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August 24, 2020
John D. Vandermosten, CFA
312-265-9588 / jvandermosten@zacks.com

scr.zacks.com **10 S. Riverside Plaza, Suite 1600, Chicago, IL 60606**

ProMIS Neurosciences Inc (PMN – TSE)

Serology Testing JV in AD and COVID

Based on our DCF model and a 15% discount rate, PMN is valued at approximately $5.50 per share. We apply a 7% probability of eventual sales of portfolio products in global markets.

Current Price (8/21/20)	$0.19
Valuation	**$5.50**

OUTLOOK

ProMIS is developing a portfolio of monoclonal antibodies to address AD, ALS and PD. The company's lead candidate, PMN310, is able to selectively target toxic oligomers which are thought to be the cause of neuron death in AD. Two proprietary, data-intensive algorithms are used to identify targets on misfolded proteins called ProMIS and Collective Coordinates. These allow for precise and efficient target identification.

ProMIS offers a platform that can generate mAbs specific to toxic forms of proteins found in neurodegenerative disease and determine their efficacy quickly and at low cost using biomarkers. ProMIS has identified trials in AD, PD and ALS that can provide proof of concept data and support further development in target indications. We anticipate continued focus on AD and increased partner involvement.

With recent FDA guidance regarding trial design, there is support for the use of fewer endpoints and biomarkers which may accelerate future development in AD. Previous trial results and additional research have refined the optimal drug design and proper target. While still in early stage development, PMN310 makes a compelling case for success and should hold a dominant position in the market if trials are successful and regulatory approval is granted.

SUMMARY DATA

52-Week High	**$0.31**
52-Week Low	**$0.10**
One-Year Return (%)	**-15.9**
Beta	**0.50**
Average Daily Volume (sh)	**433,469**
Shares Outstanding (mil)	**290**
Market Capitalization ($mil)	**$53.7**
Short Interest Ratio (days)	**2.0**
Institutional Ownership (%)	**0.1**
Insider Ownership (%)	**10.3**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**N/A**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**N/A**
P/E using 2020 Estimate	**N/A**
P/E using 2021 Estimate	**N/A**
Zacks Rank	**N/A**

Risk Level	**Above Average**
Type of Stock	**Small-Growth**
Industry	**Med-Biomed/Gene**

ZACKS ESTIMATES

Revenue
(in millions of $CAD)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2019	$0.0 A	$0.0 A	$0.0 A	$0.0 A	$0.0 A
2020	$0.0 A	$0.0 A	$0.0 E	$0.0 E	$0.0 E
2021					$0.0 E
2022					$0.0 E

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2019	-$0.01 A	-$0.01 A	-$0.01 A	-$0.01 A	-$0.03 A
2020	-$0.01 A	-$0.01 A	-$0.01 E	-$0.01 E	-$0.02 E
2021					-$0.04 E
2022					-$0.05 E

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WHAT'S NEW

Second Quarter 2020 Operational and Financial Results

As the coronavirus dominated the global environment, ProMIS reoriented its efforts towards the virus and forged a relationship with BC Neuroimmunology (BCNI) to develop antibody detection tests for COVID-19. The relationship expanded to include development of assays to screen and diagnose Alzheimer's Disease (AD). ProMIS and BCNI later codified their agreement with a Joint Venture business arrangement to offer additional testing. Another effort to combat COVID-19 emerged with a pending $400,000 grant from the Canadian government to predict mutations in the coronavirus. Industry news was punctuated by the FDA's acceptance of Biogen's Biologics License Application (BLA) for aducanumab, bringing AD back into focus.

Financial results for second quarter 2020 were published in a press release and SEDAR filings released on August 13, 2020. Minimal revenues were recognized in the second quarter. Research and development efforts consumed $899,000[1] in 2Q:20 compared with $1.0 million in the prior year quarter, a 14% drop. Lower spending on external contract research organization (CRO) costs, less share-based compensation were partially offset by higher patent expenditures. General and administrative expenses were $0.8 million, compared with the prior year's $0.8 million. The 7% contraction in spend was primarily attributed to reduction in consulting and professional fees offset by increased foreign exchange losses.

As of June 30, 2020, cash stood at $1.3 million, down from the prior year-end level of $1.7 million and essentially flat with the prior quarter's level. Cash burn for 2Q:20 was ($1.2) million offset by a net $1.2 million in cash from financing. In March 2020, ProMIS secured approval from the Toronto Stock Exchange to temporarily reduce the exercise price on 44 million options to $0.13 per share in a modification that expires on May 22. During this period which spanned two quarters, ProMIS raised total proceeds of $1.24 million.

Partnerships

ProMIS has developed multiple relationships with BCNI over the last several months, which is led by ProMIS board member Dr. Hans Frykman. On April 15, ProMIS announced a collaboration with BCNI to develop a high-throughput, highly specific serological asay to detect SARS-CoV-2 antibodies. About a month later, the partnership was expanded to include the development of a diagnostic assay for screening and diagnosis of AD. The diagnostic approach will use surface plasmon resonance (SPR)[2] technology, a highly accurate approach to detecting specific antibodies.

The serology test that the two companies are developing is able to achieve a 99.9% sensitivity and 99.5% specificity for SARS-CoV-2, levels comprable to industry leading tests. Efforts to develop the diagnostic will also be able to determine whether or not the antibodies detected in the assay are able to neutralize the virus by using ProMIS' proprietary peptide antigens. It is important to identify if the antibodies can neutralize the virus as this would indicate that they can confer immunity to COVID-19. 18 antibody targets have been identified that are unique to the spke protein on the virus and the ProMIS BCNI team will next test the binding affinity of the peptide antigents to the antibodies using SPR.

The success of early stage development between ProMIS and BCNI led to the creation of a revenue-sharing joint venture to develop highly accurate tests for AD. The tests would detect, assist in diagnosis and monitor the progression of AD. To joint venture will use SPR technology to generate results, which is favored due to its greater accuracy, flexibility and adaptability compared to enzyme-linked immunosorbent assay (ELISA) immunochemical tests. The JV will measure two brain-protein biomarkers: neurofilament light chain (NfL) and phosphorylated tau181 (P-tau181) which both show precise measurements of amyloid, tau and neurodegeneration. Since measurable AD neuropathology precedes cognitive decline by 15 to 20 years, the wide availability of this test will allow candidates for early stage treatment to be identified when preventative drugs can be most effective. As the 50/50 JV relationship matures between ProMIS and BCNI, additional tests are expected to be developed.

Additional collaborative efforts addressing COVID-19 include the receipt of a Supercluster Award to predict the evolution of the virus. The award of CAD$1.8 million will supprt the effort to identify likely mutations of SARS-CoV-2 in order to develop effective tests, therapies and vaccines against it. The Government of Canada, which provided

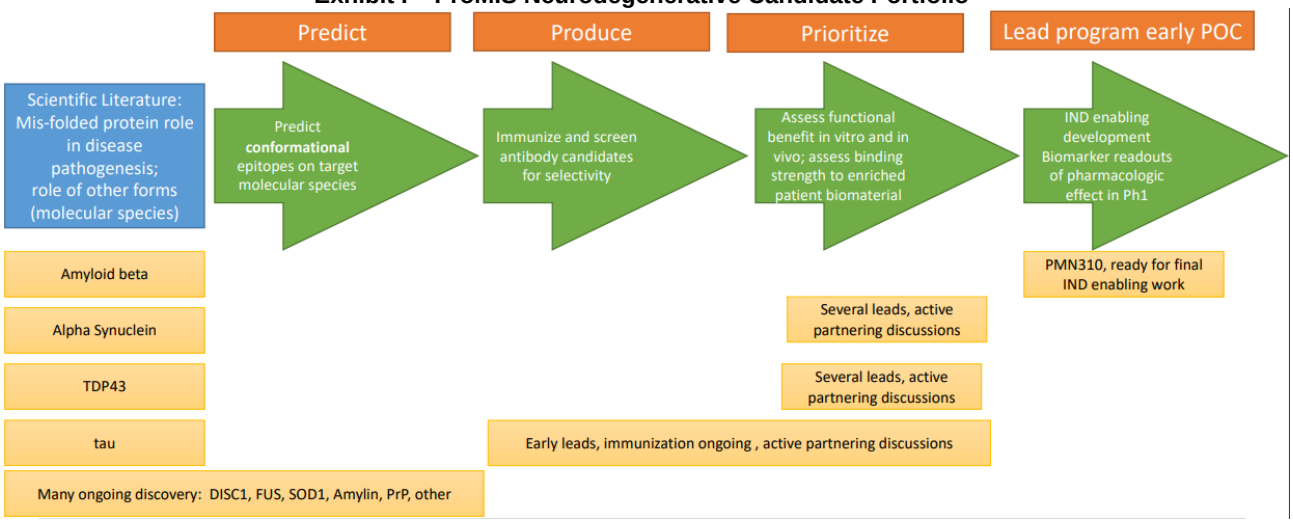
[1] Currency is denominated in Canadian Dollars
[2] SPR is an approach that employs covalently attached ligands which interact with an analyte. Light is refracted on an underlying sensor chip, the angle of which can determine the mass of a bound protein. See here for a detailed explanation.

the award, anticipates that dangerous new strans may emerge and is incentivizing activity to get ahead of the virus' evolution. ProMIS is joined by five other commercial and academic collaborators to launch the project. The partners include Terramera, D-Wave, Menten AI, Microsoft Corp, ProMIS and the University of British Columbia. ProMIS will lend its epitope-identifying discovery engine to identify unique sites displayed on complex protein structures to assist in the effort.

Aducanumab Regulatory Submission

After months of suspense, Biogen (BIIB) published a press release on August 7th announcing aducanumab's BLA had been accepted by the FDA and granted priority review generating a target action date of March 7, 2021. Due to the unmet need in AD, the agency plans expedited action on the submission to review the first disease modifying therapy to reduce the clinical decline of AD. When Biogen announced in March 2019 that it had halted the trials evaluating the drug, the AD community and stakeholders had a loss of faith in the amyloid beta approach, given the string of failures capped by this announcement. However, on further examination, it appeared that at high doses the drug did work and a reanalysis demonstrated sufficient efficacy for the FDA to accept the BLA. This is a positive for others in the amyloid beta camp as it shows the approach can work. PMN310 offers several features that suggest it can perform even better than aducanumab due to its more specific targeting of misfolded proteins and lack of off-target Amyloid Related Imaging Abnormality – Edema (ARIA-E) brain swelling.

Exhibit I – ProMIS Neurodegenerative Candidate Portfolio[3]



Additions to the Team

In January 2020, Dr. José Luis Molinuevo ascended to the Scientific Advisory Board (SAB) bringing his experience as a neurologist, researcher, professor, principal investigator and clinician to the post. Dr. Molinuevo has focused on AD and other related diseases such as PD. He is the Scientific Director of the Alzheimer Prevention Program at the BarcelonaBeta Brain Research Center (BBRC) in Barcelona, Spain, which focuses on Alzheimer's disease prevention from a clinical, cognitive, genetic, and biomarker perspective. Dr. Molinuevo is also an associate professor at the University Pompeu Fabra. His experience and knowledge of biomarkers and relationships throughout Europe are valuable assets that should provide support for later stage clinical trials in ProMIS' portfolio candidates.

In conjunction with the announcement that ProMIS was collaborating in the development of a serological test for the coronavirus, the company also welcomed Dr. Hans Frykman to the SAB in April. Dr. Frykman is the CEO and medical director of BC Neuroimmunology lab and Neurocode Labs. For decades, the BC Neuroimmunology lab has provided clinical neuroimmunology testing in North America. Dr. Frykman is also a clinical assistant professor of medicine at the University of British Columbia.

[3] Source: ProMIS Corporate Presentation January 2020.

RACK1

ProMIS identified a new antagonist against the Receptor for Activated protein C Kinase 1 (RACK1). RACK1 has been implicated in neurodegenerative diseases including amyotrophic lateral sclerosis (ALS). The RACK1 antagonists are designed to prevent this protein from forming aggregates that impair proper neuronal functioning. RACK1 is an attractive target because it interacts with other proteins including TAR DNA-binding protein 43 (TDP43) and Fused in Sarcoma (FUS). TDP43 and FUS can assemble and prevent neurological machinery from functioning properly by impairing synthesis of cell proteins. The RACK1 antagonist is another example of the broad functionality of ProMIS' discovery algorithms.

Significant Event Timeline

ProMIS has a number of recent and upcoming milestones related to development of its pipeline which we summarize below.

- Confidential discussions with potential partners for platform programs - Ongoing
- Revenue sharing JV with BC Neuroimmunology – July 2020
- Capital raise or partnership to fund entry into clinic – 2020
- Prepare IND and Phase I trial for PMN310 – 2020
- Pursue a vectorization deal - 2020
- Generate Phase I biomarker data with Toronto Memory Program – 2020
- Launch Phase I trial in PMN310 - 2021

Summary

ProMIS has continued to advance its preclinical programs and enter into diagnosting testing collaborations to detect both coronavirus and Alzheimer's Disease. Parallel with these endeavors is the continued interaction with the scientific, investment and corporate community to garner KOL support, financing and partnerships. Management has refined its message highlighting the need to focus on the toxic forms of misfolded proteins that are the root cause of neurodegenerative disease and the importance of biomarkers that can rapidly and inexpensively demonstrate efficacy. We continue to be impressed with ProMIS' discovery platforms and their ability to identify unique features of toxic misfolded proteins and their ability to be repurposed to identify targets for the coronavirus. We believe that a pharmaceutical partner deal or large investment will allow the company to advance its candidates into the clinic.

ProMIS represents an attractive opportunity to gain exposure to a disorder with no other approved disease modifying therapies. There are almost six million people in the US and over 30 million people outside of the US suffering from AD. Additionally, there is a larger population with mild cognitive impairment (MCI) and pre-Alzheimer's which may benefit even more from toxic oligomer sequestering therapy. The path forward is relatively clear with other assets setting the precedent for trial design and potentially accelerated approaches using biomarkers suggested by regulatory agencies. There is also substantial opportunity for drug development in PD, MSA and ALS.

Due to the uncertain environment regarding to aducanumab, the investment community is waiting to invest new money in βA programs. We expect to see a response by the FDA to Biogen's drug by March of next year, which may bring attention back to the βA space. We continue to believe in the potential of PMN310 and the other candidates in development and the tremendous opportunity in AD and other neurodegenerative diseases due to the lack of effective therapies and the magnitude of the need. We maintain our target price of $5.50.

PROJECTED FINANCIALS

ProMIS Neurosciences Inc - Income Statement

ProMIS Neurosciences Inc.	2019 A	Q1 A	Q2 A	Q3 E	Q4 E	2020 E	2021 E	2022 E
Total Revenues (CAD$)	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**
R&D	$4.7	$1.0	$0.9	$1.0	$1.0	$3.9	$12.6	$17.5
G&A	$2.7	$0.8	$0.8	$0.7	$0.7	$2.9	$3.0	$3.3
Operating Income	($7.4)	($1.8)	($1.7)	($1.7)	($1.7)	($6.8)	($15.6)	($20.8)
Operating Margin								
Amort of Financing & Interest	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$1.0
Pre-Tax Income	($7.4)	($1.8)	($1.7)	($1.7)	($1.7)	($6.8)	($15.6)	($21.8)
Taxes & Other	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Tax Rate								
Net Income	($7.4)	($1.8)	($1.7)	($1.7)	($1.7)	($6.8)	($15.6)	($21.8)
Reported EPS	**($0.03)**	**($0.01)**	**($0.01)**	**($0.01)**	**($0.01)**	**($0.02)**	**($0.04)**	**($0.05)**
YOY Growth								
Shares Outstanding	259.8	278.1	284.7	295.0	299.0	289.2	400.0	433.0

Source: Company Filing // Zacks Investment Research, Inc. Estimates

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HISTORICAL STOCK PRICE

ProMIS Neurosciences Inc – Historical Price Chart[4]



[4] Source: Zacks Research System

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