Liminal BioSciences Inc. | LMNL-NASDAQ

Initiating Coverage

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LMNL-NASDAQ

Rating:	Hold
Target:	US$4.00
Price:	US$4.15
Return:	(3.8%)
Valuation:	NPV, 20x EPS, 12.5x EBITDA (F2025 estimates)

Market Data

Basic shares O/S (M)	29.9
Fully-dil shares O/S (M)	34.8
Market capitalization (C$M)	159.2
Enterprise Value (C$M)	161.7
Cash & equiv (rec. Q, C$M)	72.9
Total debt (rec. Q, C$M)	75.4
52 Week Range	$3.51-$31.45
Avg. Daily Volume (M)	0.5812
Fiscal Year End	Dec-31

Milestone Watch

Plasminogen, BLA resubmission	Q320
PBI-4050, commence Ph I trial	FQ420
PBI-4050, commence Ph II IPF	F2021

Financial Metrics

In C$	2019A	2020E	2021E
Rev, protein tech ($M)	4.7	2.5	2.5
Rev, licens/milest ($M)	0.2	2.5	2.5
Rev, therapeutics ($M)	0.0	0.0	3.3
Total revenue ($M)	4.9	5.0	8.3
EBITDA ($M)	(86.7)	(67.2)	(51.5)
Adj, Net Inc ($M)	(223.0)	(79.2)	(62.2)
EPS (basic)	($8.70)	($2.65)	($2.08)
EPS (FD)	($8.64)	($2.28)	($1.79)
P/E	NA	NA	NA
EV/EBITDA	NA	NA	NA

Company Description

Liminal Biosciences is a QC-based biopharmaceutical company engaged in development of affinity-purified plasma products and small-molecule therapeutics targeting fibrotic and metabolic diseases

Source: Refinitiv; Leede Jones Gable

Initiating Coverage on Plasma Protein & Anti-Fibrotic Drug Developer with a HOLD Rating

We are initiating coverage with a Hold rating and price target of $4.00 on Liminal BioSciences, a QB-based plasma products and anti-fibrotic small molecule drug developer with two flagship products in clinical testing, one a plasma-derived plasminogen formulation branded as Ryplazim for which Phase III data targeting congenital plasminogen deficiency was highly-positive and approvable in our view, and a second Phase I-stage phenylacetate-based small molecule drug called fezagepras (legacy name was PBI-4050) for which efficacy has been documented for at least one dosage strength in lung fibrosis and Alstrom syndrome. A secondary program based on collecting convalescent plasma from COVID-19-infected individuals seems to us to be of modest market value based on recent published data (in the New England Journal of Medicine and elsewhere, as we will describe) and on the likelihood in our view that alternative antiviral and immune therapies are likely to dominate this market in the medium-term.

Investment Summary

Ryplazim represents the most attractive regulatory-stage plasma product in Liminal's portfolio, with both revenue and 'voucher' prospects on the horizon. The firm's lead human plasma-derived plasminogen product is Ryplazim, aimed at the treatment of congenital plasminogen deficiency. The asset, if approved, could represent the first product approval for the firm and separately allow the firm to be a recipient of a priority review voucher (PRV). The latter option could additionally provide a non-dilutive cash injection for the firm.

For now, COVID-19 has placed a spanner on timelines to approval, with the PDUFA date now extended out to June 5th 2021, shortly after a response to a FDA information request was submitted in Nov/20 and the FDA's acceptance of LMNL's BLA resubmission in Sep/20. We have long believed that Ryplazim's clinical data, even though derived from a small data set of ten patients, was sufficiently positive to support favorable FDA review at least in congenital plasminogen deficiency, and we are optimistic that CMC elements that impeded earlier approval have since been resolved.

PBI-4050/fezagrapras performs well in several Phase II anti-fibrotic/metabolic trials, but dose-ranging at/above prior Phase II levels is still being explored: Outside of the firm's plasma product pipeline, the most advanced clinical asset is the anti-fibrotic small molecule drug PBI-4050/fezagepras. The drug works by modulating the receptor activities of FFAR1 and PPAR receptor alpha, as well as the regulation of downstream signaling processes. To date, the asset has been tested in open-label Phase II trials (166 patients to date) for idiopathic pulmonary fibrosis (IPF), and separately in a rare condition known as Alström syndrome.

Phase II Alstrom syndrome data are already published (in 2018 in BMC Endocrine Disorders) and were sufficiently positive in our view to justify additional clinical testing. However, in the case of Alström syndrome, a Phase II trial was terminated in May/20 as clinical staff were re-deployed as part of the current COVID-19 pandemic. The firm has instead disclosed plans to initiate a Phase I dose-escalation trial in FQ420, ostensibly to explore safety/efficacy at doses above those tested previously in Phase II (800-mg daily).

Exhibit 1. Financial data summary – Liminal BioSciences

Year-end Dec 31 *(C$000, except EPS)*	2018A	2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Revenue, Product Sales	$45,584	$4,734	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
Revenue, Services	$1,291	$170	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
Revenue, Plasma Prods	$0	$0	$0	$3,304	$14,064	$28,637	$47,146	$59,359	$71,421	$76,685	$81,845
Revenue, PBI-4050	$0	$0	$0	$0	$0	$1,404	$25,579	$74,773	$128,878	$183,598	$236,607
Total revenue	**$46,875**	**$4,904**	**$5,000**	**$8,304**	**$19,064**	**$35,041**	**$77,725**	**$139,132**	**$205,300**	**$265,283**	**$323,452**
Revenue growth (%)	*21%*	*(90%)*	*2%*	*66%*	*130%*	*84%*	*122%*	*79%*	*48%*	*29%*	*22%*
EBITDA	**($101,646)**	**($86,741)**	**($67,192)**	**($51,452)**	**($40,239)**	**($25,729)**	**$7,588**	**$54,003**	**$103,494**	**$148,208**	**$191,318**
EBITDA growth (%)	*13%*	*(15%)*	*(23%)*	*(23%)*	*(22%)*	*(36%)*	*(129%)*	*612%*	*92%*	*43%*	*29%*
EBITDA margin (%)	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*9.8%*	*38.8%*	*50.4%*	*55.9%*	*59.1%*
EBIT	($235,855)	($209,179)	($78,147)	($61,157)	($49,694)	($35,184)	($1,867)	$44,548	$94,039	$138,753	$181,863
EBIT margin (%)	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*32.0%*	*45.8%*	*52.3%*	*56.2%*
EBT	($257,915)	($223,235)	($79,233)	($62,243)	($50,780)	($36,271)	($2,953)	$43,462	$92,952	$137,667	$180,777
EBT margin (%)	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*31.2%*	*45.3%*	*51.9%*	*55.9%*
Adjusted net income	**($237,896)**	**($222,998)**	**($79,233)**	**($62,243)**	**($50,780)**	**($36,271)**	**($2,953)**	**$32,596**	**$69,714**	**$103,250**	**$135,582**
Net margin (%)	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*0.5%*	*25.8%*	*35.6%*	*40.2%*	*42.9%*
EPS (basic)	($9.28)	($8.70)	($2.65)	($2.08)	($1.70)	($1.21)	($0.10)	$1.09	$2.33	$3.45	$4.53
EPS (fd)	**($9.22)**	**($8.64)**	**($2.28)**	**($1.79)**	**($1.46)**	**($1.04)**	**($0.08)**	**$0.94**	**$2.00**	**$2.97**	**$3.89**
P/E (fd)	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*3.6x*	*1.7x*	*1.1x*	*0.9x*
EV/EBITDA	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*13.6x*	*1.9x*	*1.0x*	*0.7x*	*0.5x*

Source: Company filings, Leede Jones Gable

Indeed, Liminal did announce this week that it has formally commenced the aforementioned Phase I trial, with doses up to 2,400-mg daily over two-weeks will be assessed for safety and side effect profile in healthy volunteers. Once dosage range has been established through this trial, we expect Liminal to initiate Phase IIb testing, either in IPF or Alstrom syndrome, later in FH221.

Consensus views on convalescent plasma are mixed-to-negative for use as a treatment in COVID-19: Liminal is presently part of the CoVIg-19 alliance, a consortium of plasma companies (Takeda (4502-JP, NR) and CSL Behring as examples) focused on isolating a hyperimmune globulin/antibody known as CoVIg-19, which is derived from the donor plasma of individuals who have fully recovered from COVID-19.

Exhibit 2. Valuation summary for Liminal BioSciences

NPV	20%	25%	30%	35%	40%	45%	50%
Implied Value per Share	$14.34	$9.43	$5.95	**$3.46**	$1.65	$0.32	($0.67)
Forward Price/earnings multiple	**5x**	**10x**	**15x**	**20x**	**25x**	**30x**	**40x**
Implied share price ($) [1]	$1.41	$2.82	$4.23	**$5.64**	$7.05	$8.46	$11.27
Forward EV/EBITDA multiple	**5x**	**7.5x**	**10x**	**12.5x**	**15x**	**17.5x**	**20x**
Implied share price ($) [2]	$2.69	$4.05	$5.40	**$6.76**	$8.12	$9.48	$10.83
One-year Liminal target price (C$) [3]				**$5.29**			
One-year Liminal target price (US$) [3]				**$4.14**			

[1] *Based on F2025 fully-taxed fully-diluted adjusted EPS forecast of $0.94; basic pro forma S/O 29.9M*

[2] *Based on F2025 adj EBITDA forecast of $54.0M; EV incorporates proforma cash of $72.9M (FQ320 cash of $26.0M, US$36.9M in proceeds and a subsequent tranhe of warrants exercised from a Nov/20 financing), total debt of $75.4M (including lease liability of $35M).*

[3] *PT based on NPV, 20x F2025 fully-taxed fully-diluted EPS, 12.5x EV/F2025 adjusted EBITDA, 35% disc rate*

Source: Leede Jones Gable

Since Aug/20, the FDA issued emergency use endorsement for the use of convalescent plasma as an intravenously-administered in-hospital therapy an intravenously-administered in-hospital therapy for severely symptomatic COVID-19 patients. To further understand the utility of treatment with convalescent plasma, the NIH is presently testing an antibody-based serum (anti-coronavirus hIVIG – a highly purified and concentrated antibody solution containing several more times the SARS-CoV-2 neutralizing antibodies than in conventional convalescent plasma) alongside Gilead's (GILD-Q, NR) antiviral remdesivir in a 500-patient Phase III ITAC clinical trial for the treatment of hospitalized COVID-19 patients. Data from this trial is expected by mid-

2021. Apart from the NIH's efforts to assess the validity of plasminogen for use in COVID-19, we note of a *NEJM* article published in Nov/20 by Simonovich and colleagues that reflected soberly on convalescent plasma's utility in mitigating viral symptoms.

The randomized trial assessed 228 hospitalized patients with severe COVID-19 pneumonia to receive convalescent plasma or placebo. Researchers concluded that although the treatment arm did experience higher SARS-CoV-2 antibody titers, there were no significant differences in terms of clinical status or overall mortality (10.96% vs 11.43% in placebo) between both arms. But at the same time, a review article by Wood and colleagues in *Blood* (November 17 2020) published around the same time as the NEJM paper suggested that benefit from convalescent plasma might be better suited to patients at an earlier stage of the disease or even as prophylaxis. And so while consensus continues to evolve on the role and function of convalescent plasma and its role as a potential treatment option for COVID-19, we for now remain cautious on Liminal's convalescent plasma program, and as a consequence we are omitting this program from our forecasts and valuation.

Exhibit 3. Competitive Landscape - Peers With Development Programs in Idiopathic Pulmonary Fibrosis

Company	Filin Curr	Sym	Shares Out. (M)	Share Price 13-Dec-20	Mkt Cap (M)	Ent. Value (M)	Lead drug	Stage of development	Description
Drug developers targeting idiopathic pulmonary fibrosis or Alstrom Syndrome									
Fibrogen	USD	FGEN	91.0	$41.01	$3,732	$3,123	Pamrevlumab (FG-3019)	Phase III	mAb targeting connective tissue growth factor; two 340-pt IPF trials, one-year FEV data in H123
Galapagos NV	EUR	GLPG	65.4	€ 97.70	€ 6,391	€ 1,111	Ziritaxestat (GLGP1690)	Phase III	Small-molecule autotaxin inhibitor; two 750-pt IPF trials (ISABELA 1 &2), one-year FEV data in Q421; separate Phase II IPF trial ongoing for GLGP1205
Suzhou Zelgen	CNY	7E+05	240.0	¥59	¥14,112	¥12,538	Jaktinib	Phase II	Oral JAK1-JAK2-JAK3 inhibitor; 90-pt IPF trial, 24-wk FEV data in Q422
Algernon Pharmaceuticals	CAD	AGN	129.9	$0.44	$57	$48	Ifenprofil (NP-120)	Phase II	Glu2NB-targeted NMDA/glutamate receptor antagonist; 20-pt IPF trial, 12-wk FEV data in Q221
Pliant Therapeutics	USD	PLRX	35.5	$26.64	$945	$651	PLN-74809	Phase II	Dual selective integrin inhibitor (blocks TGF-beta-1 activation); 84-pt IPF trial (INTEGRIS-IPF), 12-wk FEV data in Q122
Genkyotex	EUR	EBS	11.5	€ 3.02	€ 35	€ 30	Setanaxib (GKT-831)	Phase II	Small molecule, pyrazolopyridine dione-based NADPH oxidase (NOX1/NOX4) inhib; 60-pt IPF trial, 24-wk FEV data in Q324
Kadmon	USD	KDMN	171.5	$4.21	$722	$609	Belumosudil (KD025)	Phase II	Oral Rho-associated coiled-coil kinase 2 (ROCK2) inhibitor; last update from Phase II trial in 2018; no further development in IPF
MediciNova	USD	MNOV	44.9	$6.09	$274	$212	Tipilukast (MN-001)	Phase II	Leukotriene receptor antagonist; 15-pt IPF trial, FEV data in Q421; oral macrophage migration inhibitory factor inhibitorcMN-166 (ibudilast) in separate ARDS/ SARS-CoV2 trial
Nitto Denko	JPY	6988	¥159	¥8,770	¥1,392,311	¥1,145,898	BMS-986263/ ND-L02-s0201	Phase I/II	Lipid-encapsulated siRNA targeting collagen-specific chaperone HSP47; 120-pt IPF trial (JUNIPER), 24-wk ADMET data in Q321
Trevi Therapeutics	USD	TRVI	18.4	$3.13	$58	$18	Nalbuphine ER (Par Pharma's Nubain)	Phase II	Phenanthrene-based opioid receptor agonist/anta-gonist; 60-pt IPF trial, 3-wk cough frequency data in Q421
BMS/Celgene	USD	BMY	2,259.8	$60.72	$137,212	$161,078	CC-90001	Phase II	Stress-activated c-Jun N-terminal kinase (JNK) inhibitor, 210-pt IPF trial, 24-wk FEV data in Q123
							BMS-986278	Phase II	Lysophosphatidic acid 1 (LPA1) receptor antagonist; 360-pt IPF trial, 26-wk FEV data in Q423
Liminal BioSciences	**CAD**	**LMNL**	**29.9**	**$4.16**	**$125**	**$188**	**Fezagepras/ PBI-4050**	**Phase II**	**Anti-fibrotic fezagepras/PBI-4050; Data from 12-wk 41-pt Phase II IPF trial published in 2019 in *Eur Resp J*, new PhI multiple-ascending dose trial in Q420**

Source: Refinitiv, Leede Jones Gable, Company Filings

FQ320 financial summary: FQ320 revenue was $0.437M, which declined by $0.4M on a y/y basis following a reduction in the collection of specialty plasma in part due to COVID-19 measures implemented at LMNL's collection centres. Regardless, quarterly revenue at that level and for non-core assets is not germane to our valuation or investment thesis. R&D expense has long been a concern for the firm owing to its prior bioseparation business, which has since been divested to KKR in 2019. Despite the sale, FQ320 R&D expense remains relatively high at $12.4M, as compared to $18.1M on a y/y basis; on a T9M basis this was $45.2M as compared to $57.9M on a y/y basis. Part of the reason why R&D expense remains elevated is due to the firm embedding the cost of manufacturing its clinical stage assets Ryplazim and PBI-4050.

On liquidity, the firm exited FQ320 with proforma cash of $72.9M (consisting of FQ320 cash of C$36.0M and proceeds from a $36.9M Nov/20 financing) as well as LT debt of C$75.4M (inclusive of $35M in lease liability). On the aforementioned Nov/20 financing, the firm raised $36.7M through the sale of 5.8M common shares, 0.6M in 'pre-funded' warrants and 6.3M warrants. The 'pre-funded' warrants are essentially exercisable at one common share at $0.001/shr and thus assumed to have since been exercised into common shares (though for a relatively negligible amount of $725; nonetheless we have adjusted our cash balance to reflect the change). As part of the additional shares and warrants garnered from this financing, we have subsequently reflected the adjustments to our basic and fully diluted share count.

Exhibit 4. Revenue Forecasts – Ryplazim; Congenital Plasminogen Deficiency

Year-end December 31 (C$000, unless otherwise stated)	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Congenital Plasminogen Deficiency									
Population (US, 000s)	338,087	341,806	345,566	349,368	353,211	357,096	361,024	364,995	369,010
Prevalence (US; 1.6 per mil pop)	541	547	553	559	565	571	578	584	590
Price per unit (US$)	$2,750	$2,750	$2,750	$2,750	$2,750	$2,750	$2,750	$2,750	$2,750
Annual cost of therapy (US$)	$143,000	$143,000	$143,000	$143,000	$143,000	$143,000	$143,000	$143,000	$143,000
Estimated market size (US$000)	$77,354	$78,205	$79,066	$79,935	$80,815	$81,704	$82,602	$83,511	$84,430
Less: Transfer price discount to partners	*65%*	*65%*	*65%*	*65%*	*65%*	*65%*	*65%*	*65%*	*65%*
Company Market Share (%)	*0%*	*5%*	*15%*	*30%*	*50%*	*60%*	*70%*	*70%*	*70%*
Plasminogen rev, US (US$000)	**$0**	**$2,542**	**$7,709**	**$15,587**	**$26,265**	**$31,864**	**$37,584**	**$37,997**	**$38,415**
Plasminogen rev, US (C$000)	**$0**	**$3,304**	**$10,022**	**$20,264**	**$34,144**	**$41,424**	**$48,859**	**$49,397**	**$49,940**
Population (Canada, 000s)	35,623	36,015	36,411	36,812	37,217	37,626	38,040	38,458	38,881
Prevalence (Canada; 1.6 per mil pop)	57	58	58	59	60	60	61	62	62
Octaplas price/unit (C$)	$435	$435	$435	$435	$435	$435	$435	$435	$435
Octaplas price per annum (C$)	$104,492	$104,492	$104,492	$104,492	$104,492	$104,492	$104,492	$104,492	$104,492
Estimated market size (C$000)	$5,956	$6,021	$6,088	$6,154	$6,222	$6,291	$6,360	$6,430	$6,500
Less: Transfer price discount to partners	*65%*	*65%*	*65%*	*65%*	*65%*	*65%*	*65%*	*65%*	*65%*
Company Market Share (%)	*0%*	*0%*	*5%*	*15%*	*30%*	*50%*	*60%*	*70%*	*75%*
Plasminogen rev, Cda (C$000)	**$0**	**$0**	**$198**	**$600**	**$1,213**	**$2,044**	**$2,480**	**$2,926**	**$3,169**
Plasminogen rev, Cda (C$000)	**$0**	**$0**	**$198**	**$600**	**$1,213**	**$2,044**	**$2,480**	**$2,926**	**$3,169**
Population (EU, 000s)	532,465	538,322	544,244	550,230	556,283	562,402	568,588	574,843	581,166
Prevalence (EU; 1.6 per mil pop)	852	861	871	880	890	900	910	920	930
Price per treatment per year (€)	€ 377	€ 377	€ 377	€ 377	€ 377	€ 377	€ 377	€ 377	€ 377
Octaplas price per annum (€)	€ 90,560	€ 90,560	€ 90,560	€ 90,560	€ 90,560	€ 90,560	€ 90,560	€ 90,560	€ 90,560
Estimated market size (€000)	€ 77,152	€ 78,001	€ 78,859	€ 79,726	€ 80,603	€ 81,490	€ 82,386	€ 83,292	€ 84,209
Less: Transfer price discount to partners	*65%*	*65%*	*65%*	*65%*	*65%*	*65%*	*65%*	*65%*	*65%*
Company Market Share (%)	*0%*	*0%*	*5%*	*10%*	*15%*	*20%*	*25%*	*30%*	*35%*
Plasminogen rev, EU (€000)	**€ 0**	**€ 0**	**€ 2,563**	**€ 5,182**	**€ 7,859**	**€ 10,594**	**€ 13,388**	**€ 16,242**	**€ 19,157**
Plasminogen rev, Cda (C$000)	**$0**	**$0**	**$3,844**	**$7,773**	**$11,788**	**$15,891**	**$20,082**	**$24,363**	**$28,736**
Total rev, plasminogen, plasminogen deficiency (C$000)	**$0**	**$3,304**	**$14,064**	**$28,637**	**$47,146**	**$59,359**	**$71,421**	**$76,685**	**$81,845**

Source: Refinitiv, Company Filings, Leede Jones Gable

Summary and valuation: We are formally initiating coverage on LMNL with a HOLD rating and a one-year PT of US$4.00. The company reports financial data in Canadian dollars (at least for now) but is listed solely on the NASDAQ and thus trades in US currency, necessitating conversion of our PT to USD solely for that reason. Our valuation is based on NPV (35% discount rate) and multiples of our F2025 EBITDA/EPS forecasts. In that year, we forecast EBITDA of $54.0M and fully diluted EPS of $0.94. Our EV incorporates cash of proforma cash of $72.9M (consisting of FQ320 cash of $36M and proceeds from a Nov/20 financing of $36.9M) and LT debt of $75.4M. The average of our three methodologies yields a PT of $4.14, which we round to $4.00. At the current share price our PT corresponds to a one-year return of (3.8%).

Our Hold rating is intended to reflect caution on valuation only, and not on medical prospects for either development-stage asset (Ryplazim, PBI-4050) to which we ascribe value in our model. As stated, peer-reviewed clinical data has been strong for both assets in our view, and a rating recalibration could be justified down the road on regulatory (FDA approval for Ryplazim) or clinical (positive safety data on pending Phase I dose-escalation PBI-4050 trial) milestones on the horizon in F2021.

Exhibit 5. Revenue Forecasts – PBI-4050; IPF and Alstrom Syndrome

Year-end December 31 (C$000, unless otherwise stated)	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Fezagepras/PBI-4050, Idiopathic pulmonary fibrosis									
Population (US, 000s)	338,087	341,806	345,566	349,368	353,211	357,096	361,024	364,995	369,010
IPF, diagnosed cases (US, 000s)	150,904	153,923	157,001	160,141	163,344	166,611	169,943	173,342	176,809
Proportion of patients with treatable disease (000s)	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*
Price per treatment (US$)	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000
Annual cost of therapy (US$)	$96,000	$96,000	$96,000	$96,000	$96,000	$96,000	$96,000	$96,000	$96,000
Estimated market size (US$M)	$9,416	$9,605	$9,797	$9,993	$10,193	$10,397	$10,604	$10,817	$11,033
Royalty rate on net sales by partner (%)	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*
Company Market Share (%)	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.5%*	*1.0%*	*1.5%*	*2.00%*	*2.5%*
PBI-4050 royalty rev, US (US$000)	**$0**	**$0**	**$0**	**$0**	**$15,289**	**$31,190**	**$47,720**	**$64,899**	**$82,746**
PBI-4050 royalty rev, US (C$000)	**$0**	**$0**	**$0**	**$0**	**$19,876**	**$40,546**	**$62,036**	**$84,369**	**$107,570**
Population (Cda, 000s)	35,623	36,015	36,411	36,812	37,217	37,626	38,040	38,458	38,881
IPF, diagnosed cases (000s)	15,900	16,218	16,543	16,874	17,211	17,555	17,906	18,264	18,630
Proportion of patients with treatable disease (000s)	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*
Price per treatment (C$)	$6,154	$6,154	$6,154	$6,154	$6,154	$6,154	$6,154	$6,154	$6,154
Annual cost of therapy (C$)	$73,846	$73,846	$73,846	$73,846	$73,846	$73,846	$73,846	$73,846	$73,846
Estimated market size (C$M)	$763	$778	$794	$810	$826	$843	$860	$877	$894
Royalty rate on net sales by partner (%)	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*
Company Market Share (%)	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.5%*	*1.0%*	*1.5%*	*2.0%*
PBI-4050 royalty rev, Cda (C$000)	**$0**	**$0**	**$0**	**$0**	**$0**	**$1,264**	**$2,579**	**$3,945**	**$5,365**
PBI-4050 royalty rev, Cda (C$000)	**$0**	**$0**	**$0**	**$0**	**$0**	**$1,264**	**$2,579**	**$3,945**	**$5,365**
Population (EU, 000s)	532,465	538,322	544,244	550,230	556,283	562,402	568,588	574,843	581,166
IPF, diagnosed cases (000s)	130,242	132,847	135,504	138,214	140,978	143,798	146,674	149,607	152,600
Proportion of patients with treatable disease (000s)	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*	*65.0%*
Price per treatment (€)	€ 8,451	€ 8,451	€ 8,451	€ 8,451	€ 8,451	€ 8,451	€ 8,451	€ 8,451	€ 8,451
Annual cost of therapy (€)	€ 101,416	€ 101,416	€ 101,416	€ 101,416	€ 101,416	€ 101,416	€ 101,416	€ 101,416	€ 101,416
Estimated market size (€M)	€ 8,586	€ 8,757	€ 8,932	€ 9,111	€ 9,293	€ 9,479	€ 9,669	€ 9,862	€ 10,059
Royalty rate on net sales by partner (%)	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*
Company Market Share (%)	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.5%*	*1.0%*	*1.50%*	*2.0%*
Plasminogen rev, EU (€000)	**€ 0**	**€ 0**	**€ 0**	**€ 0**	**€ 0**	**€ 14,219**	**€ 29,006**	**€ 44,380**	**€ 60,356**
Plasminogen rev, Cda (C$000)	**$0**	**$0**	**$0**	**$0**	**$0**	**$21,328**	**$43,509**	**$66,569**	**$90,534**
Total royalty rev, PBI-4050, IPF	**$0**	**$0**	**$0**	**$0**	**$19,876**	**$63,139**	**$108,124**	**$154,883**	**$203,470**
Fezagepras/PBI-4050, Alstrom Syndrome									
Population (US, 000s)	338,087	341,806	345,566	349,368	353,211	357,096	361,024	364,995	369,010
Alstrom syndrome, total est cases	353	360	368	375	383	390	398	406	414
Proportion of treatable patients	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*
Price per treatment (US$)	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000
Annual cost of therapy (US$)	$96,000	$96,000	$96,000	$96,000	$96,000	$96,000	$96,000	$96,000	$96,000
Estimated market size (US$000)	$33,927	$34,606	$35,298	$36,004	$36,724	$37,458	$38,207	$38,971	$39,751
Royalty rate on net sales by partner (%)	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*
Company Market Share (%)	*0.0%*	*0.0%*	*0.0%*	*10.0%*	*20.0%*	*40.0%*	*60.0%*	*70.0%*	*75.0%*
PBI-4050 royalty rev, US (US$000)	**$0**	**$0**	**$0**	**$1,080**	**$2,203**	**$4,495**	**$6,877**	**$8,184**	**$8,944**
PBI-4050 royalty rev, US (C$000)	**$0**	**$0**	**$0**	**$1,404**	**$2,864**	**$5,843**	**$8,941**	**$10,639**	**$11,627**
Population (Cda, 000s)	35,623	36,015	36,411	36,812	37,217	37,626	38,040	38,458	38,881
Alstrom syndrome, total est cases	37	38	39	40	40	41	42	43	44
Proportion of treatable patients	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*
Price per treatment (C$)	$6,154	$6,154	$6,154	$6,154	$6,154	$6,154	$6,154	$6,154	$6,154
Annual cost of therapy (C$)	$73,846	$73,846	$73,846	$73,846	$73,846	$73,846	$73,846	$73,846	$73,846
Estimated market size (C$000)	$2,750	$2,805	$2,861	$2,918	$2,977	$3,036	$3,097	$3,159	$3,222
Royalty rate on net sales by partner (%)	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*
Company Market Share (%)	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*10.0%*	*20.0%*	*40.0%*	*60.0%*	*70.0%*
PBI-4050 royalty rev, Cda (C$000)	**$0**	**$0**	**$0**	**$0**	**$89**	**$182**	**$372**	**$569**	**$677**
PBI-4050 royalty rev, Cda (C$000)	**$0**	**$0**	**$0**	**$0**	**$89**	**$182**	**$372**	**$569**	**$677**
Population (EU, 000s)	532,465	538,322	544,244	550,230	556,283	562,402	568,588	574,843	581,166
Alstrom syndrome, total est cases	557	568	579	591	602	615	627	639	652
Proportion of treatable patients	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*
Price per treatment (€)	€ 8,451	€ 8,451	€ 8,451	€ 8,451	€ 8,451	€ 8,451	€ 8,451	€ 8,451	€ 8,451
Annual cost of therapy (€)	€ 101,416	€ 101,416	€ 101,416	€ 101,416	€ 101,416	€ 101,416	€ 101,416	€ 101,416	€ 101,416
Estimated market size (€000)	€ 56,447	€ 57,576	€ 58,727	€ 59,902	€ 61,100	€ 62,322	€ 63,568	€ 64,840	€ 66,137
Royalty rate on net sales by partner (%)	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*	*30%*
Company Market Share (%)	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*10.0%*	*20.0%*	*40.0%*	*60.0%*	*70.0%*
Plasminogen rev, EU (€000)	**€ 0**	**€ 0**	**€ 0**	**€ 0**	**€ 1,833**	**€ 3,739**	**€ 7,628**	**€ 11,671**	**€ 13,889**
Plasminogen rev, Cda (C$000)	**$0**	**$0**	**$0**	**$0**	**$2,750**	**$5,609**	**$11,442**	**$17,507**	**$20,833**
Total royalty rev, PBI-4050, Alstrom Syndrome (C$000)	**$0**	**$0**	**$0**	**$1,404**	**$5,703**	**$11,635**	**$20,754**	**$28,715**	**$33,137**

Source: Refinitiv, Company Filings, Leede Jones Gable

Current forecasts exclude early-stage preclinical programs, though progress is certainly tied to upside potential: Our forecasts currently exclude a number of early-stage pipeline developments that Liminal currently has in its pipeline. This includes the selective G-protein coupled receptor 84 (GPR84) antagonist program and the oral selective oxo-eicosanoid receptor 1 (OXER1) antagonist program. Both programs are pending the preclinical research stage, and given the uncertainty on their development, we have for now elected to omit both programs from our revenue forecasts. These assets were acquired by way of the firm's

acquisition of Fairhaven Pharmaceuticals in Jul/20 via an all-share $8M transaction ($3.6M initially paid through the sale of 202,308 common shares, and the remainder $4.4M to also be paid out in LMNL shares pending). However, given just how early stage these assets are, we do not ascribe market value, at least not until formal clinical testing commences.

Plasma product forecasts solely focusing on Ryplazim in the near-term given revenue-generating potential pending approval event in mid-2021: While Liminal is indeed part of the CoVIg-19 alliance for developing a plasma-derived treatment solution for COVID-19, we are for now cautious on the development of this program in light of negative-to-mixed data using convalescent plasma to date. As such, we are not including this in our plasma product revenue forecasts. And given how development has been slow to evolve for other plausible plasminogen indications, specifically tympanic membrane (ear drum) repair and diabetic foot ulcers/wound care even though published clinical data support plasminogen's potential in both indications, we will for now exclude any Ryplazim revenue projections for those two indications at least until we see tangible evidence that formal clinical trials are imminent in either or both indications.

Disclosures none

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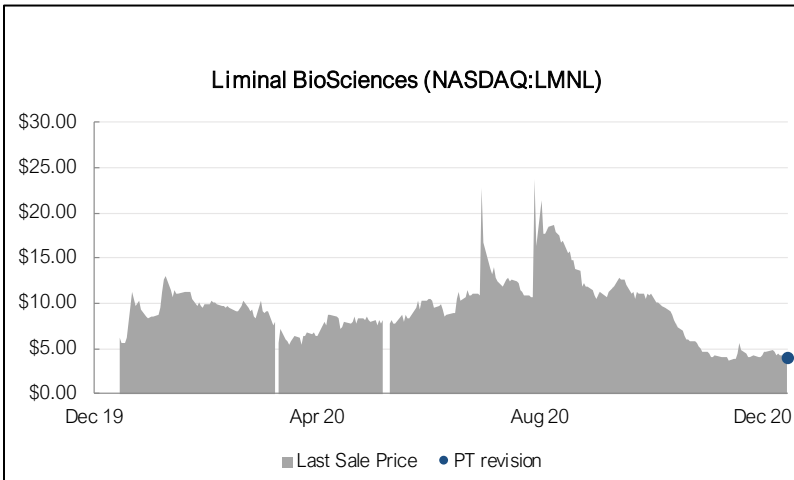

Date	Target ($)	Rating
15 Dec 2020	US$4.00	HOLD

Coverage Initiated: Dec 15, 2020
Data sourced from: Refinitiv