (0)2 8249 8342
Level 4, Office 1205
95 Pitt Street, Sydney
NSW 2000, Australia