Zacks Small-Cap Research

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MediciNova, Inc. (MNOV - Nasdaq)

MNOV: Ready to Initiate Phase 2 trials of MN-001 in IPF and NASH…

Current Recommendation	**Buy**
Prior Recommendation	N/A
Date of Last Change	05/12/2015
Current Price (08/03/15)	$3.75
Target Price	**$8.00**

UPDATE

MediciNova recently announced Phase 2 clinical trial plans for MN-001 for idiopathic pulmonary fibrosis (IPF) and nonalcoholic steatohepatitis (NASH), two indications we believe have tremendous potential for the company.

Work with MN-166 continues in a number of indications: 1) clinical trials for MN-166 in multiple sclerosis and alcohol dependence recently completed enrollment; 2) interim data from the alcohol dependence study showed MN-166 was very well tolerated and shows beneficial effects on mood, decreased the daily measure of alcohol craving, and potentiated alcohol-induced sedation; and 3) an abstract regarding the on-going trial of MN-166 in amyotrophic lateral sclerosis (ALS) will be presented in December.

SUMMARY DATA

52-Week High	**$4.96**
52-Week Low	**$1.94**
One-Year Return (%)	**86.20**
Beta	**0.70**
Average Daily Volume (sh)	**451,426**
Shares Outstanding (mil)	**32**
Market Capitalization ($mil)	**$121**
Short Interest Ratio (days)	**16.01**
Institutional Ownership (%)	**8**
Insider Ownership (%)	**27**
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 2015 Estimate	**N/A**
P/E using 2016 Estimate	**N/A**

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

ZACKS ESTIMATES

Revenue

(In millions of $)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2014	0 A	0 A	0 A	0 A	0 A
2015	0 A	0 A	0 E	0 E	0 E
2016					0 E
2017					0 E

Earnings per Share

(EPS is operating earnings before non-recurring items)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2014	-$0.10 A	-$0.09 A	-$0.10 A	-$0.09 A	-$0.38 A
2015	-$0.09 A	-$0.09 A	-$0.10 E	-$0.10 E	-$0.38 E
2016					-$0.45 E
2017					-$0.50 E

WHAT'S NEW

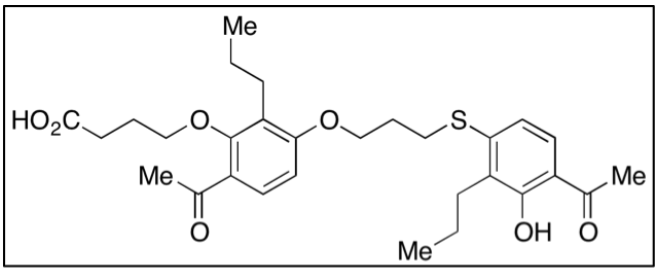
Financial Update

On July 30, 2015, MediciNova, Inc. (MNOV) filed form 10-Q with financial results for the second quarter of 2015. As expected, the company did not report any revenues for the quarter. Operating expenses for the quarter totaled $2.3 million and were composed of $0.8 million in R&D and $1.5 million in G&A expenses, compared with $0.8 million in R&D and $1.3 million in G&A expenses for the corresponding time period of 2014. The increase in G&A expense was driven mainly by an increase in stock compensation expense for performance options granted in January 2015.

Net loss for the second quarter of 2015 was $2.3 million, or $0.09 per share. Cash burn for the quarter was approximately $1.2 million and the company exited the second quarter of 2015 with approximately $8.6 million in cash and cash equivalents. We view this as sufficient to fund operations through the first quarter of 2016. On May 22, 2015, the company entered into an at-the-market (ATM) issuance sales agreement with MLV & Co. through which sales of the company's common stock may occur from time to time up to an aggregate offering price of $30 million. We remind investors that there are approximately 2.4 million warrants with an exercise price of $3.56, 0.75 million warrants with an exercise price of $3.15, and 0.12 million warrants with an exercise price of $3.38 outstanding that could provide an additional $11.3 million to the company.

MN-001 Clinical Development Update

MN-001 is a novel, orally available small molecule compound that works through several mechanisms to produce anti-fibrotic and anti-inflammatory effects in preclinical models. The compound is a leukotriene (LT) receptor antagonist, a PDE inhibitor (mainly 3 and 4), and also inhibits 5-lipoxygenase (5-LO). The 5-LO/LT pathway is though to be a pathogenic factor in fibrosis development (Zeldin *et al*., 2002). Previously, the company had tested MN-001 as a treatment for asthma and completed a Phase 2 study with positive results. The compound has been tested in over 600 subjects and was considered generally safe and well tolerated.



Source: trc-canada.com

Medicinova has recently announced clinical trial details for MN-001 in the treatment of both idiopathic pulmonary fibrosis (IPF) and nonalcoholic steatohepatitis (NASH).

Background on PF

Pulmonary fibrosis (PF) is a respiratory disease that occurs when lung tissue becomes damaged and scarred. As the disease progresses patients gradually become more short of breath. The disease can be caused by a number of factors, however in most cases there is no known cause. When a specific cause can't be found, it is referred to as idiopathic pulmonary fibrosis (IPF). A diagnosis of PF carries a grim prognosis, as most patients diagnosed with the disease typically die within three to five years of diagnosis (Frankel *et al*., 2009).

PF appears to be a relatively rare disease; however, no large-scale studies of the incidence or prevalence are currently available. According to the Coalition for Pulmonary Fibrosis, IPF affects approximately 128,000 individuals in the U.S., with about 48,000 new cases diagnosed annually. Approximately two-thirds of people diagnosed with PF are above the age of 60 at the time of diagnosis (Raghu *et al*., 2006).

Current Treatment Options for PF

There is no cure for PF, thus currently used medications are aimed at preventing additional lung scarring, relieving symptoms, and helping patients stay active and healthy. Patients with PF typically present with a number of comorbid conditions, including chronic obstructive pulmonary disease (COPD), obstructive sleep apnea, gastroesophageal reflux disease (GERD), and coronary artery disease (CAD). The use of GERD medications is associated with longer survival time (Lee *et al*., 2011). Additional medications that have been utilized to treat PF include prednisone, cyclophosphamide, azathioprine, and mycophenolate mofetil. Oxygen therapy is typically prescribed when lung function begins to deteriorate and blood oxygen levels fall too low. Lastly, lung transplant may be recommended if a patient is younger than 65, has no other medical problems, and are not responding to other medications.

There are currently two agents that are FDA-approved for the treatment of PF: pirfenidone (Esbriet®) and nintedanib (Ofev®), both of which were approved in October 2014.

- **Pirfenidone** was approved based on the results of the ASCEND and CAPCITY 1 and 2 Phase 3 clinical trials. The CAPACITY program included two clinical trials (study 004 and study 006) of 345 pirfenidone-treated patients and 347 placebo-treated patients where a pooled analysis of pirfenidone dosed at 2403 mg/day showed a significant reduction in decline of forced vital capacity (FVC), a measure of lung capacity (Noble *et al*., 2011). The ASCEND study included 555 patients randomized 1:1 to receive pirfenidone or placebo (King Jr. *et al*., 2014). Results showed that after one year of treatment, 16.5% of patients in the pirfenidone-treated group experienced an FVC decline of 10% or more compared to 31.8% in the placebo group. In addition, 22.7% of patients in the pirfenidone group experienced no decline in FVC compared with 9.7% in the placebo group. Analysts estimate peak sales of Esbriet® are approximately $1.1 billion; Roche acquired the drug by purchasing InterMune for $8.3 billion in August 2014.

- **Nintedanib** was approved based on the results of two Phase 3 clinical trials (INPULSIS-1 and INPULSIS-2) conducted in parallel in 1066 patients randomized 3:2 to receive either 150 mg nintedanib or placebo twice daily (Richeldi *et al*., 2014). Results showed a significantly lower annual rate of change in FVC in nintedanib-treated patients compared to placebo-treated patients. In addition, a smaller proportion of patients in the nintedanib groups than in the placebo groups had an absolute decline in FVC or more than 5 percentage points. The drug is marketed by Boehringer Ingelheim.

Details of Phase 2 Study of MN-001 in IPF

On July 21, 2015, MediciNova announced the company was in late-stage discussions with Penn State University to conduct a Phase 2 study of MN-001 for the treatment of moderate to severe IPF under the direction of principal investigator Dr. Rebecca Bascom. We anticipate that MediciNova will be funding the trial.

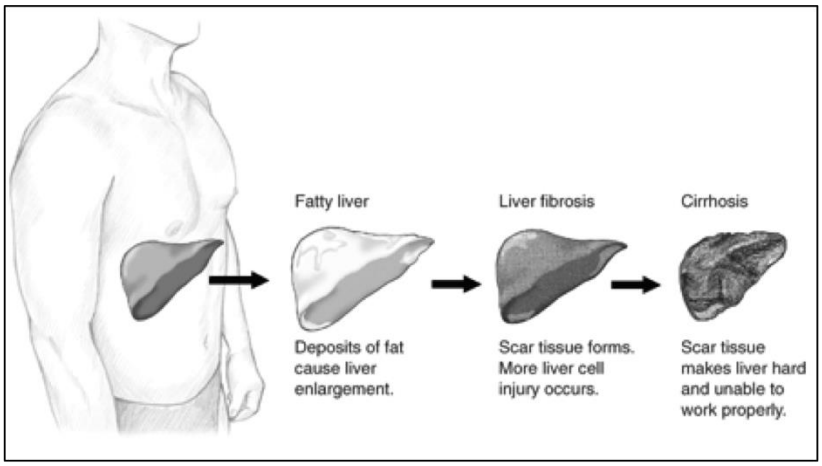
The study will be a randomized, placebo controlled, double blind 6-month study followed by a 6-month open-label extension phase to examine the safety and efficacy of MN-001 in moderate to severe IPF patients (NCT02503657). The drug will be administered twice daily at 750 mg per dose over a 26-week period. The study is expected to enroll 15 patients that will be randomized 2:1 to receive MN-001 or placebo. After the 26-week double-blind period, there will be a 26-week open label extension phase where patients who received placebo will be administered drug and those who previously received drug will be allowed to stay on treatment. The primary outcome of the study is change from baseline in forced vital capacity (FVC) at 26 weeks, a measure of lung function. There are a number of secondary outcomes including safety and tolerability of MN-001 and various measures of the rate of decline in disease activity. We anticipate results from the double-blind portion of the study to be available in the first half of 2017.

Background on NASH

Nonalcoholic steatohepatitis (NASH) is inflammation and damage in the liver brought on by a buildup of fat. The disease is an often “silent” liver disease as most people with NASH feel well and are not aware that they have a liver problem. Nevertheless, NASH can be severe and can lead to cirrhosis, in which the liver is permanently damaged and scarred and no longer works properly.

NASH is the most severe form of nonalcoholic fatty liver disease (NAFLD), a type of fatty liver where there is deposition of fat (steatosis) in the liver brought on by something other than alcohol consumption and is often due to obesity. Approximately 10 to 20 percent of individuals in the U.S. have fat in their liver but no indication of inflammation, while NASH affects two to five percent of people in the U.S (NIDDK).

People with NASH usually have few or no symptoms. Patients generally feel well in the early stages and only begin to have symptoms — such as fatigue, weight loss, and weakness — once the disease is more advanced or cirrhosis develops. The progression of NASH can take years or even decades, can stop on its own and even get better without therapy, or it can slowly worsen and cause fibrosis, or scarring, of the liver. As fibrosis worsens, cirrhosis develops; the liver becomes seriously scarred, hardened, and unable to function normally. Not every person with NASH develops cirrhosis, but once serious scarring or cirrhosis is present there are few treatments that can halt the progression. Liver transplantation is the only treatment for advanced cirrhosis with liver failure, and transplantation is increasingly performed in people with NASH. NASH ranks as one of the major causes of cirrhosis in America, behind hepatitis C and alcoholic liver disease.



Source: NIDDK

Elevated liver enzymes, such as alanine aminotransferase (ALT) or aspartate aminotransferase (AST), are the first sign that a person may have NASH. If further evaluation shows no apparent reason for liver disease (such as medications, viral hepatitis, or excessive use of alcohol) and x-rays or imaging studies of the liver show fat, NASH is suspected. The only means of proving a diagnosis of NASH and separating it from simple fatty liver is a liver biopsy. NASH is diagnosed when examination of liver tissue shows fat along with inflammation and damage to liver cells. If the tissue shows fat without inflammation and damage, simple fatty liver or NAFLD is diagnosed. An important piece of information learned from the biopsy is whether scar tissue has developed in the liver. Currently, no blood tests or scans can reliably provide this information.

Current Treatment Options for NASH

There are currently no treatment options available for those that develop NASH. Physicians typically advise NASH patients to lose weight (if they are overweight or obese), get more exercise, eat healthy, and avoid alcohol and unnecessary medications. While these are simply standard recommendations for maintaining a healthy lifestyle they can make a difference in patients with NASH. Losing weight typically leads to improved liver tests and may possibly reverse the disease, but usually only to a certain extent.

Experimental approaches currently under development include the use of antioxidants, such as Vitamin E, selenium, and betaine. There is usually an increased oxidative stress in the livers of NASH patients, thus these medications may work to lower the amount of oxidative species. Another experimental approach under development is the use of antidiabetic medications, even for those NASH patients who are not diabetic. Many NASH patients are insulin resistant, thus medicines such as metformin, rosiglitazone, or pioglitazone may increase patients sensitivity to insulin and reduce liver injury by better enabling a patient to control blood glucose and lipid levels. Additional therapies under development include experimental medications obeticholic acid (Intercept Pharmaceuticals), RP103 (Raptor Pharmaceuticals), GR-MD-02 (Galectin Therapeutics), and LJPC-1010 (La Jolla Pharmaceuticals).

Pre-clinical Data Supports MN-001 for the Treatment of NASH

Two separate studies in mouse models of NASH have shown MN-001 to have both anti-NASH and anti-fibrotic activity.

Study #1: MN-001 was administered orally once daily (10, 30, or 100 mg/kg) for three weeks in the STAM™ (NASH-HCC) mouse model of NASH. The model is created by a combination of chemical and dietary interventions in a standard laboratory mouse strain.

Treatment with MN-001 resulted in a dose-dependent reduction in liver fibrosis as demonstrated by a reduction in liver hydroxyproline content ($P < 0.01$). In addition, there was a significant improvement ($P < 0.01$) in the NAFLD activity score (NAS), which is a summation of the separate scores for steatosis (0–3), hepatocellular ballooning (0–2) and lobular inflammation (0–3). Concurrently, MN-001 was shown to significantly down-regulate ($P < 0.01$) the expression of MCP-1, CCR2, collagen type-1, and TIMP-1; all of which are genes associated with the formation of fibrosis.

Study #2: In a second study, the same STAM™ (NASH-HCC) mouse model of NASH was utilized, however the mice were at a more advanced stage of NASH. MN-001 was administered orally once daily (10, 30, or 100 mg/kg) beginning at eight weeks of age for four weeks.

Once again, treatment with MN-001 resulted in a statistically significant decrease in NAS score ($P < 0.001$), owing mostly to a decrease in hepatocyte ballooning score and lobular inflammation score. Fibrosis area was also significantly reduced in the MN-001 treated group ($P < 0.01$). MN-001 was once again shown to decrease expression levels of the previously tested genes along with LOXL2, a gene shown to be upregulated in fibrotic livers (Barry-Hamilton *et al*., 2010). Importantly, treatment with MN-001 had no effect on body weight or general condition of the mice compared to placebo.

Details of Phase 2 Clinical Plan in NASH

On July 27, 2015, MediciNova announced that the FDA has approved a second protocol for evaluating MN-001 in NASH patients. The Phase 2 trial will be a single center, proof-of-concept, open label study designed to evaluate the efficacy, safety, and tolerability of MN-001 in NASH patients with hypertriglyceridemia. Approximately 20 patients between the ages of 21 and 65 with a histologically confirmed diagnosis of NASH within 6 months prior to the baseline visit and an elevated serum triglyceride level (> 150 mg/dL) will be enrolled. Patients will be given 250 mg MN-001 orally once a day for the first 4 weeks and then 250 mg twice a day for an additional 8 weeks. The study timeline consists of a 4 month screening phase followed by a 12 week treatment phase and a follow-up visit one week after the last dose.

The primary endpoints of the study are to evaluate the effect of MN-001 on triglyceride levels and cholesterol efflux capacity in NASH subjects with hypertriglyceridemia. Secondary endpoints include safety and tolerability of MN-001, pharmacokinetic profile of MN-001/MN-002 (a metabolic by-product of MN-001), effects of MN-001 on high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), and total cholesterol level, and effects of MN-001/002 on liver enzymes and percent fat in liver assessed using MRI at week 12.

As a reminder, in April 2015 the company announced the FDA had granted Fast Track Designation for MN-001 for the treatment of NASH patients with fibrosis. Fast Track designation is given to drugs that are intended for the treatment of a serious or life-threatening disease or condition and that demonstrate the potential to address unmet medical needs for the disease or condition. Importantly, a company with a drug that receives Fast Track designation may be eligible for some or all of the following:

- Increased interactions with the FDA to discuss the drug's development plan and ensure collection of appropriate data needed to support approval.
- Accelerated Approval - approval based on an effect on a surrogate, or substitute endpoint reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality.
- Priority Review - with an FDA goal for completing review within six months of submission.
- Rolling Review - which means that a sponsor can submit completed sections of its New Drug Application (NDA) for review by the FDA, rather than waiting until every section of the application is completed before the entire application can be reviewed.

MN-166 Receives Orphan Drug Designation for Krabbe Disease

On June 3, 2015, MediciNova announced that MN-166 has received Orphan Drug Designation (ODD) for the treatment of Krabbe disease. The company had previously opened an investigational new drug (IND) application with the Division of Neurology Products for MN-166 under which a clinical trial for Krabbe disease would fall and a clinical trial protocol is currently being finalized for submission to the FDA.

Krabbe disease is a degenerative disorder caused by deficient activity of the lysosomal hydrolase galactosylceramide beta-galactosidase (GALC) (Suzuki *et al*., 1970). GALC degrades galactosylceramide, a major component of myelin, and other terminal beta-galactose containing sphingolipids, including psychosine (galactosylsphingosine). Increased psychosine levels are believed to lead to widespread destruction of oligodendroglia in the CNS and to subsequent demyelination (Graziano *et al*., 2015).

Symptoms of Krabbe disease typically begin before the age of 1 (infantile form) with initial signs typically including irritability, muscle weakness, feeding difficulties, and slowed mental and physical development. Disease progression is accompanied by continued muscle weakness leading to an inability to move, chew, swallow, and breathe. The disease is quite rare and affects only 1 in 100,000 individuals in the U.S.

The Orphan Drug Act of 1983 was designed to provide financial incentives for and to reduce the costs associated with developing drugs for rare diseases and disorders, such as Krabbe disease. A "rare disease or disorder" is defined by the Act as affecting fewer than 200,000 Americans at the time of designation or one for which "there is no reasonable expectation that the cost of developing and making available in the United States…will be recovered from sales in the United States." Orphan drug designation carries certain incentives including:

- ✓ The FDA must provide the sponsor with "written recommendations for the non-clinical and clinical investigations (based on the information available at the time of the request)… that would be necessary for approval of such drug for such disease or condition…"

- ✓ For a period of seven years post-approval, the FDA may not approve an application from a different sponsor for the "same drug" for the same disease or condition. The 7-year exclusivity period conferred by orphan drug status is important because patent protection and Hatch-Waxman data exclusivity have limited effectiveness in excluding competitors from introducing equivalent drugs with slightly different structures. An exception is provided by any change that leads to improved safety or efficacy.

- ✓ Grants and contracts are available to defray the costs of development. For 2013-17, the amount appropriated is $30 million per year, which is a fairly modest sum but could make a significant difference for a small company such as MediciNova.

- ✓ A tax credit in the amount of 50% of qualified clinical testing expenses is established by related legislation (Title 26 Part 1-28). The tax credits can be rolled forward by up to 15 years for companies that have no tax liability in the year in which expenses are occurred (e.g., pre-revenue biotech companies).

- ✓ Waiver of PDUFA fees. For FY 2014, these are $2.17 million for full NDAs, a huge benefit for a company with limited financial resources.

Update on MN-166 in Treating Dependence

In June 2015, MediciNova announced a number of updates in regards to MN-166 (ibudilast) in the treatment of addiction, including a new article published in the journal *Addiction Biology*, the presentation of interim clinical data for the treatment of alcohol dependence, and the completion of enrollment for the alcohol dependence study.

- ➢ The article published in *Addiction Biology* reported results from an in-patient, double-blind, placebo controlled study of MN-166 in non-treatment-seeking heroin-dependent volunteers (Cooper *et al*., 2015). Patients were maintained on morphine for 14 days and placebo for 7 days of the 3-week study. In addition, they received placebo capsules on days 1-7 and either MN-166 (20 or 40 mg twice a day) or placebo on days 8-21. All patients experienced withdrawal symptoms during the third week of the study compared to the first two weeks, however a pooled analysis of both MN-166 groups showed lower ratings of withdrawal symptoms during deotoxification compared to the placebo group.

- ➢ On June 24, 2015, principal investigator Dr. Lara Ray presented interim data from the ongoing study of MN-166 in alcohol dependence at the 38th Annual Research on Alcoholism Scientific Meeting. The data was compiled from the first 22 subjects enrolled in the study. Encouragingly, the data showed that the drug was very well tolerated with no serious adverse events or drug-related dropouts. In addition, the preliminary results indicate that MN-166 has beneficial effects on mood ($p<0.05$), decreased the daily measure of alcohol craving ($p=0.05$), and potentiated alcohol-induced sedation ($p<0.05$). The company announced completion of enrollment of 24 subjects in the trial the following week. The outcomes of this trial will inform the feasibility of a Phase 2b, regulatory-track, outpatient trial in alcohol dependence.

Conclusion and Recommendation

In addition to treating dependence, MN-166 is also currently being tested as a treatment for progressive multiple sclerosis (MS) and amyotrophic lateral sclerosis (ALS), two indications that we covered in great detail in our previous article on MediciNova. Both of these indications represent blockbuster opportunities for the drug, with potential peak sales of $5 billion for MS and $2.5 billion for ALS. The company recently announced that data from the on-going Phase 2 study of MN-166 in ALS will be presented in December, so we may get an early indication as to the potential efficacy of MN-166 in ALS at that time.

MediciNova has decided to utilize investigator-sponsored early-stage clinical trials for testing the company's compounds as this serves to conserve cash reserves and allows for a large number of clinical trials to be conducted at very little expense to the company, as most of those trials are small and costs can be easily contained. The flip-side to this strategy is that development is somewhat slower than what could be accomplished were the company to fund larger trials, however this would require substantially dilutive financing. Once data begins to be collected for the compounds in the early-stage trials, the company can then go and look for corporate partnerships, which should increase the pace of the development process. We feel this is a prudent strategy for the company to pursue. Our probability adjusted discounted cash flow model gives a target price of $8 per share, and we continue to have a 'Buy' rating on the stock.

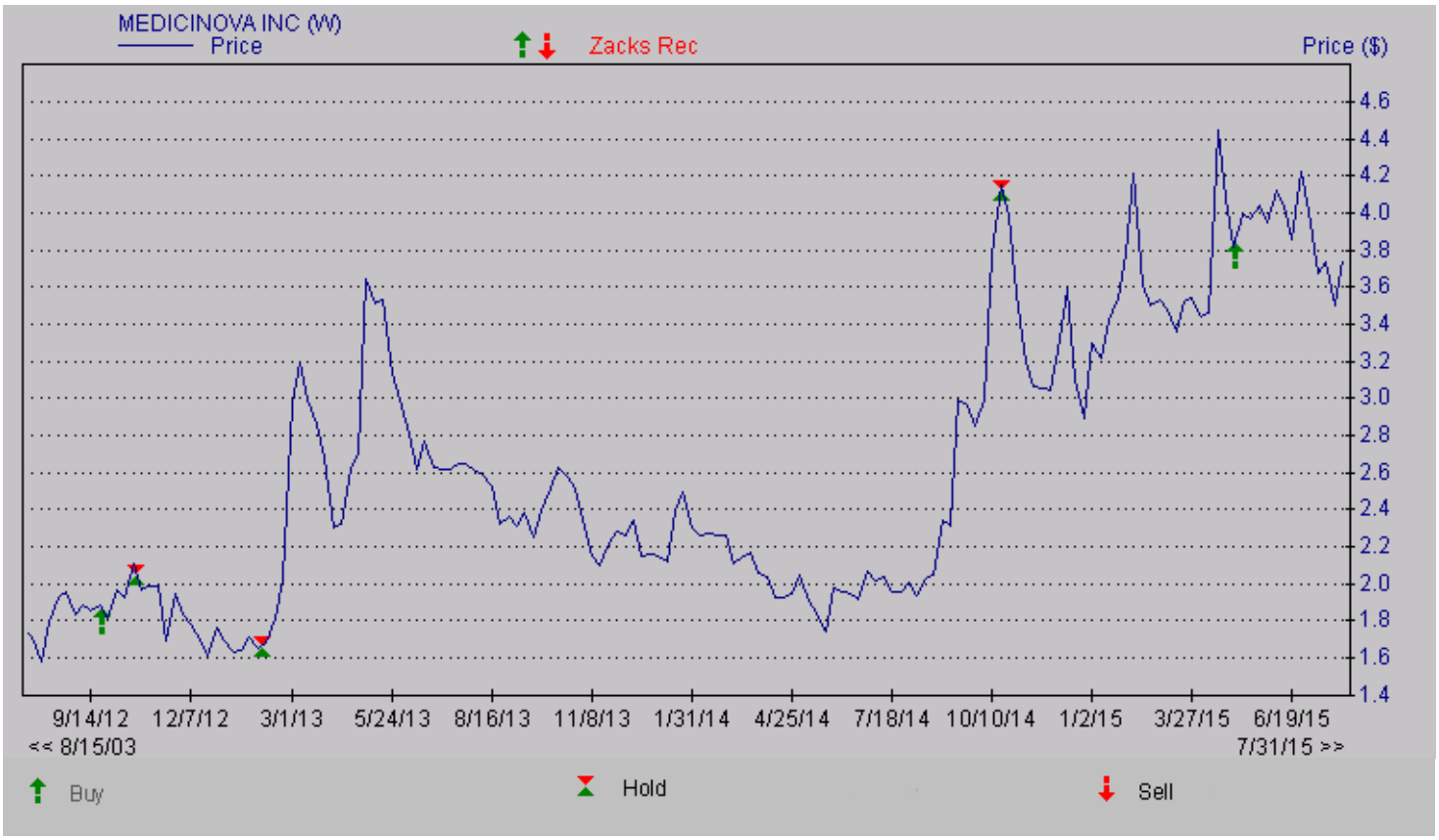
PROJECTED FINANCIALS

MediciNova Inc.
Income Statement

MediciNova, Inc.	2014 A	Q1 A	Q2 A	Q3 E	Q4 E	2015 E	2016 E	2017 E
MN-166 (Multiple Sclerosis)	$0	$0	$0	$0	$0	$0	$0	$0
YOY Growth	-	-	-	-	-	-	-	-
MN-166 (ALS)	$0	$0	$0	$0	$0	$0	$0	$0
YOY Growth	-	-	-	-	-	-	-	-
MN-166 (Addiction)	$0	$0	$0	$0	$0	$0	$0	$0
YOY Growth	-	-	-	-	-	-	-	-
MN-001 (NASH)	$0	$0	$0	$0	$0	$0	$0	$0
YOY Growth	-	-	-	-	-	-	-	-
MN-001 (IPF)	$0	$0	$0	$0	$0	$0	$0	$0
YOY Growth	-	-	-	-	-	-	-	-
Grants & Collaborative Revenue	$0	$0	$0	$0	$0	$0	$0	$0
YOY Growth	-	-	-	-	-	-	-	-
Total Revenues	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
YOY Growth	-	-	-	-	-	-	-	-
Cost of Sales	$0	$0	$0	$0	$0	$0	$0	$0
Product Gross Margin	-	-	-	-	-	-	-	-
Research & Development	$3.260	$0.720	$0.797	$0.850	$0.900	$3.267	$5.000	$7.000
General & Administrative	$5.963	$1.495	$1.480	$1.550	$1.600	$6.125	$8.000	$10.000
Other Expenses	$0	$0	$0	$0	$0	$0	$0	$0
Operating Income	($9.223)	($2.215)	($2.277)	($2.400)	($2.500)	($9.392)	($13.0)	($17.0)
Operating Margin	-	-	-	-	-	-	-	-
Non-Operating Expenses (Net)	$0.028	$0.00	($0.01)	($0.01)	($0.01)	($0.03)	($0.5)	($0.5)
Pre-Tax Income	($9.195)	($2.212)	($2.285)	($2.410)	($2.510)	($9.417)	($13.5)	($17.5)
Income Taxes Paid	$0	$0	$0	$0	$0	$0	$0	$0
Tax Rate	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Net Income	**($9.195)**	**($2.215)**	**($2.287)**	**($2.410)**	**($2.510)**	**($9.417)**	**($13.5)**	**($17.5)**
Net Margin	-	-	-	-	-	-	-	-
Reported EPS	**($0.38)**	**($0.09)**	**($0.09)**	**($0.10)**	**($0.10)**	**($0.38)**	**($0.45)**	**($0.50)**
YOY Growth	-	-	-	-	-	-	-	-
Basic Shares Outstanding	24.068	24.539	24.828	25.200	25.800	25.092	30.000	35.000

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

HISTORICAL ZACKS RECOMMENDATIONS



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ZIR uses the following rating system for the 1164 companies whose securities it covers, including securities covered by Zacks SCR:
Buy/Outperform: The analyst expects that the subject company will outperform the broader U.S. equity market over the next one to two quarters.
Hold/Neutral: The analyst expects that the company will perform in line with the broader U.S. equity market over the next one to two quarters.
Sell/Underperform: The analyst expects the company will underperform the broader U.S. Equity market over the next one to two quarters.

The current distribution is as follows: Buy/Outperform- 29.2%, Hold/Neutral- 51.2%, Sell/Underperform – 16.4%. Data is as of midnight on the business day immediately prior to this publication.