Zacks Small-Cap Research
Sponsored – Impartial - Comprehensive

October 30, 2020
David Bautz, PhD
312-265-9471
dbautz@zacks.com

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

MediciNova, Inc. (MNOV-NASDAQ)

MNOV: Intranasal SARS-CoV-2 Vaccine Induces Neutralizing Antibodies in Preclinical Studies…

Based on our probability adjusted DCF model that takes into account potential future revenues from MN-166 in ALS, progressive MS and addiction; MN-001 in NASH and IPF; and the SARS-CoV-2 vaccine, MNOV is valued at $26.50/share. This model is highly dependent upon continued clinical success of the company's assets and will be adjusted accordingly based upon future clinical results.

Current Price (10/30/20)	$5.71
Valuation	**$26.50**

OUTLOOK

MediciNova, Inc. (MNOV) is developing an intranasal SARS-CoV-2 vaccine candidate that utilizes BC-PIV, a human parainfluenza virus (HPIV) type 2 vector. The company recently announced that the vaccine induced neutralizing systemic IgG and mucosal IgA antibodies against the S1 antigen of SARS-CoV-2 in mice. The company is continuing to perform preclinical analysis of the vaccine in preparation for an IND filing and clinical trials in 2021. MediciNova also recently announced a publication reporting positive results from a clinical trial of MN-166 (ibudilast) in chemotherapy-induced peripheral neuropathy (CIPN) and the company will be initiating a Phase 2b clinical trial of MN-166 in CIPN in Australia.

SUMMARY DATA

52-Week High	**$11.00**
52-Week Low	**$2.90**
One-Year Return (%)	**-29.16**
Beta	**1.49**
Average Daily Volume (sh)	**169,286**
Shares Outstanding (mil)	**45**
Market Capitalization ($mil)	**$257**
Short Interest Ratio (days)	**N/A**
Institutional Ownership (%)	**21**
Insider Ownership (%)	**16**
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 2018 Estimate	**N/A**
P/E using 2019 Estimate	**N/A**

Risk Level	**High**
Type of Stock	**Small-Blend**
Industry	**Med-Biomed/Gene**

ZACKS ESTIMATES

Revenue
(In millions of $)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2019	0 A	0 A	0 A	0 A	0 A
2020	0 A	0 A	0 A	0 E	0 E
2021					0 E
2022					0 E

Earnings per Share

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2019	-$0.11 A	-$0.09 A	-$0.05 A	-$0.04 A	-$0.30 A
2020	-$0.06 A	-$0.10 A	-$0.08 A	-$0.09 E	-$0.34 E
2021					-$0.34 E
2022					-$0.35 E

© Copyright 2020, Zacks Investment Research. All Rights Reserved.

WHAT'S NEW

Business Update

SARS-CoV-2 Vaccine Induces Neutralizing Antibodies in Mice

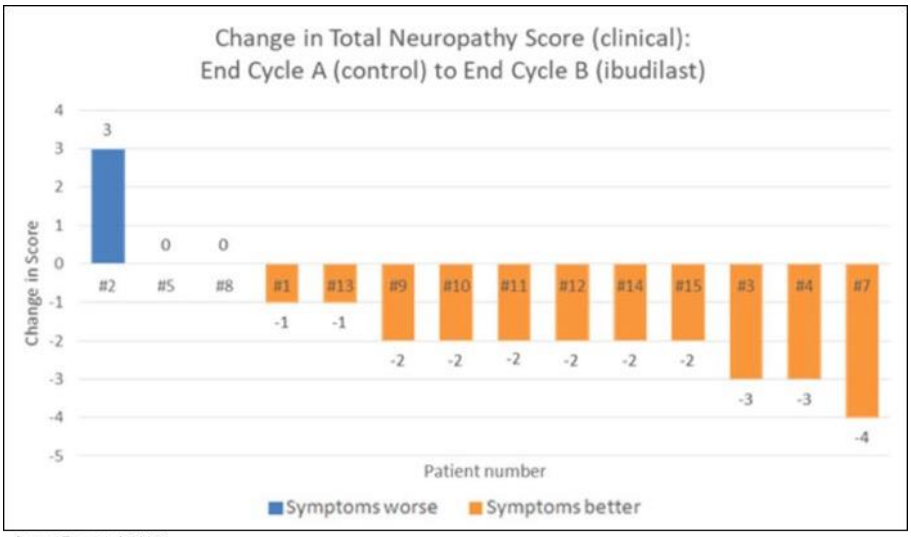
On September 23, 2020, MediciNova, Inc. (MNOV) announced that the company's SARS-CoV-2 vaccine for COVID-19 elicited serum IgG and mucosal IgA neutralizing antibodies against the S1 antigen of SARS-CoV-2 in mice following intranasal vaccination. The vaccine is being developed through a joint development agreement with BioComo and Mie University. It uses BC-PIV, a human parainfluenza virus (HPIV) type 2 vector, which is a non-transmissible viral vector with a strong safety profile. Please see our previous report for background on the HPIV vector.

Now that the company has confirmed the ability of the vaccine to induce neutralizing antibodies, additional preclinical studies are currently underway to evaluate cell mediated immunity (CD4/CD8+ T cells) and the vaccine's efficacy in preventing viral infection in an *in vivo* study. We anticipate additional updates on the progress of the vaccine candidate over the next several months.

MN-166 in CIPN

On September 24, 2020, MediciNova announced a publication in *Cancer Chemotherapy and Pharmacology* regarding positive findings from a clinical study of MN-166 in patients with chemotherapy-induced peripheral neuropathy (CIPN) (Teng *et al*., 2020). It was a prospective, open label, sequential crossover study in patients with metastatic upper gastrointestinal or colorectal cancer to determine whether MN-166 could reduce acute peripheral neuropathy symptoms. A total of 16 patients consented, with 14 patients completing two cycles of oxaliplatin-containing chemotherapy. In Cycle A, patients received conventional chemotherapy while in Cycle B patients received chemotherapy with concurrent MN-166. With the crossover design, each patient served as their own control. Neurotoxicity was assessed using the Oxaliplatin-Specific Neurotoxicity Scale (OSNS), the Total Neuropathy Score Clinical (TNSc), the Functional Assessment of Cancer Therapy/Gynaecologic Oncology Group – Neurotoxicity (FACT/GOG-Ntx13), and the National Cancer Institute Common Terminology Criteria for Adverse Events (NCI-CTCAE) neuropathy subscale.

The study showed that a majority of patients experienced either an improvement or no worsening of neurotoxicity with MN-166 treatment. For the OSNS scale, 12/14 (86%) patients reported acute neurotoxicity (Grade 1 or 2) in both cycles. Of those, 10/12 (83%) were unchanged with two patients reporting improved symptoms from Grade 2 to Grade 1 with MN-166 treatment. For the other three scales, a majority of participants had no worsening of scores at Day 3 and end of cycle time-points for Cycle B compared to Cycle A. The following figure shows that only one patient had an increase in total neuropathy score, while 13 patients showed no change or a decrease in total neuropathy score.



Source: Teng *et al*., 2020

Importantly, there was no change in systemic exposure of oxaliplatin or 5-fluorouracil when administered along with MN-166, suggesting that MN-166 did not alter the pharmacokinetics of either chemotherapeutic agent.

Alleviating the severity of acute neurotoxicity and neuropathy symptoms is very important to cancer patients as these symptoms can result in dose reductions or stopping of the chemotherapy, which could have a significant negative impact on survival time. There are no pharmaceuticals currently approved for CIPN.

To follow up on these positive findings, MediciNova is planning to initiate a Phase 2b clinical trial of MN-166 in CIPN in collaboration with the University of Sydney and the Australasian Gastro-Intestinal Trials Group (AGITG). It will be a multicenter, randomized, double blind, placebo-controlled trial to determine if MN-166 (60 mg/day) can decrease acute neurotoxicity symptoms and CIPN in patients with metastatic colorectal cancer receiving oxaliplatin for up to six months. A total of 100 patients are planned to be enrolled in a 1:1 (MN-166:placebo) ratio. Trial expenses will be paid by the AGITG with MediciNova responsible for supplying drug product.

Financial Update

On October 26, 2020, MediciNova filed form 10-Q with financial results for the third quarter of 2020. As expected, the company did not report any revenues for the third quarter of 2020. Net loss for the third quarter of 2020 was $3.7 million, or $0.08 per share, compared to a net loss of $2.4 million, or $0.05 per share for the third quarter of 2019. R&D expenses for the third quarter of 2020 were $2.2 million, compared to $1.2 million for the third quarter of 2019. The increase was primarily due to higher clinical trial expenses. G&A expenses for the third quarters of 2020 and 2019 were $1.5 million.

Total operating cash burn for the third quarter of 2020 was approximately $3.9 million and the company exited the third quarter of 2020 with approximately $61.6 million in cash and cash equivalents. As of October 22, 2020, the company had approximately 44.9 million shares outstanding and, when factoring in the approximately 7.5 million stock options, a fully diluted share count of approximately 52.4 million.

Conclusion

The news regarding MediciNova's SARS-CoV-2 vaccine candidate continues to be encouraging, particularly its ability to elicit both IgG and IgA neutralizing antibodies. The vaccine candidate is an exciting development for the company, as there are very few intranasally administered COVID-19 vaccines in development and there are a number of potential advantages for a vaccine that can be administered intranasally, most notably the potential for only needing a single dose. We estimate that a successful COVID-19 vaccine (we believe there will be multiple vaccines that will eventually be approved) could generate revenues of $1 billion in a relatively short time frame, however how much revenue a vaccine generates long term is unknown given our lack of understanding regarding the longevity of the immune response to SARS-CoV-2 and if booster shots will be necessary for some vaccines. This will be a highly fluid situation as we learn more about other vaccines in development and the response to those vaccines, but for now we value the COVID-19 vaccine program for MediciNova at $100 million.

In addition to work on the vaccine and MN-166 in CIPN, we remind investors that MN-166 is also currently being evaluated in a Phase 3 clinical trial in patients with amyotrophic lateral sclerosis (ALS), a Phase 3 trial for degenerative cervical myelopathy (DCM), and is Phase 3 ready for multiple sclerosis (MS). Our current valuation is $26.50.

PROJECTED FINANCIALS

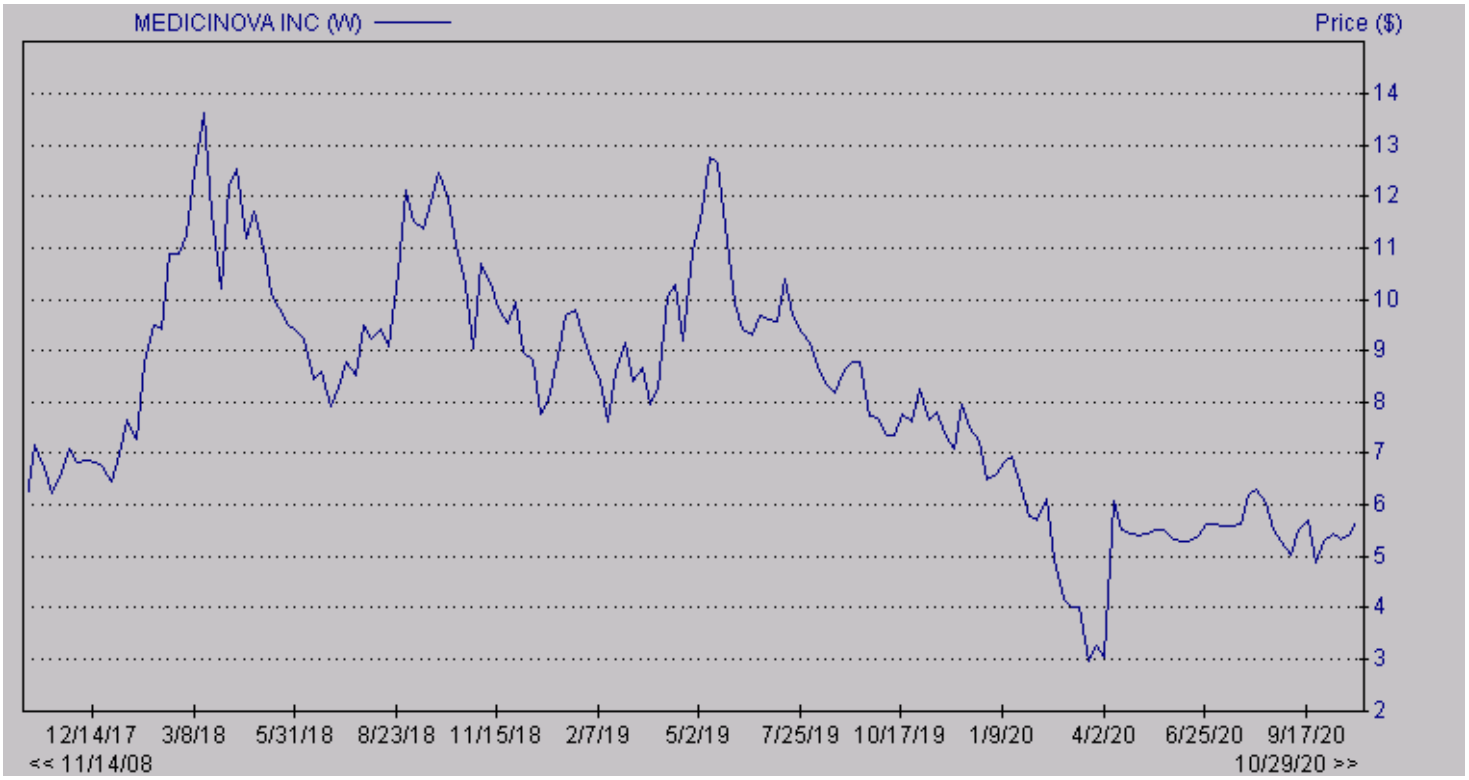
MediciNova Inc.
Income Statement

MediciNova, Inc.	2019 A	Q1 A	Q2 A	Q3 A	Q4 E	2020 E	2021 E	2022 E
MN-166 (Multiple Sclerosis)	$0	$0	$0	$0	$0	$0	$0	$0
MN-166 (ALS)	$0	$0	$0	$0	$0	$0	$0	$0
MN-166 (Addiction)	$0	$0	$0	$0	$0	$0	$0	$0
MN-001 (NASH)	$0	$0	$0	$0	$0	$0	$0	$0
MN-001 (IPF)	$0	$0	$0	$0	$0	$0	$0	$0
Grants & Collaborative Revenue	$0	$0	$0	$0	$0	$0	$0	$0
Total Revenues	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Cost of Sales	$0	$0	$0	$0	$0	$0	$0	$0
Product Gross Margin	-	-	-	-	-	-	-	-
Research & Development	$6.079	$1.251	$2.199	$2.238	$1.800	$7.488	$9.000	$10.000
General & Administrative	$7.952	$1.674	$2.311	$1.492	$2.400	$7.877	$8.500	$9.000
Other Expenses	$0	$0	$0	$0	$0	$0	$0	$0
Operating Income	($14.0)	($2.9)	($4.5)	($3.7)	($4.2)	($15.4)	($17.5)	($19.0)
Operating Margin	-	-	-	-	-	-	-	-
Non-Operating Expenses (Net)	$1.1	$0.2	$0.1	$0.0	$0.1	$0.4	$0.4	$0.4
Pre-Tax Income	($12.9)	($2.7)	($4.5)	($3.7)	($4.1)	($15.0)	($17.1)	($18.6)
Income Taxes Paid	($0)	$0	$0	$0	($0)	$0	$0	$0
Tax Rate	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Net Income	**($12.9)**	**($2.7)**	**($4.5)**	**($3.7)**	**($4.1)**	**($15.0)**	**($17.1)**	**($18.6)**
Net Margin	-	-	-	-	-	-	-	-
Reported EPS	**($0.30)**	**($0.06)**	**($0.10)**	**($0.08)**	**($0.09)**	**($0.34)**	**($0.34)**	**($0.35)**
YOY Growth	-	-	-	-	-	-	-	-
Basic Shares Outstanding	43.159	43.949	44.092	44.644	44.800	44.371	50.000	53.000

Source: Zacks Investment Research, Inc. *David Bautz, PhD*

© Copyright 2020, Zacks Investment Research. All Rights Reserved.

HISTORICAL STOCK PRICE



Source: Zacks Small Cap Research

© Copyright 2020, Zacks Investment Research. All Rights Reserved.

DISCLOSURES

The following disclosures relate to relationships between Zacks Small-Cap Research ("Zacks SCR"), a division of Zacks Investment Research ("ZIR"), and the issuers covered by the Zacks SCR Analysts in the Small-Cap Universe.

ANALYST DISCLOSURES

I, David Bautz, PhD, hereby certify that the view expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the recommendations or views expressed in this research report. I believe the information used for the creation of this report has been obtained from sources I considered to be reliable, but I can neither guarantee nor represent the completeness or accuracy of the information herewith. Such information and the opinions expressed are subject to change without notice.

INVESTMENT BANKING AND FEES FOR SERVICES

Zacks SCR does not provide investment banking services nor has it received compensation for investment banking services from the issuers of the securities covered in this report or article.
Zacks SCR has received compensation from the issuer directly, from an investment manager, or from an investor relations consulting firm engaged by the issuer for providing non-investment banking services to this issuer and expects to receive additional compensation for such non-investment banking services provided to this issuer. The non-investment banking services provided to the issuer includes the preparation of this report, investor relations services, investment software, financial database analysis, organization of non-deal road shows, and attendance fees for conferences sponsored or co-sponsored by Zacks SCR. The fees for these services vary on a per-client basis and are subject to the number and types of services contracted. Fees typically range between ten thousand and fifty thousand dollars per annum. Details of fees paid by this issuer are available upon request.

POLICY DISCLOSURES

This report provides an objective valuation of the issuer today and expected valuations of the issuer at various future dates based on applying standard investment valuation methodologies to the revenue and EPS forecasts made by the SCR Analyst of the issuer's business.
SCR Analysts are restricted from holding or trading securities in the issuers that they cover. ZIR and Zacks SCR do not make a market in any security followed by SCR nor do they act as dealers in these securities. Each Zacks SCR Analyst has full discretion over the valuation of the issuer included in this report based on his or her own due diligence. SCR Analysts are paid based on the number of companies they cover. SCR Analyst compensation is not, was not, nor will be, directly or indirectly, related to the specific valuations or views expressed in any report or article.

ADDITIONAL INFORMATION

Additional information is available upon request. Zacks SCR reports and articles are based on data obtained from sources that it believes to be reliable, but are not guaranteed to be accurate nor do they purport to be complete. Because of individual financial or investment objectives and/or financial circumstances, this report or article should not be construed as advice designed to meet the particular investment needs of any investor. Investing involves risk. Any opinions expressed by Zacks SCR Analysts are subject to change without notice. Reports or articles or tweets are not to be construed as an offer or solicitation of an offer to buy or sell the securities herein mentioned.

CANADIAN COVERAGE

This research report is a product of Zacks SCR and prepared by a research analyst who is employed by or is a consultant to Zacks SCR. The research analyst preparing the research report is resident outside of Canada, and is not an associated person of any Canadian registered adviser and/or dealer. Therefore, the analyst is not subject to supervision by a Canadian registered adviser and/or dealer, and is not required to satisfy the regulatory licensing requirements of any Canadian provincial securities regulators, the Investment Industry Regulatory Organization of Canada and is not required to otherwise comply with Canadian rules or regulations.