



Medicago Inc.
(MDG-V: C\$0.61)

New Idea of Interest

October 28, 2009

David Martin, Ph.D., MBA / (416) 350-3477
dmartin@dundeesecurities.com

James E. Kuo / (416) 350-6640
jkuo@dundeesecurities.com

Maida Sit / (416) 350-3225
msit@dundeesecurities.com

BUY, Speculative Risk*
12-month target price: N/A

Faster, Cheaper, Potentially Better

Major Near-term Event with Good Probability of Positive Results

- **Medicago expects to report Phase I results for its lead H5N1 vaccine in December.** With positive results, Medicago could establish a leading position in the global effort to find a superior vaccine-production technology.

Rating and Recommendation: BUY (Speculative Risk); Target N/A

- **Dundee is publishing a New Idea of Interest report on Medicago (MDG-V), highlighting a major upcoming milestone for the company:** first in man results for its lead tobacco-produced H5N1 pandemic flu vaccine. We believe there is a good probability that Medicago will report positive industry-competitive results, with a moderate chance that results will be class-leading. If results are competitive, based on comparable companies analysis, we believe MDG shares would increase to the C\$1.15 range which would give Medicago a market capitalization of C\$104 million (\$181 million f.d.). Clearly class-leading results (see "Metrics for Phase I" section later in this report) could push MDG to \$2.00 per share or higher.
- **Faster, Cheaper, Potentially Better.** With its tobacco-based Proficia platform technology, Medicago demonstrated ability to produce H1N1 vaccine antigen within 2 weeks vs 3+ months for egg-based, and 4-12 weeks for the fastest cell culture-based systems. All-in estimated COGS for Medicago's monovalent vaccine is \$0.50 per dose, vs \$0.89-\$2.00+ for competitors. Regarding efficacy, Medicago has reported class-leading immunogenicity and protection levels in ferrets, and as a result, we believe there is at least a moderate chance that MDG's Phase I results may also show class leading activity in man.
- **High Profile. High Need.** The current influenza pandemic not only raised the profile of emerging vaccine companies including Medicago and Novavax, it revealed the inadequate response time with egg-based manufacturing. To a lesser extent, H1N1 has also highlighted the capital cost challenges associated with egg- and most cell-based production technologies for countries that do not already have domestic vaccine infrastructure. Medicago's Proficia technology is optimal to overcome both challenges.
- **Proficia is a Platform.** Medicago's most advanced technology platform, Proficia, uses agrobacterium to deliver plasmid vectors carrying target DNA into tobacco plant cells where the desired proteins are expressed at high levels over short periods of time. Beyond flu vaccine, the company's expertise and platforms could be leveraged to produce low cost peptides/proteins (eg., insulin, erythropoietin) and antibodies (eg., Rituxan and Herceptin).
- **Global Strategy.** In addition to its U.S. development/commercialization strategy, Medicago has signed agreements with Genopole in France, Ajanta Pharma in India and Tabuk Pharma in Saudi Arabia, to build Proficia-based vaccine facilities in those countries if Phase I results are positive this December. This speaks to the importance of Phase I results in the development of flu vaccines, and to why we believe that strong results in December would provide good visibility for success in later stage clinical trials. Also riding on Phase I success, Medicago intends to tap into millions of dollars of grant money available through U.S. programs and organizations such as The National Strategy for Pandemic Influenza, NIAID, BARDA and DARPA.
- **Key Risks.** Vaccine sector is crowded, however, we believe there is room and a need for better technologies; Proficia is very novel compared to most other vaccine technologies increasing risk (but also reward); a potential path exists for accelerated approval of pandemic vaccines in the U.S. but the path is not guaranteed; pandemic business will depend on stockpiling programs; plant glycosylation and expression of only hemagglutinin on MDG's VLPs add some product risk; Philip Morris's 46.4% stake in MDG, despite some positives (deep-pocketed partner, natural acquirer of MDG) may dissuade other potential suitors.

Dundee Securities Corporation from time to time publishes reports on securities for which it does not and may not choose to provide continuous research coverage. Such reports are published as Ideas of Interest.

Medicago

The threat of pandemic outbreaks of swine (H1N1) and avian (H5N1) flu have increased investor attention on vaccine manufacturers, which at present fall into 2 major groups: traditional egg-based manufacturers (eg. GSK, Novartis, Sanofi), and cell culture (eg., Crucell, Novavax). Medicago instead, has developed a technology (Proficia) using tobacco plants to produce flu vaccines (pandemic and seasonal), with the advantage of faster turnaround time (key in responding to a pandemic outbreak), at a lower start up CapEx than either cell culture or egg-based methods. Currently, Medicago has a 14,000 sq. ft production facility on the outskirts of Quebec City, and recently purchased a 100,000 sq. ft. of adjacent land to allow for future production expansion. At June 30, Medicago had 90.5 million shares outstanding plus 66.6 million options and warrants (\$0.38 weighted average exercise price), and held \$9.2 million cash, \$15.4 million debt (due 2014), with a \$2.3 million per quarter burn. Philip Morris International (PMI) owns 46.4% of shares outstanding, and holds 45 million warrants exercisable at \$0.375 on or before October 20, 2009, or \$0.405 after that date, but before October 20, 2010 when the warrants expire. PMI brings expertise in tobacco genetics, genomics, and cultivation. Subsequent to June 30, 4.7 million warrants were exercised, raising \$1.35 million.

Faster, Cheaper

- Sequence-to-vaccine in 14 days.** An optimal pandemic vaccine technology should be rapid (allowing vaccination as early as possible, with the ability to shift production if strains mutate), with robust yields regardless of strain. Using Proficia technology, Medicago has been able to produce H1N1 vaccine VLP antigen two weeks after determination of the genetic sequence of the virus's hemagglutinin protein. This beats, hands down, the minimum 3-month production time required for pandemic vaccine from conventional egg-based manufacturers (eg., GSK, Sanofi, Novartis), with the ability, as a recombinant expression platform, to avoid low yield problems recently encountered growing H1N1 virus in eggs. Proficia should also be quicker than cell-based systems (Baxter, other big pharma, Crucell, Novavax), also with capital cost and COGS advantages over those technologies.
- 20-80 vaccine doses from each \$0.06 plant.** Assuming flu vaccine produced by MDG will be effective in the 5µg-20µg dose range, we estimate that from each tobacco plant, Medicago should be capable of producing 20-80 doses of monovalent vaccine material - at a cost of 0.07¢-0.3¢ per dose. All-in cost at commercial scale is expected to be \$0.50 per dose for MDG, compared to our estimates of \$0.90 to \$2.00+ per dose for competitive technologies (Figure 1).

Figure 1: Cost Per Dose Estimates

	MDG	Egg	Cell Culture	NVAX
API (HA) Cost				
Plant cost	\$0.06			
Doses/plant	25			
Egg Cost		\$0.30		
Doses/egg (single HA)		2.5		
Cost/dose (single HA)	\$0.0024	\$0.12		
Trivalent factor	3	3		
Cost/dose (trivalent)	\$0.0072	\$0.3600		
Final Product Cost				
materials cost			\$0.85	\$0.50
utilities/labor cost	\$0.12	\$0.75	\$0.25	
fixed asset depreciation cost	\$0.08	\$0.25	\$0.60	\$0.09
Cost/dose (ex pkg)	\$0.20	\$1.00	\$1.70	\$0.59
Cost/dose (incl pkg)	\$0.50	\$1.30	\$2.00	\$0.89
Capex				
Facility cost (US\$MM)	\$9.2	\$150	\$600	\$40
Annual Dose capacity (MM - monovalent)	40	100	50	75
Facility cost/dose (10yrs)	\$0.02	\$0.15	\$1.20	\$0.05

Source: Company documents; Dundee estimates

- **Fast turnaround, low COGS, and scalability - factors that also benefit seasonal vaccine production.** With seasonal vaccines, three viral strains are represented each year, with the WHO and CDC identifying the strains in February. From February, it typically takes at least 6 months for egg-based producers to produce vaccine material for all three strains, followed by processing, testing, approval, packaging and distribution which adds another 2 months. During the 8-month period from strain identification to patient immunization, the dominant strains may change. Not every year, but on occasion, the predominant strain is absent in the seasonal flu vaccine, and efficacy is poor. With Proficia's fast response capability, late production could be switched to a "new" dominant strain, with that product supporting a higher selling price. Furthermore, even during normal flu seasons, price per dose at retail is highest early in the vaccination cycle, further increasing the potential attractiveness of MDG's seasonal vaccines to distributors. In years of low demand, scaling down Proficia production would be easier and less costly.

Potentially Better

- Medicago's Proficia tobacco expression platform produces flu vaccine in the form of "virus-like particles" (VLPs) - VLPs are lipid membrane spheres with embedded, externally exposed viral hemagglutinin glycoprotein. To the electron microscope (and probably to the human immune system), VLPs "look" more like virus than do split and subunit vaccines produced by conventional methods. As a result, there is potential for greater immunity and protection with VLP vaccines, facilitated at least in part by activation of both arms of the immune system: cellular and humoral (antibodies). Merck's marketed HPV vaccine, Gardasil, is a yeast VLP vaccine, and Novavax's clinical stage flu vaccines are also VLPs, produced by insect cells. Figure 2 shows preclinical and clinical results for H5N1 vaccines in development by select biotech and pharma companies.

Figure 2: Comparative H5N1 Vaccine Data

Company Vaccine (dose)	Pre-Clinical Results				Clinical Results				
	Ferret Immunogenicity			Lethal Challenge % surviving	cross protection n	% Sero conversion ¹	% Sero protected ²	Cross-Strain Reactivity ³	Cross-Clade Reactivity ³
	HAI Activity	% Sero conversion ¹	% Sero protected ²						
Medicago									
H5N1 vaccine (0.7µg dose + alum)		80%	20%						
H5N1 vaccine (2x0.7µg dose + alum)		80%	80%						
H5N1 vaccine (1.8µg dose + alum)		81%	50%						
H5N1 vaccine (2x1.8µg dose + alum)		100%	100%	100%					
H5N1 vaccine (3.7µg dose + alum)		100%	50%						
H5N1 vaccine (2x3.7µg dose + alum)		100%	100%	100%					
H5N1 vaccine (11µg dose + alum)		100%	60%						
H5N1 vaccine (2x11µg dose + alum)		100%	100%						
GSK									
H5N1 vaccine (2x1.7µg + proprietary adjuvant)			67%		83%				
H5N1 vaccine (2x3.8µg + proprietary adjuvant)			67%		100%				75%-85%
H5N1 vaccine (2x3.8mg + alum)						86%			
H5N1 vaccine (2x3.8mg)						67%	69%		
H5N1 vaccine (2x27mg + alum)						51%	51%		
H5N1 vaccine (3.8µg + proprietary adjuvant)						90%	90%		
H5N1 vaccine (2x3.8µg + proprietary adjuvant)						24%	26%		
H5N1 vaccine (7.5µg + proprietary adjuvant)						82%	84%		
H5N1 vaccine (2x7.5µg + proprietary adjuvant)						50%	50%		
H5N1 vaccine (15µg + proprietary adjuvant)						90%	90%		
H5N1 vaccine (2x15µg + proprietary adjuvant)						49%	49%		
H5N1 vaccine (30µg + proprietary adjuvant)						96%	96%		
H5N1 vaccine (2x30µg + proprietary adjuvant)						58%	58%		
						85%	85%		
Baxter									
H5N1 vaccine (2x7.5µg + alum)							64%		
H5N1 vaccine (2x3.75µg + alum)							69%		
H5N1 vaccine (2x7.5µg)							76%	76%	45%
Sanofi Pasteur									
H5N1 vaccine (2x7.5µg)							0%	0%	
H5N1 vaccine (2x15µg + alum)							14%	15%	
H5N1 vaccine (2x45µg + alum)							33%	33%	
Novavax									
H5N1 vaccine (0.6µg dose)									
H5N1 vaccine (2x0.6µg dose)			~75%	100%	100%				
H5N1 vaccine (3µg dose)	~30%								
H5N1 vaccine (2x3µg dose)			100%	100%	100%				
H5N1 vaccine (15µg dose)	~30%								
H5N1 vaccine (2x15µg dose)			100%	100%	100%				
H5N1 vaccine (2x45µg dose)									
H5N1 vaccine (2x90µg dose)									
									"induced responses against a different H5N1 virus"
							48%	72%	
								73%	
								94%	
Vical									
H5N1 pDNA Vaccine (2x1000ug dose)		67%		100%				67%	
Protein Sciences									
FluBlok seasonal (135µg dose)							41%-72%	85%-96%	

¹Seroconversion rate - % patients with ≥4-fold increase in HI (hemagglutination-inhibition) antibody titer

²Seroprotection rate - % patients with HI titer≥1:40, or NT≥1:20 (Baxter and Novavax Clinical Results)

³Cross-reactivity - % patients with neutralizing titer of ≥1:20 (Baxter) or ≥4-fold increase in neutralizing titer (GSK) against heterologous strains

Source: WHO Immunogenicity table; company documents

- MDG more effective vs Novavax in ferrets.** Medicago's lead H5N1 pandemic vaccine has been tested in >300 animals including mice, rats and ferrets. In ferrets (the animal model which best emulates the human immune system), 8/8 (100%) of ferrets immunized with 2x1.8µg MDG H5N1 VLP vaccine achieved the CHMP (European Committee for Medicinal Products for Human Use) immunogenicity criteria for approval of influenza vaccines. Novavax, at 2x3µg, also reported 100% seroprotection (hemagglutinin-inhibition HAI titers≥1/40) in ferrets for its H5N1 vaccine, however, geometric mean titers (GMT) with the MDG vaccine were substantially higher (560 at 2x11µg vs 453 at 2x15µg ; 429 at 2x1.8µg vs 160 at 2x3µg).
- Novavax is also less active following single vaccinations, and on the measure of cross-strain HAI activity. Following a single immunization with 0.7µg of Medicago's H5N1 VLP vaccine, 80% of ferrets seroconverted (4-fold increase in HI titers), and this rose to 100% at 1x3.7µg. With the Novavax H5N1 vaccine, HAI activity was detected in ~30% of the ferrets following initial vaccination at 15µg or 3µg doses (no mention is made about activity following a single 0.6µg dose). Novavax also published that 50% of ferrets vaccinated with 15µg doses of Indo/05 H5N1 VLPs were seroprotected against against clade 2.2 isolates - with Medicago's Indo H5N1 vaccine, 5/5 (100%) of ferrets at a dose of 11µg were seroprotected against the 2.2 strain. Both Novavax's and Medicago's vaccines performed very well in virus challenge studies in ferrets - 100% of ferrets challenged with homologous or heterologous virus, survived the infection. On all other measures, though, MDG H5N1 vaccine was more active than NVAX vaccine.

- **MDG more effective vs GSK in ferrets.** Among the big pharma vaccine producers, we have been able to source detailed pre-clinical H5N1 data only for GSK. With its H5N1 vaccine, GSKs reported a GMT for the homologous strain of 83 at 2x15µg, substantially lower than Medicago's 560 at 2x11µg. Across clades, GSK's GMT was also lower (26 vs 42) at these doses. In a cross-clade challenge study, GSK reported 83% ferret survival at 2x1.7µg, less than Medicago's 100% at 2x1.8µg. A drawback for the GSK vaccine is that the oil-in-water adjuvant is not approved in the U.S., and is associated with increased injection site pain and fever, among other symptoms. Medicago adjuvants its VLP vaccine with alum (the only FDA approved adjuvant), while Novavax has chosen to develop its H5N1 vaccine without adjuvant, possibly accounting for its less robust HAI activity in ferrets.

Metrics for Phase I

- **To achieve industry-competitive efficacy status** in the 48-patient Phase I reporting in December, we would like to see Medicago's vaccine induce seroconversion (≥ 4 -fold increase in HI titer) and/or seroprotection (HI titer $\geq 1:40$ or NT $\geq 1:20$) to the homologous vaccine strain in $>70\%$ of patients after 2 immunizations preferably at the 5 or 10µg doses (groups of 12 patients will be dosed at either 5, 10 or 20µg or with placebo). At some point in the future, we expect the company to also report cross-clade HAI activity, and here we would like to see at least 45%-85% subjects with induced cross-reactivity after 2 doses.
- **An out-of-the-ballpark homerun at the December release of data**, would see Medicago achieve, with a single dose, CHMP hurdles for the homologous strain (40% of patients with 4-fold increase in HI titer; 70% of patients with HI titer $\geq 1:40$) and/or 45%-85% patients with cross reactivity also following a single dose.

Potential Path for Accelerated Phase II Approval of Medicago's lead H5N1 vaccine

- **FDA Draft Guidelines indicate pandemic vaccines from novel manufacturing processes may be eligible for Accelerated Approval.** A process has been drafted that would allow approval of a pandemic vaccine from a novel manufacturing process without prior approval of a seasonal flu vaccine from the same process. Approval of novel pandemic vaccines would be on the basis of safety and immunogenicity, potentially following a large (1,000 patient?) Phase II trial. It is not certain, however, whether this path will be available to Medicago, since the draft guideline indicates accelerated approval path will available "at least until adequate supplies of vaccine are available". We believe Medicago will meet with the FDA after Phase I in hopes of securing a SPA (Special Protocol Assessment) that negotiates a path to Phase II approval. If a SPA is not granted, we may see Medicago promote its seasonal flu vaccine program (currently pre-clinical, expected to enter Phase I in H2/10) to lead position in the company's product pipeline.
- **Indicators and reasons the FDA may agree to a Phase II SPA for Medicago.** In recent years, there has been clear interest expressed at the U.S. Federal Government level to fund and encourage development of better technologies for pandemic vaccine production - the \$7.1 billion *National Strategy for Pandemic Influenza* established in 2005 is largest of the programs in place, and has a substantial chunk of cash allocated to cell-based and next generation technologies. Despite the high level of government interest, however, thus far there have been no independent pandemic vaccines approved, and it may fall to Medicago's fast response time and potentially class-leading protection and cross-protection to motivate the FDA to approve Medicago's H5N1 vaccine on the basis of Phase II clinical data. Alternatively, an outbreak of H5N1 could enhance Medicago's accelerated approval chances "in the blink of an eye".
- **Pharma has produced H5N1 vaccine for stockpiles, taking some pressure off the FDA to act aggressively.** As well, the FDA will have a higher level of comfort with the safety of egg-based vaccines, and this may allow the agency leeway to require large Phase III trials of novel products to prove safety. It may also be necessary to prove efficacy in field studies (reduced infection rates) with a seasonal vaccine before supplemental licensing of a pandemic vaccine takes place.
- **Near-term driver will be Phase I results.** Regardless of Medicago's intermediate-term pipeline development strategies (i.e., will H5N1 remain the lead product, or will seasonal flu move into lead position?), we believe the H5N1 Phase I data expected in December will be key to signalling whether Proficia VLP flu vaccine technology has competitive or class-leading efficacy potential, which in turn, will be a main driver of long term value. We also note that although the seasonal market is significantly larger, Proficia's benefits appear to be custom-tailored for pandemic preparedness. Furthermore, a possible path exists for accelerated Phase II approval of pandemic vaccines, and this path should be explored. And finally, pandemic vaccines may have an easier path to commercialization in some ex-U.S. countries compared to the U.S.

Large Market Opportunities

- **The market size for seasonal flu vaccine has been estimated at US\$2.8 billion by Datamonitor, growing to over \$4 billion by 2010/2011.** For pandemic influenza, in the U.S., slightly more than \$240 million was spent in each of 2005 and 2006 on contracts to procure pre-pandemic H5N1 vaccine doses, at an average cost of \$37.50 per dose (we do not have access to more recent data). Given that stability of vaccines is about one year, there should be a recurring stockpiling business in the U.S., as long as the government continues to believe a threat exists. While only big pharma has participated in stockpiling thus far, we believe the government should be open to allowing participation by smaller companies with innovative production technologies, especially if those technologies provide advantages over current methods - whether the agency's expected openness leads to accelerated approvals, however, remains uncertain.
- Outside of the U.S., Medicago will be targeting 4-5 countries or regions where it believes pandemic stockpiling contracts will average between \$10-\$50 million annually (on top of annual seasonal vaccine sales in the \$50-\$500 million range). With cost approximately \$10 million to build a 20 million dose Proficia-based facility (vs \$150 million+ for egg-based and most cell culture-based technologies), Medicago's platform is potentially well-suited for countries that currently lack national flu vaccine production.

Global Strategy

- In addition to its U.S. development/commercialization strategy, Medicago is capitalizing on the need for faster and lower cost vaccine infrastructure in other developed and developing countries. The company has signed agreements with Genopole in France, Ajanta Pharma in India and Tabuk Pharma in Saudi Arabia (with more agreements in other countries expected going forward), to build Proficia-based vaccine facilities in those countries if Phase I results are positive this December. This speaks to the importance of Phase I results in the development of flu vaccines, and why we believe strong results in December would be highly predictive of later stage clinical success.

Proficia is a Platform

- **Medicago's most advanced technology platform**, Proficia, uses agrobacterium to deliver plasmid vectors carrying target DNA into tobacco plant cells where the desired proteins are expressed at high levels over short periods of time. Medicago scientists have extensive experience overcoming the challenges of therapeutic protein production in plants (proteolytic degradation, plant glycosylation, pigment removal). Beyond flu vaccine, the company's expertise and platforms could be leveraged to produce low cost peptides/proteins (eg., insulin, erythropoietin) and antibodies (eg., Rituxan and Herceptin) either as innovative or biosimilar products.

Key Risks

- The vaccine sector is crowded with a large number of pharma and biotech participants, however we believe there is room and a need for better technologies; Proficia is very novel compared to most other vaccine technologies increasing risk (but also reward); a potential path exists for accelerated approval of pandemic vaccines in the U.S. but the path is not guaranteed; H5N1 vaccine is currently stockpiled but we are not certain that renewal of stocks will continue (it is likely though, that if H5N1 vaccine is approved, Medicago should be able to participate in programs for other pandemic strains); product risks include plant glycosylation and expression of only hemagglutinin on MDG's VLPs although neither factor triggered safety signals or reduced activity of vaccines in animals; finally, Philip Morris's 46.4% stake in MDG, despite some positives (deep-pocketed partner, natural acquirer of MDG) may dissuade other potential suitors.

Comparable Companies

- Figure 3 shows market capitalizations and enterprise values for competitive vaccine companies and companies with plant recombinant expression technologies. If Medicago's Phase I is successful, we believe its closest comp will be Novavax which has a market capitalization US\$400 million (EV US\$374 million). NVAX is further ahead in development (Phase II and Phase III) for its seasonal and H1N1 flu vaccines and therefore, with competitive Phase I results, MDG would trade at a discount. However, if MDG reports class-leading H5N1 results, Medicago's value may pull closer to NVAX - based on the current EV of NVAX, MDG would be valued at C\$2.60 per share in this scenario.

Figure 3: Comparable Companies

		Price	Annual Low	Annual High	YTD % Change	Market Cap	Cash and STI	Debt	EV	Pipeline
NOVAVAX INC	NVAX-O	4.40	0.52	7.79	133%	400	31	6	374	Trivalent (incl. H1N1) seasonal flu vaccine in in Ph2
CRUCCELL NV	CRXL-O	20.59	9.58	25.53	36%	1,371	€ 122	€ 30	1,236	8 marketed vaccines; others in various stages of development
DYNAVAX TECHNOLOGIES CORP	DVAX-O	1.30	0.15	3.35	55%	52	46	0	5	Hep B vaccine in Ph3
GENEREX BIOTECHNOLOGY	GNBT-O	0.59	0.08	1.14	98%	140	32	3	111	Marketed antidiabetics; BC cancer vaccine in Ph2, flu vaccine in Ph1, etc.
VICAL INC	VICL-O	3.33	1.04	5.51	137%	173	41	0	132	Melanoma vaccine Ph3, CV vaccine Ph2, flu Ph1, plus many collaborations
HEMISPHERX BIOPHARMA INC	HEB-O	1.69	0.26	4.54	369%	213	41	0	173	Sells a interferon α 3, and tested as a single agent adjuvant in flu
BIOCRYST PHARMACEUTICALS INC	BCRX-O	10.93	0.85	13.47	699%	420	42	0	378	Seasonal flu and a cancer candidate in pivotal trials; autoimmune candidate in Ph2
IBIO INC	IBPM-U	1.15	0.10	1.45	1090%	32	4	0	28	Platform to produce proteins in plants using cDNA in agrobacterium. Preclinical.
PROTALIX BIOTHERAPEUTICS INC	PLX-O	9.61	0.96	9.89	425%	735	29	0	706	Recombinant Glucocerebrosidase for Gaucher disease in Ph3
INOVIO BIOMEDICAL CORP	INO-A	1.20	0.15	3.40	131%	136	37	16	115	HIV and cervical cancer vaccines in Ph1
Average					317%	367			326	
Average (excl. Crucell)					349%	256			225	
MEDICAGO INC	MDG-V	C\$ 0.60	C\$ 0.15	C\$ 0.82	233%	54	C\$ 9	C\$ 16	C\$ 61	H5N1 vaccine entering Ph1

* All figures in USD unless otherwise stated; Priced as of Oct 26, 2009

Source: Bloomberg, Company Reports

Disclosures & Disclaimers

Dundee Securities Corporation is an affiliate of Dundee Corporation, DundeeWealth Inc., and Goldman & Company, Investment Counsel Ltd.

Research Analyst Certification: Each Research Analyst involved in the preparation of this Research Report hereby certifies that: (1) the views and recommendations expressed herein accurately reflect his/her personal views about any and all of the securities or issuers that are the subject matter of this Research Report; and (2) his/her compensation is not and will not be directly or indirectly related to the specific recommendations or views expressed by the Research Analyst in this Research Report.

U.S. Residents: Dundee Securities Inc. is a U.S. registered broker-dealer and an affiliate of Dundee Securities Corporation. Dundee Securities Inc. accepts responsibility for the contents of this Research Report, subject to the terms and limitations as set out above. U.S. residents seeking to effect a transaction in any security discussed herein should contact Dundee Securities Inc. directly.

This Research Report is not an offer to sell or the solicitation of an offer to buy any of the securities discussed herein. The information contained in this Research Report is prepared from sources believed to be reliable but Dundee Securities Corporation makes no representations or warranties with respect to the accuracy, correctness or completeness of such information. Dundee Securities Corporation accepts no liability whatsoever for any loss arising from any use or reliance on this Research Report or the information contained herein. Any reproduction in whole or in part of this Research Report without permission is prohibited.

Dundee Securities Research is distributed by email, website or hard copy. Dissemination of initial reports and any subsequent reports is made simultaneously to a pre-determined list of Dundee Securities' Institutional Sales and Trading representative clients and Retail Private Client offices. The policy of Dundee Securities with respect to Research reports is available on the Internet at www.dundeewealth.com.

The compensation of each Research Analyst/Associate involved in the preparation of this Research Report is based upon, among other things, the overall profitability of Dundee Securities Corporation, which includes the overall profitability of the Investment Banking Department.

© Dundee Securities Corporation

Note 1: All historical data including financial and operating data on the issuer(s) mentioned in this report come from publicly available documents including statutory filings of these issuer(s). Data may also be sourced from Bloomberg, Baseline, Thomson ONE.

A Research Analyst/Associate involved in the preparation of this report beneficially owns, has a financial interest in, or exercises investment discretion or control over, securities issued by: Medicago Inc.

Explanation of Recommendations and Risk Ratings

Valuation methodologies used in determining the target price(s) for the issuer(s) mentioned in this report are contained in current and/or prior research. Target Price N/A: a target price is not available if the analyst deems there are limited financial metrics upon which to base a reasonable valuation.

BUY: total returns expected to be materially better than the overall market with higher return expectations needed for more risky securities. NEUTRAL: total returns expected to be in line with the overall market. SELL: total returns expected to be materially lower than the overall market. TENDER: the analyst recommends tendering shares to a formal tender offer.

*Risk Ratings: risk assessment is defined as Medium, High, Speculative or Venture. Medium: securities with reasonable liquidity and volatility similar to the market. High: securities with poor liquidity or high volatility. Speculative: where the company's business or financial risk is high and is difficult to value. Venture: an early stage company where the business or financial risk is high, and there are limited financial metrics upon which to base a reasonable valuation.

Medium and High Risk Ratings Methodology: Medium and High risk ratings are derived using a predetermined methodology based on liquidity and volatility. Analysts will have the discretion to raise the risk rating if it is determined a higher risk rating is warranted. Securities with poor liquidity or high volatility are considered to be High risk. Liquidity and volatility are measured using the following methodology: a) Price Test: All securities with a price \leq \$3.00 per share are considered high risk for the purpose of this test. b) Liquidity Test: This is a two-tiered calculation that looks at the market capitalization and trading volumes of a company. Smaller capitalization stocks ($<$ \$300MM) are assumed to have less liquidity, and are, therefore, more subject to price volatility. In order to avoid discriminating against smaller cap equities that have higher trading volumes, the risk rating will consider 12 month average trading volumes and if a company has traded $>$ 70% of its total shares outstanding it will be considered a liquid stock for the purpose of this test. c) Volatility Test: In this two step process, a stock's volatility and beta are compared against the diversified equity benchmark. Canadian equities are compared against the TSX while U.S. equities are compared against the S&P 500. Generally, if the volatility of a stock is 20% greater than its benchmark and the beta of the stock is higher than its sector beta, then the security will be considered a high risk security. Otherwise, the security will be deemed to be a medium risk security. Periodically, the equity risk ratings will be compared to downside risk metrics such as Value at Risk and Semi-Variance and appropriate adjustments may be made. All models used for assessing risk incorporate some element of subjectivity.

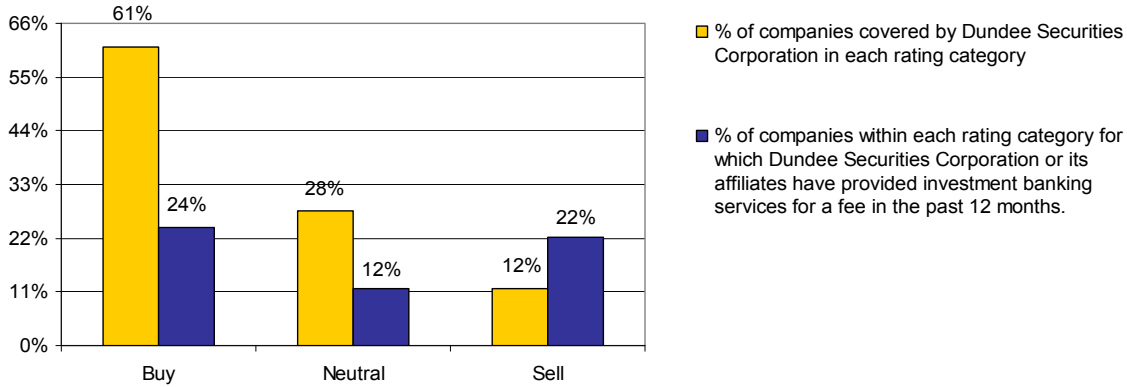
Risk in relation to forecasted price volatility is only one method of assessing the risk of a security and actual risk ratings could differ.

SECURITY ABBREVIATIONS: NVS (non-voting shares); RVS (restricted voting shares); RS (restricted shares); SVS (subordinate voting shares).

Ideas of Interest

Dundee Securities Corporation from time to time publishes reports on securities for which it does not and may not choose to provide continuous research coverage. Such reports are published as Ideas of Interest.

Dundee Securities Equity Research Ratings



As at March 31, 2009

Source: Dundee Securities Corp.