BROOKLINE CAPITAL MARKETS

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Equity Research

# FSD Pharma, Inc.

## Targeting the Endocannabinoid System to Treat Inflammatory Diseases – Initiating Buy with $11 Target

August 20, 2020

Healthcare

**NASDAQ: HUGE**

**Buy**
**Initiation of Coverage**

Current Price
**$3.73**

Price Target
**$11.00**

Market Capitalization
**$48.42M**

Shares Outstanding
**13.01M**

Float
**N/A**

Institutional Holdings
**N/A**

12-month Low/High
**$2.39/$18.09**

Average 90-day Volume
**791,070**

Fiscal Year End
**December 31**

- **Conclusions** — We are initiating on FSD Pharma with a Buy rating and a Price Target of $11 based on potential of FSD201 in treating COVID-19. FSD Pharma is developing FSD201 (ultra-micronized palmitoylethanolamide (PEA), a fatty acid amide that has anti-inflammatory and analgesic properties for treating COVID-19. FSD201 could also be potentially developed for osteoarthritis of knee, endometriosis, and chronic pain. It has a novel mechanism of action by stimulating the CB2 receptor. FSD201 was safe and well tolerated in a Phase 1 trial conducted in Australia. The company has completed interactions with the U.S. Food and Drug Administration (FDA) and plans to submit an Investigational New Drug Application for the use of FSD201 to treat COVID-19. FSD201 has potential in other disease areas like pain where endocannabinoid system has been shown to play a role. We see a favorable risk-reward proposition as the pipeline advances.

- **FSD201 is ultra-micronized palmitoylethanolamide that has enhanced bioavailability** — FSD201 is ultra-micronized palmitoylethanolamide which has enhanced bioavailability. The endocannabinoid system plays a central role in resolution of inflammation and selective pharmacological agonism of cannabinoid receptors can inhibit pro-inflammatory cytokines and induce lipid mediators that resolve inflammation and restore homeostasis. There are indications of therapeutic potential of PEA in chronic inflammatory diseases where resolution of inflammation is impaired.

- **FSD201 safe and well tolerated in Phase 1 trial** — In a randomized, double-blind, placebo-controlled trial conducted at a single site in Australia in 48 healthy adults, FSD201 was safe and well tolerated with no serious adverse events, no abnormal laboratory findings, and no accumulation of the drug. The trial tested single ascending doses of 600mg to 2,400mg administered twice daily for seven days and looked at food effect. The side effects were mild and self-limiting and not related to the drug, all subjects completed the trial. Analysis of pharmacokinetic profile of FSD201 is ongoing and the data will facilitate the investigational new drug (IND) submission with the FDA.

- **FSD201 IND filing expected near term for Phase 2 proof of concept trial in COVID-19** — FSD Pharma is working on submission of the investigational new drug (IND) submission with the FDA for treating COVID-19. The company has had positive interactions with the U.S. Food and Drug Administration (FDA) on advancing FSD201 for treating COVID-19. PEA has been shown to have potent anti-inflammatory activity and should lead to reduction of pro-inflammatory cytokines associated with COVID-19.

| Revenues (C$M) | | | |
|---|---|---|---|
| Period | 2019A | 2020E | 2021E |
| Q1 | | | |
| Q2 | | | |
| Q3 | | | |
| Q4 | | | |
| | C$0.257 | $0E | $0E |

| EPS C($) | | | |
|---|---|---|---|
| Period | 2019A | 2020E | 2021E |
| Q1 | | | |
| Q2 | | | |
| Q3 | | | |
| Q4 | | | |
| | (C$7.37) | (C$3.80)E | (C$1.70)E |

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**Refer to Last Page for Analyst Certification & Important Disclosures**

**Advancing ultra-micronized-PEA for inflammatory diseases**

FSD Pharma has two divisions FV Pharma and FSD Pharma Bioscience. FV Pharma is a licensed producer of cannabis, FDS Pharma is planning to divest FV Pharma due to competitive reasons and focus on drug development. FSD Pharma Bioscience is undertaking research and development, and clinical development of synthetic cannabinoid-based treatments of central nervous system disorders and autoimmune diseases of the skin, GI tract, and musculoskeletal system. FSD201 ultra-micronized palmitoylethanolamide (PEA), is a fatty acid amide that as anti-inflammatory and analgesic properties is being developed for COVID-19. FSD201 has potential in other disease areas like pain where endocannabinoid system has been shown to play a role.

**Palmitoylethanolamide (PEA) has analgesic and anti-inflammatory properties**

Palmitoylethanolamide (PEA) has been shown to have anti-inflammatory and analgesic properties in animal models and clinical trials. PEA has been shown to be active at doses of 300mg to 2400mg daily with no dose limiting side effects or clinically relevant drug-drug interactions. The key anti-inflammatory effects of PEA are modulated by its high affinity of the PPAR-α. PEA has been shown to accumulate in tissues impacted by inflammation and ischemia, suggesting its protective role in preventing tissue damage. PEA does not seem to have affinity for CB1 or CB2 receptor, but it seems to stimulate CB2 receptor directly or indirectly.

PEA can activate the transcription factor PPARα, the G-protein-coupled receptor GPR119, the vanilloid receptor, and several ion channels. Endocannabinoids are also able to activate these receptors. Enhancing the activity of endocannabinoid indirectly may overcome some of the challenges of psychoactive properties of plant-derived or synthetic agonists.

**Endocannabinoid system maintains body homeostasis and plays important role in various functions**

Endocannabinoids are natural cannabis-like molecules produced by the body that play an important role in cell signaling. They maintain homeostasis in response to changes in the environment. Endocannabinoid receptors are expressed in brain, nerves, skin, immune cell, bone, fat tissue, liver, and gastrointestinal track. They play role in pain, memory, mood, appetite, stress, sleep, metabolism, immune function, and reproductive function.

Modulating the activity of the endocannabinoid system holds therapeutic potential in multitude of diseases raging from Parkinson's, Huntington disease, neuropathic pain, multiple sclerosis, spinal cord injury, cancer, atherosclerosis, myocardial infarction, stroke, hypertension, glaucoma, obesity/metabolic syndrome, and osteoporosis.

**Palmitoylethanolamide (PEA) has potential to treat mast cell-induced lung inflammation in COVID-19**

Human coronavirus SARS-CoV-2 (CoV-19) pandemic emerged in late 2019 and causes COVID-19 disease, a respiratory tract infection. COVID-19 viral infection can cause severe lung infection/pneumonia which leads to hypoxia and lung injury. The rapid decline in respiratory function/ acute respiratory distress syndrome (ARDS) can cause death. ARDS is associated with robust activation of the immune system resulting in systemic inflammatory response/ cytokine storm. As per World Health Organization (WHO) Coronavirus Disease (COVID-19) dashboard as of August 19, 2020 there were ~22 million confirmed cases of COVID-19, and ~776,000 deaths.

Mast cells play an important role in the pathogenesis of viral infections by mediating inflammation. Virus activate mast cells through toll like receptor (TLR) releasing chemical pro-inflammatory compounds and cytokines. There are reports in literature indicating activation of mast cells by SARS-CoV-2 infection. The production of pro-inflammatory cytokines by mast cell viral activation leads to increase pulmonary inflammation and fibrosis. Palmitoylethanolamide (PEA) a nuclear factor agonist, an endogenous fatty acid amide, exerts a variety of biological effects, related to chronic inflammation and pain, is involved also in mast cells homeostasis with an inhibitory and protective effect on the respiratory tract during viral infections. It has been hypothesized that PEA can suppress mast cell activation and pro-inflammatory mediators release and has potential to play an anti-inflammatory therapeutic role in the inflamed lung of patients with COVID-19.

**FSD201 is ultra-micronized palmitoylethanolamide that has enhanced bioavailability**

FSD201 is ultra-micronized palmitoylethanolamide which has enhanced bioavailability. The endocannabinoid system plays a central role in resolution of inflammation and selective pharmacological agonism of cannabinoid receptors can inhibit pro-inflammatory cytokines and induce lipid mediators that resolve inflammation and restore homeostasis. There are indications of therapeutic potential of PEA in chronic inflammatory diseases where resolution of inflammation is impaired.

**FSD201 safe and well tolerated in Phase 1 trial**

In a randomized, double-blind, placebo-controlled trial conducted at a single site in Australia in 48 healthy adults, FSD201 was safe and well tolerated with no serious adverse events, no abnormal laboratory findings, and no accumulation of the drug. The trial tested single ascending doses of 600mg to 2,400mg administered twice daily for seven days and looked at food effect. The side effects were mild and self-limiting and not related to the drug, all subjects completed the trial. Analysis of pharmacokinetic profile of FSD201 is ongoing and the data will facilitate the investigational new drug (IND) submission with the FDA.

**FSD201 IND filing expected for Phase 2 proof of concept trial in COVID-19**

FSD Pharma is working on submission of the investigational new drug (IND) submission with the FDA for treating COVID-19. The company has had positive interactions with the U.S. Food and Drug Administration (FDA) on advancing FSD201 for treating COVID-19. PEA has been shown to have potent anti-inflammatory activity and should lead to reduction of pro-inflammatory cytokine associated with COVID-19.

**Phase 2 plans for FSD201 proof of concept trial in COVID-19**

We believe that the Phase 2 trial will have multiple sites in U.S and Canada. We expect a 3 arm trial looking at two doses compared to standard of care. We expect that the trial will have about 300-400 patients and will test 600mg of FSD201 dosed twice daily on top of standard of care for 14 days, 1200mg of FSD201 dosed twice daily on top of standard of care for 14 days, and standard of care. The trial is expected to enroll hospitalized patients who have not been intubated. The trial is expected to look at the benefit of FSD201 in avoidance of ventilation, and all cause mortality at 28 days. The trial will also look at biomarkers of cytokines including, IL-1, IL-6, and IL-10. We believe that the data from the COVID-19 trials can be leveraged for advancement of FSD201 in other indications.

**Commercial strategy focused on targeting endocannabinoid system**

FSD Pharma is advancing drugs targeting the endocannabinoid system. FSD201 is a ultramicronized palmitoylethanolamide that has natural anti-inflammatory properties and has improved oral bioavailability. Though the initial focus is on treatment of COVID-19, it has potential in other indications like osteoarthritis and endometriosis with meaningful market opportunities. FSD Pharma has global rights for FSD201 except Italy and Spain. FSD Pharma is also looking to in-license other molecules targeting the endocannabinoid system to expand its pipeline.

**Competitive space is evolving**

The competitive space targeting the endocannabinoid system is evolving with several companies advancing drugs targeting the endocannabinoid system. There are several companies developing drugs targeting the cannabinoid receptor 2 (CB2) receptor, we highlight a couple. Arena Pharmaceuticals (NASDAQ: ARNA: Not Rated) is developing Olarinab (APD371) a CB2 receptor agonist for gastrointestinal pain associated with irritable bowel syndrome, and pain associated with irritable bowel disease. Corbus Pharmaceuticals (NASDAQ: CRBP: Not Rated) is developing lenabasum, a CB2 receptor agonist for systemic sclerosis, dematomyositis, systemic lupus erythematosus and cystic fibrosis.

**Company Description**

FSD Pharma has two divisions FV Pharma and FSD Pharma Bioscience. FV Pharma is a licensed producer of cannabis, FDS Pharma is planning to divest FV Pharma due to competitive reasons and focus on drug development. FSD Pharma Bioscience is undertaking research and development, and clinical development of synthetic cannabinoid-based treatments of central nervous system disorders and autoimmune diseases of the skin, GI tract, and musculoskeletal system, such as chronic pain. FSD201 ultra-micronized palmitoylethanolamide (PEA), is a fatty acid amide that as anti-inflammatory and analgesic properties is being developed for COVID-19. FSD201 has potential in other disease areas like pain where endocannabinoid system has been shown to play a role.

**Financials and valuation**

We view our financial model to be conservative on the following metrics that could prove to have upside over time:

- Probability of success in treating COVID-19
- Potential in other indications not included in our valuation
- Market share and ramp assumptions
- Cost of goods sold
- Potential expansion into other indications

Hence, we see extremely attractive upside to the stock over time with successful development of FSD201 in treatment of COVD-19 and other indications.

**FSD Pharma is funded into 2021**

FSD Pharma had ~ Canadian $13.4 million in cash as of June 30, 2020. It completed a registered direct offering of US $10 million in August 2020. We expect cash to be sufficient to fund operations and development of pipeline into 2021.

**Investment Strategy**

FSD Pharma's asset FSD201 has been found to be safe and well tolerated in the Phase 1 study. PEA has been used extensively in Europe. FSD201 has potential for treating COVID-19 and pain. However, it is still in early stages of development, and needs to be de-risked further through clinical trials. At this point, a lot of potential is presented, but it needs to be realized in early- and late-stage trials. We model the value of FSD201 with its potential in COVID-19 and give it a 20% probability of success. With early successes though, there would be a lot of interest in the asset, and there may be potential for partnerships, or collaborations for late clinical development. Continued success would see other big

pharmaceutical companies getting interested in the asset. The company presents a favorable risk-reward proposition as the pipeline advances.

**We Value FSD Pharma using NPV**

We value FSD Pharma based on probability adjusted net present value (NPV) valuation of commercial potential of FSD201 in treatment of COVID-19. We estimate that there are ~5.5 million COVID-19 infected patients in the U.S. We expect the number of infected patients to increase over time. We model that 60% of patients will have symptomatic disease and will need treatment. We estimate FSD201 revenues, COGS, R&D expenses, and SG&A in NASH and calculate profit after tax until 2033, when we expect FSD201 patent and patent term extensions to expire. We calculate NPV based on the profit after tax in treatment of COVID-19. We assume a 20% probability of success. We assume achieving peak penetration of 3% in 2029. We conservatively assume an annual price of $6,000 per patient. We apply a discount rate of 10%, which we believe is appropriate for a Phase 1 clinical stage biotechnology company, to our net present value calculations on top of the probability adjustments we apply to account for the development risks associated with these programs. Based on our calculations we reach our Target Price of $11.

Exhibit 1: FSD Pharma NPV Valuation

| | Expected Launch | Probability of Success | Peak Market Share | Peak Sales ($M) | Probability adjusted NPV |
|---|---|---|---|---|---|
| NPV of FSD201 in U.S (10% discount rate) | 2022E | 20% | 3% | $594 | $159 |
| NPV per share in (CA$) | | | | | $14 |
| NPV per share in US ($) | | | | | $11 |

Source: Brookline Capital Markets Estimate

## Risks

Like any other company in the therapeutics space, FSD Pharma is facing financing, clinical, developmental, regulatory, commercial, and intellectual property risks. If these risks are greater than our expectations, the share price may not meet our target price.

**Developmental Risk**

The company needs to complete further clinical evaluation for FSD201, and substantial risk is involved. Risks include failure to enroll patients, failure of clinical trials, unfavorable efficacy and/or safety profile, better performance by competitors, and other unforeseen causes for failure or discontinuation of studies.

**Regulatory Risk**

All clinical products under development have regulatory risk as they need to meet all the requirements of regulatory authorities for approval and continued marketing. There is a possibility for regulatory authorities to require additional trials and/or post approval commitments. These could cause substantial delays or discontinuations of trials or entire programs, substantially hurting company valuations.

**Commercial Risk**

The therapeutic markets are competitive despite significant unmet need. FSD Pharma does not yet have experience with commercial product launch. FSD Pharma will need to obtain pricing and reimbursement approvals following regulatory approval and before commercial launch. While orphan drug therapies command premium pricing, adoption and wider market access are determined by willingness on part of the physicians and the payers. There could be resistance or reluctance, and risks from other competitor products that will determine the launch trajectory.

**Intellectual Property Risk**

FSD Pharma has license for patents covering ultramicronized PEA alone and in combination with other molecules. Ultramicronized PEA as dingle agent patents cover composition and use. The combination patents cover combination with opioids for pain, and combination with silymarin for treatment of chronic kidney disease. The composition of

matter patents expires in 2029. The combination patents expire in 2033 and 2034. There is a possibility that pending patent applications may not lead to issuance of patents or may be issued with narrow claims.

## Financials

**Exhibit 2: FSD Pharma Annual P&L ($)**

| Years ending December 31<br>Canadian dollars | 2019A | 2020E | 2021E | 2022E | 2023E | 2024E |
|---|---|---|---|---|---|---|
| **Revenues:** | | | | | | |
| Revenue | $257,099 | | | | | |
| FSD201 | | | $0 | $19,800,000 | $79,200,000 | $158,400,000 |
| **Total revenues** | **$257,099** | **$0** | **$0** | **$19,800,000** | **$79,200,000** | **$158,400,000** |
| **Operating expenses:** | | | | | | |
| Cost of revenue/goods sold | $1,959,111 | | $0 | $1,980,000 | $7,920,000 | $15,840,000 |
| Fair value adjustments on inventory sold | $22,249 | | | | | |
| Unrealized loss on changes in fair value of biological assets | $682,739 | | | | | |
| Research and development | | $10,262,663 | $20,000,000 | $24,000,000 | $15,000,000 | $15,000,000 |
| Sales, General and administrative | $14,811,529 | $12,009,268 | $15,612,048 | $60,000,000 | $63,000,000 | $66,150,000 |
| Share-based payments | $16,061,319 | $4,588,601 | | | | |
| Depreciation and amortization | $3,146,680 | $5,457,902 | | | | |
| Impairment of property, plant and equipment and right-of-use asset | $243,468 | $119,447 | | | | |
| **Total operating expenses** | **$36,927,095** | **$32,437,880** | **$35,612,048** | **$85,980,000** | **$85,920,000** | **$96,990,000** |
| **Loss from operations** | **($36,669,996)** | **($32,437,880)** | **($35,612,048)** | **($66,180,000)** | **($6,720,000)** | **$61,410,000** |
| Other income | ($125,536) | ($73,609) | ($77,290) | ($81,154) | ($85,212) | ($89,472) |
| Finance expense | $206,454 | $188,272 | | | | |
| Loss (Gain) on settlement of financial liability | $24,810 | ($897,015) | | | | |
| Loss on change in fair value of derivative liability | $3,568,305 | $2,725,061 | $2,752,312 | $2,779,835 | $2,807,633 | $2,835,709 |
| Loss (gain) on changes in fair value of other investments | $11,669,157 | ($1,220,760) | | | | |
| **Total other income (expense)** | **$15,343,190** | **$721,949** | **$2,675,022** | **$2,698,681** | **$2,722,421** | **$2,746,237** |
| **Loss before income taxes** | **($52,013,186)** | **($31,715,931)** | **($32,937,026)** | **($63,481,319)** | **($3,997,579)** | **$64,156,237** |
| **Taxes** | | | | | | |
| **Net Loss from continuing operations** | **($52,013,186)** | **($31,715,931)** | **($32,937,026)** | **($63,481,319)** | **($3,997,579)** | **$64,156,237** |
| **Net loss from discontinued operations** | | **($2,351,182)** | | | | |
| **Net loss for the period** | **($52,013,186)** | **($34,067,113)** | **($32,937,026)** | **($63,481,319)** | **($3,997,579)** | **$64,156,237** |
| Exchange gain/(loss) on translation of foreign operations | **($112,690)** | **$891,445** | **$891,445** | **$891,445** | **$891,445** | **$891,445** |
| **Comprehensive loss** | **($52,125,876)** | **($33,175,668)** | **($32,045,581)** | **($62,589,874)** | **($3,106,134)** | **$65,047,682** |
| Net loss per share | ($7.37) | ($3.80) | ($1.70) | ($3.11) | ($0.19) | $2.86 |
| Shares outstanding, basic & diluted | 7,056,245 | 8,962,790 | 19,410,929 | 20,381,476 | 21,400,550 | 22,470,577 |

**Source: Company reports, Brookline Capital Markets Estimate**

**Exhibit 3: FSD Pharma Quarterly P&L (CA$)**

| Years ending December 31<br>Canadian dollars | 2019A | Q1:20 | Q2:20 | Q3:20E | Q4:20E | 2020E |
|---|---|---|---|---|---|---|
| **Revenues:** | | | | | | |
| Revenue | $257,099 | | | | | |
| FSD201 | | | | | | |
| **Total revenues** | **$257,099** | **$0** | **$0** | **$0** | **$0** | **$0** |
| **Operating expenses:** | | | | | | |
| Cost of revenue/goods sold | $1,959,111 | | | | | |
| Fair value adjustments on inventory sold | $22,249 | | | | | |
| Unrealized loss on changes in fair value of biological assets | $682,739 | | | | | |
| Research and development | | $403,287 | $2,075,658 | $3,113,487 | $4,670,231 | $10,262,663 |
| Sales, General and administrative | $14,811,529 | $4,008,869 | $2,537,795 | $2,664,685 | $2,797,919 | $12,009,268 |
| Share-based payments | $16,061,319 | $3,062,930 | $483,956 | $508,154 | $533,561 | $4,588,601 |
| Depreciation and amortization | $3,146,680 | $1,291,148 | $1,321,730 | $1,387,817 | $1,457,207 | $5,457,902 |
| Impairment of property, plant and equipment and right-of-use asset | $243,468 | $119,447 | | $0 | $0 | $119,447 |
| **Total operating expenses** | **$36,927,095** | **$8,885,681** | **$6,419,139** | **$7,674,142** | **$9,458,918** | **$32,437,880** |
| **Loss from operations** | **($36,669,996)** | **($8,885,681)** | **($6,419,139)** | **($7,674,142)** | **($9,458,918)** | **($32,437,880)** |
| Other income | ($125,536) | ($18,081) | ($17,614) | ($18,495) | ($19,419) | ($73,609) |
| Finance expense | $206,454 | $97,253 | $91,019 | | | $188,272 |
| Loss (Gain) on settlement of financial liability | $24,810 | ($843,301) | ($53,714) | | | ($897,015) |
| Loss on change in fair value of derivative liability | $3,568,305 | $2,725,061 | | $0 | $0 | $2,725,061 |
| Loss (gain) on changes in fair value of other investments | $11,669,157 | | ($1,220,760) | | | ($1,220,760) |
| **Total other income (expense)** | **$15,343,190** | **$1,960,932** | **($1,201,069)** | **($18,495)** | **($19,419)** | **$721,949** |
| **Loss before income taxes** | **($52,013,186)** | **($10,846,613)** | **($5,218,070)** | **($7,655,647)** | **($9,439,499)** | **($31,715,931)** |
| **Taxes** | | | | | | |
| **Net Loss from continuing operations** | **($52,013,186)** | **($10,846,613)** | **($5,218,070)** | **($7,655,647)** | **($9,439,499)** | **($31,715,931)** |
| **Net loss from discontinued operations** | | **($1,597,587)** | **($753,595)** | | | **($2,351,182)** |
| **Net loss for the period** | **($52,013,186)** | **($12,444,200)** | **($5,971,665)** | **($7,655,647)** | **($9,439,499)** | **($34,067,113)** |
| Exchange gain/(loss) on translation of foreign operations | **($112,690)** | **$1,618,974** | **($727,529)** | | | **$891,445** |
| **Comprehensive loss** | **($52,125,876)** | **($10,825,226)** | **($6,699,194)** | **($7,655,647)** | **($9,439,499)** | **($33,175,668)** |
| Net loss per share | ($7.37) | ($1.53) | ($0.66) | ($0.83) | ($1.00) | ($3.80) |
| Shares outstanding, basic & diluted | 7,056,245 | 8,149,759 | 9,051,562 | 9,232,593 | 9,417,245 | 8,962,790 |

**Source: Company reports, Brookline Capital Markets Estimate**

**Exhibit 4: FSD201 U.S Market Model**

| Years ending December 31<br>Canadian dollars | 2020E | 2021E | 2022E | 2023E | 2024E | 2025E | 2026E | 2027E | 2028E | 2029E | 2030E | 2031E | 2032E | 2033E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of patients with COVID-19 in U.S (000's) | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 |
| Symptomatic patients 60% (000s) | 3,300 | 3,300 | 3,300 | 3,300 | 3,300 | 3,300 | 3,300 | 3,300 | 3,300 | 3,300 | 3,300 | 3,300 | 3,300 | 3,300 |
| FSD201 share | | | *0.1%* | *0.4%* | *0.8%* | *1.2%* | *1.6%* | *2.0%* | *2.5%* | *3.0%* | *3.0%* | *3.0%* | *3.0%* | *3.0%* |
| FSD201 treated patients | | | 3,300 | 13,200 | 26,400 | 39,600 | 52,800 | 66,000 | 82,500 | 99,000 | 99,000 | 99,000 | 99,000 | 99,000 |
| FSD201 cost for treatment | | | $6,000 | $6,000 | $6,000 | $6,000 | $6,000 | $6,000 | $6,000 | $6,000 | $6,000 | $6,000 | $6,000 | $6,000 |
| **FSD201 revenues ($M)** | **$0** | **$0** | **$20** | **$79** | **$158** | **$238** | **$317** | **$396** | **$495** | **$594** | **$594** | **$594** | **$594** | **$594** |
| COGS ($M) | $0 | $0 | $2 | $8 | $16 | $24 | $32 | $40 | $50 | $59 | $59 | $59 | $59 | $59 |
| R&D ($M) | $1 | $20 | $24 | $15 | $15 | $10 | $10 | $10 | $10 | $10 | $10 | $10 | $10 | $10 |
| SG&A ($M) | | | $60 | $63 | $66 | $69 | $73 | $77 | $80 | $84 | $89 | $93 | $98 | $103 |
| **Operating Income ($M)** | **($1)** | **($20)** | **($66)** | **($7)** | **$61** | **$134** | **$202** | **$270** | **$355** | **$440** | **$436** | **$432** | **$427** | **$422** |
| **Operating margin** | | | | | | | *64%* | *68%* | *72%* | *74%* | *73%* | *73%* | *72%* | *71%* |
| Tax Rate | *30%* | *30%* | *30%* | *30%* | *30%* | *30%* | *30%* | *30%* | *30%* | *30%* | *30%* | *30%* | *30%* | *30%* |
| Taxes ($M) | | | | | | | ($61) | ($81) | ($107) | ($132) | ($131) | ($129) | ($128) | ($127) |
| **Income after tax ($M)** | **($1)** | **($20)** | **($66)** | **($7)** | **$61** | **$134** | **$142** | **$189** | **$249** | **$308** | **$305** | **$302** | **$299** | **$295** |
| **NPV of FSD201 in U.S (10% discount rate)** | **$795** | | | | | | | | | | | | | |
| **Probability of success** | **20%** | | | | | | | | | | | | | |
| **Probability adjusted NPV** | **$159** | | | | | | | | | | | | | |
| **NPV per share (CA$)** | **$14** | | | | | | | | | | | | | |
| **NPV per share (US$)** | **$11** | | | | | | | | | | | | | |

**Source: Company reports, Brookline Capital Markets Estimate**

Exhibit 5: FSD Pharma Balance Sheet ($)

| Years ending December 31<br>Canadian dollars | 2019A | 2020E | 2021E | 2022E | 2023E | 2024E |
|---|---|---|---|---|---|---|
| **Current assets:** | | | | | | |
| Cash | $7,932,737 | $22,584,828 | $49,847,035 | $66,092,757 | $181,309,063 | $244,092,638 |
| Trade and other receivables | $2,070,055 | $2,691,072 | $3,498,393 | $4,547,911 | $5,912,284 | $7,685,969 |
| Prepaid expenses and other current assets | $430,381 | $559,495 | $615,445 | $676,989 | $744,688 | $819,157 |
| Inventory | $942,939 | | | | | |
| Total current assets | $11,376,112 | $25,835,395 | $53,960,873 | $71,317,657 | $187,966,035 | $252,597,764 |
| Other investments | $11,780,864 | | | | | |
| Right-of-use asset, net | $127,410 | | | | | |
| Property and equipment, net | $11,804,145 | $10,545,503 | $9,538,601 | $8,733,095 | $8,088,706 | $7,573,216 |
| Intangible assets, net | $22,358,932 | $22,806,111 | $23,262,233 | $23,727,478 | $24,202,027 | $24,686,068 |
| **Total assets** | **$57,447,463** | **$59,187,009** | **$86,761,707** | **$103,778,229** | **$220,256,768** | **$284,857,048** |
| **Current liabilities:** | | | | | | |
| Trade and other payables | $4,467,826 | $5,361,391 | $6,433,669 | $7,720,403 | $9,264,484 | $11,117,381 |
| Lease obligations | $56,207 | | | | | |
| Derivative liability | $2,646,269 | | | | | |
| Notes payable | $1,908,412 | $2,290,094 | $2,748,113 | $3,297,736 | $3,957,283 | $4,748,740 |
| **Total Current Liabilities** | **$9,078,714** | **$7,651,486** | **$9,181,783** | **$11,018,139** | **$13,221,767** | **$15,866,121** |
| Lease obligations | $146,662 | $153,995 | $161,695 | $169,780 | $178,269 | $187,182 |
| **Total liabilities** | **$9,225,376** | **$7,805,481** | **$9,343,478** | **$11,187,919** | **$13,400,036** | **$16,053,303** |
| **Stockholders' equity** | | | | | | |
| Class A share capital | $201,500 | $201,500 | $201,500 | $201,500 | $201,500 | $201,500 |
| Class B share capital | $97,815,149 | $97,815,149 | $97,815,149 | $97,815,149 | $97,815,149 | $97,815,149 |
| Warrant reserve | $5,745,034 | $5,745,034 | $5,745,034 | $5,745,034 | $5,745,034 | $5,745,034 |
| Contributed surplus | $23,091,099 | $57,145,038 | $116,118,766 | $194,772,166 | $313,036,167 | $310,826,943 |
| Foreign exchange translation reserve | ($112,690) | | | | | |
| Accumulated deficit | ($78,518,005) | ($109,525,193) | ($142,462,220) | ($205,943,539) | ($209,941,118) | ($145,784,881) |
| Total stockholders' equity (deficit) | $48,222,087 | $51,381,528 | $77,418,230 | $92,590,310 | $206,856,733 | $268,803,746 |
| **Total liabilities and stockholders' equity** | **$57,447,463** | **$59,187,009** | **$86,761,707** | **$103,778,229** | **$220,256,768** | **$284,857,048** |

Source: Company reports, Brookline Capital Markets Estimate

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**Public Companies Mentioned in this Report:**

Arena Pharmaceuticals, Inc. (NASDAQ: ARNA – NR - $67.80)

Corbus Pharmaceuticals Holdings, Inc. (NASDAQ: CRBP – NR - $7.71)

Prices as of intraday August 20, 2020

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| | |
|---|---|
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|---|---|---|---|
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