Zacks Small-Cap Research
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David Bautz, PhD
312-265-9471
dbautz@zacks.com

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

MediciNova, Inc. (MNOV-NASDAQ)

MNOV: MN-166 to be Developed as a Treatment for Severe Pneumonia and Acute Respiratory Distress Syndrome…

Based on our probability adjusted DCF model that takes into account potential future revenues from MN-166 in ALS, progressive MS and addiction and MN-001 in NASH and IPF, MNOV is valued at $24/share. This model is highly dependent upon continued clinical success of both MN-166 and MN-001 and will be adjusted accordingly based upon future clinical results.

Current Price (03/12/20)	$3.29
Valuation	**$24.00**

OUTLOOK

On March 9, 2020, MediciNova, Inc. (MNOV) announced that MN-166 (ibudilast) will be developed for the treatment of severe pneumonia and acute respiratory distress syndrome (ARDS). The results of a recently performed preclinical study showed that MN-166 is able to reverse histological changes observed in an ARDS mouse model including inflammation, hemorrhage, alveolar congestion, and alveolar wall edema. In addition, MN-166 treatment attenuated the secretion of inflammatory cytokines, reduced pulmonary edema, and reduced cell apoptosis in lung tissue. We believe MN-166 could be a novel treatment option for patients infected with the recently emerged coronavirus, which can result in the development of severe pneumonia and ARDS.

SUMMARY DATA

52-Week High	**$13.37**
52-Week Low	**$2.85**
One-Year Return (%)	**-61.92**
Beta	**1.64**
Average Daily Volume (sh)	**105,070**
Shares Outstanding (mil)	**44**
Market Capitalization ($mil)	**$145**
Short Interest Ratio (days)	**N/A**
Institutional Ownership (%)	**22**
Insider Ownership (%)	**15**
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	**Above Avg.**
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 E	0 E	0 E	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	-$0.08 E	-$0.08 E	-$0.09 E	-$0.09 E	-$0.34 E
2021					-$0.34 E
2022					-$0.35 E

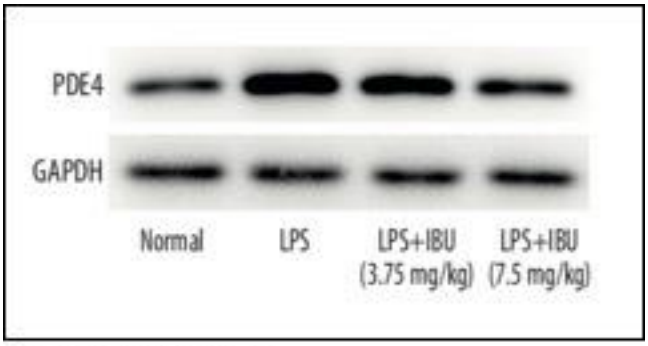
Business Update

MN-166 to be Developed for Severe Pneumonia and ARDS

On March 9, 2020, MediciNova, Inc. (MNOV) announced that based upon preclinical results that were recently published the company will develop MN-166 (ibudilast) as a treatment for severe pneumonia and acute respiratory distress syndrome (ARDS). ARDS results in the small blood vessels of the lung leaking fluid that fills up the alveoli, thus preventing proper oxygen exchange (Stevens *et al*., 2018).

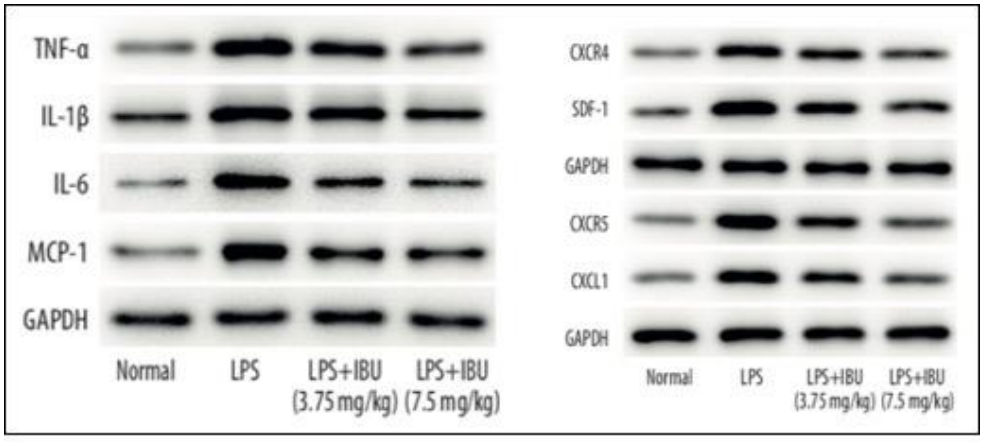
There are many causes of ARDS, including infections (e.g., pneumonia), severe burns, pancreatitis, inhalation of smoke or chemicals, or other serious illnesses. An excessive inflammatory response appears to be involved in the pathogenesis of ARDS (Li *et al*., 2019). Current treatment options involve supportive care while the lungs heal, which involves oxygen therapy supplied through a ventilator. There are no pharmacological treatments specifically for ARDS and approximately 40% of hospitalized patients die from it (Siegel *et al*., 2020).

In a preclinical study, MN-166 was studied for its effectiveness on neonatal ARDS in a mouse model in which ARDS is induced with lipopolysaccharide (LPS) (Yang *et al*., 2020). Mice were divided into four groups of 10 each: a control group, a LPS-induced group, and two MN-166 treatment groups (3.75 and 7.5 mg/kg). The following figure shows that PDE4, which MN-166 is an inhibitor of, is increased by LPS stimulation and that treatment with MN-166 decreased this overexpression of PDE4 in lung tissue in ARDS mice.



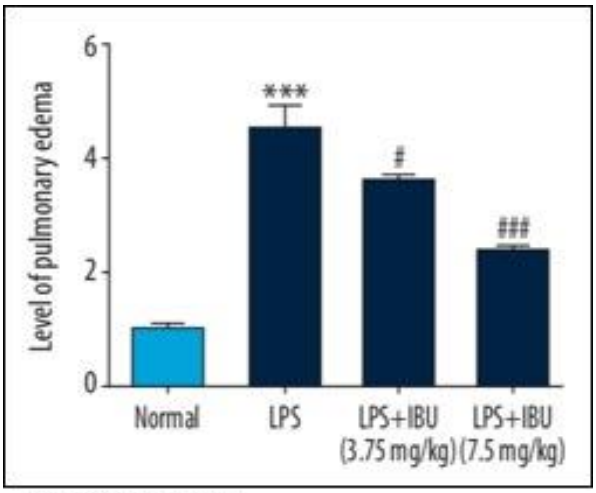
Source: Yang *et al*., 2020

In addition to decreasing the expression of PDE4, treatment with ibudilast also decreases the abnormal overexpression of different inflammatory cytokines, including TNF-a, IL-1b, IL-6, and MCP-1, and inflammatory chemokines, including CXCL1, CXCR4, and CXCR5.



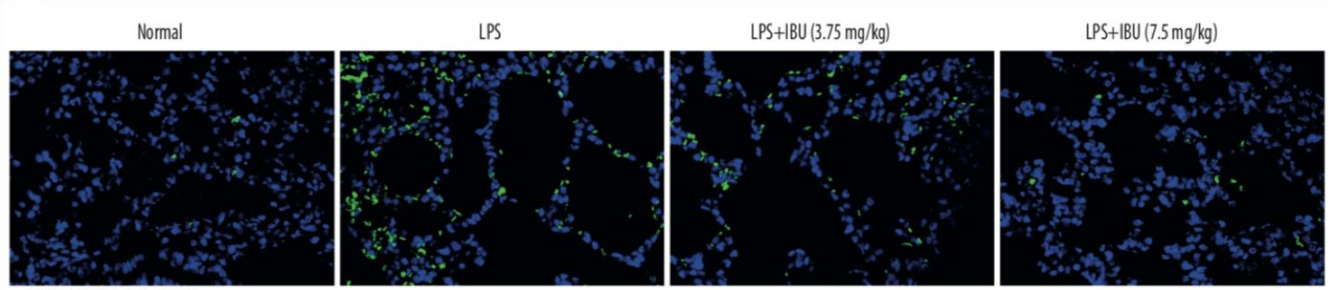
Source: Yang *et al*., 2020

Pulmonary edema was evaluated using the pulmonary edema score to indicate the amount of water accumulation in the lungs after pulmonary damage. Pulmonary edema was significantly reduced by MN-166 treatment (P<0.001). These results suggest that MN-166 may be able to reverse pulmonary edema which is very important to the recovery of the patient.



Source: Yang *et al.*, 2020

The effect of MN-166 on lung cell apoptosis was also investigated. The following figure shows a TUNEL staining assay (which measures apoptosis; indicated by bright green) in which apoptosis is prevalent in the untreated LPS sample, however the amount of apoptosis is decreased by MN-166 treatment, thus showing the drugs ability to protect against pulmonary injury.



Source: Yang *et al.*, 2020

Conclusion

Treatment with MN-166 protects against pulmonary damage in an ARDS mouse model through suppression of inflammatory cytokines and chemokines and decreasing lung cell apoptosis. Its ability to reduce pulmonary edema may enable a higher percentage of patients to recover and survive. Since ARDS can be brought on by severe lung infections, such as by the currently circulating novel coronavirus, MN-166 may prove to be a valuable treatment option for critically ill patients. We look forward to updates on the progress of MN-166 in treating ARDS and severe pneumonia. Our current valuation for MNOV is $24 per share.

PROJECTED FINANCIALS

MediciNova Inc.
Income Statement

MediciNova, Inc.	2019 A	Q1 E	Q2 E	Q3 E	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	$1.800	$1.800	$1.800	$1.800	$7.200	$9.000	$10.000
General & Administrative	$7.952	$1.800	$2.000	$2.200	$2.400	$8.400	$8.500	$9.000
Other Expenses	$0	$0	$0	$0	$0	$0	$0	$0
Operating Income	($14.0)	($3.6)	($3.8)	($4.0)	($4.2)	($15.6)	($17.5)	($19.0)
Operating Margin	-	-	-	-	-	-	-	-
Non-Operating Expenses (Net)	$1.1	$0.1	$0.1	$0.1	$0.1	$0.4	$0.4	$0.4
Pre-Tax Income	($12.9)	($3.5)	($3.7)	($3.9)	($4.1)	($15.2)	($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)**	**($3.5)**	**($3.7)**	**($3.9)**	**($4.1)**	**($15.2)**	**($17.1)**	**($18.6)**
Net Margin	-	-	-	-	-	-	-	-
Reported EPS	**($0.30)**	**($0.08)**	**($0.08)**	**($0.09)**	**($0.09)**	**($0.34)**	**($0.34)**	**($0.35)**
YOY Growth	-	-	-	-	-	-	-	-
Basic Shares Outstanding	43.159	43.900	44.000	44.200	44.400	44.125	50.000	53.000

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

HISTORICAL STOCK PRICE

Source: Zacks Small Cap Research

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