

Medical Therapies Ltd (ASX:MTY)

Targeting the early detection of cancer...

Midkine is a low molecular-weight protein. Midkine promotes cell survival and cell migration, and is deeply involved in cancer progression, the onset of inflammatory diseases and the preservation and repair of injured tissues. It was discovered in 1988 by Professors Muramatsu and Kadomatsu at Nagoya University.

MTY now owns the sole rights to the midkine asset portfolio. This includes 21 patent families covering Midkine as a target for the diagnosis and treatment of inflammation and cancer, out of a total 51 patent families worldwide. Further, a marketable quantity of Midkine protein has been acquired. This can be used in the planned phase I trials and will save the company approximately \$2.5m in protein production costs.

The diagnostic test measures blood Midkine levels for the detection of cancer in humans and animals. A heightened midkine level indicates something is amiss and will raise a 'red flag'. A high midkine level usually indicates either infection of some sort or cancer. The person will then be required to return for a second test a month later. If midkine levels continue to be elevated cancer is a high probability and further tests will be recommended.

Acquisition of the portfolio gives the company much needed focus. The focus will be to optimize the current ELISA test for use in humans and conduct a clinical trial to validate the significance of measuring midkine as a means of diagnosing and monitoring cancer. As midkine can also be used to detect cancer in animals a commercial veterinary diagnostic kit may be the first product on the market.

Removal of \$1.1m convertible note and \$1.5m liability in relation to the technology acquisition strengthens balance sheet. Medical Therapies managed to erase a \$1.5m debt by having Cell Signals agree to accept 15m MTY shares instead of a cash payment. Cell Signals now owns 18.9% of the company. In addition, a \$1.1M convertible debt facility was also retired in February 2009 leaving MTY with trade debt only.

Medical Therapies and Cell Signals continue to work closely together. Previous advisor to Cell Signals was appointed to the MTY board to facilitate the transfer of the midkine technology portfolio. The discoverers of midkine, Dr. Takashi Muramatsu and Dr. Kenji Kadomatsu, and the president of Cell Signals, Dr. Sadatoshi Sakuma, are currently on the advisory board for MTY.

Recent \$340,000 capital raising complete at 1c. This puts the current cash balance at \$426,000. An additional capital injection and/or signing up a development partner could see further re-rating in the stock.

15-5-2009

Analyst: Sven Restel
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Speculative Buy

Website: www.medicaltherapies.com.au

Board of Directors

Independent Chairman	Dr David King
Managing Director	Maria Halasz
Director	Koichiro Koike

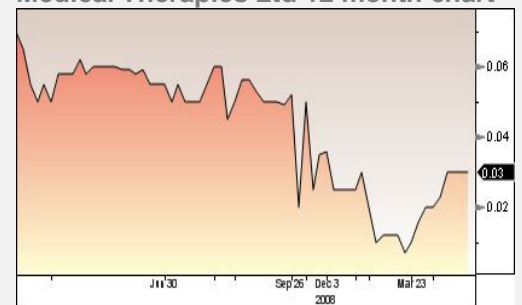
Major Shareholders

Cell Signals	18.9%
Top 20 holders	65%

Share Data

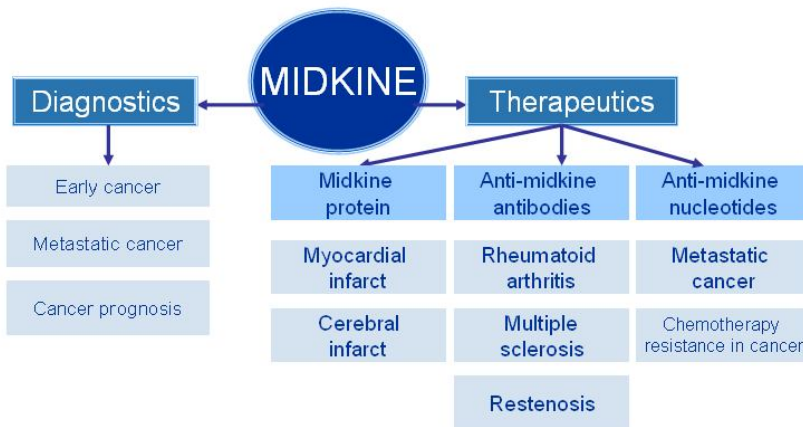
Sector	Biotech
Market Cap	\$5.55m
Fully Diluted M.Cap	
Shares on issue	185m
Options on issue	
Avg. Daily Value Traded (30 days)	\$6,110

Medical Therapies Ltd 12 month chart



Source: Bloomberg

Figure 1: Medical Therapies Midkine portfolio



Source: MTY

Midkine diagnostics

Early detection of cancer correlates well with improved survival and patient outcome across a range of cancer types. Being able to measure midkine levels may be used for early detection for certain types of cancers. In some cancers, such as breast and lung cancer, midkine appears at stage 0 when physical symptoms are not yet prevalent. Since midkine is a protein that gets secreted by cancer cells it can be detected through a blood or urine test. Midkine levels do not get elevated unless a person suffers from an inflammatory condition or cancer. Currently available cancer markers are generally released after the cancer cell is killed by the immune system, and appear much later in cancer development. Midkine could fill a gap in this regard.

Measuring midkine may be used for early detection in a number of cancer types including:

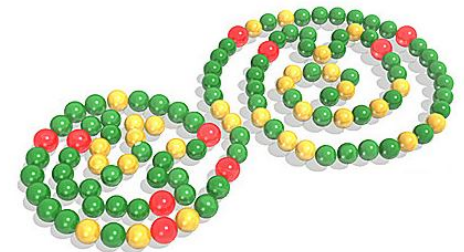
- Lung cancer
- Breast cancer
- Esophageal carcinoma
- Prostate cancer
- Colorectal & pancreatic cancer
- Neuroblastoma

Medical Therapies is planning to validate the significance of measuring midkine. Once early detection has been established a targeted cancer treatment has the ability to be more effective.

Midkine therapeutics

Pre-clinical studies show midkine to be a mediator and/or modulator of various cell migration and inflammatory pathways. Anti-midkine antibodies may be used to treat various conditions such as arthritis, multiple sclerosis, post-surgery adhesions and various cancers. Pre-clinical data have shown that if cancer cells are prevented from producing midkine, tumour growth and spread is reduced. Studies in mice have shown those that do not have midkine genes do not develop rheumatoid arthritis hence an anti-midkine compound may be useful for the treatment of the condition. A similar theme has been shown in mice as a treatment for multiple sclerosis.

Figure 2: Midkine molecule



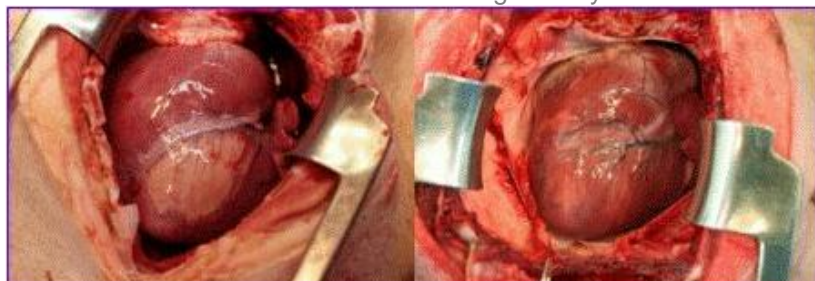
Source: www.midkine.org

“Measuring midkine may help detect cancer as early as stage 0”

“Anti-midkine antibodies may be used to treat various conditions such as arthritis, multiple sclerosis, post-surgery adhesions and various cancers”

Midkine may also prevent or reduce cell destruction following stroke. Pre-clinical studies in large animals have shown midkine to protect from cell death and heart muscle distraction which usually follows acute myocardial infarction. The end result may be reduced fatalities from stroke and a better functioning heart in post-stroke victims.

Figure 3: Midkine treated pigs have shown three fold improvement in survival rates and their heart tissue damage visibly reduced.



Control

MK

Source: MTY

“MTY is currently holding talks with potential partners to co-develop new drugs”

Key Patents

The following table shows the key patents Medical Therapies have in their portfolio of patents.

Table 1: Key Patents

Patent No.	Title	Granted
US 5,629,284	METHOD FOR TREATING RETINAL DISEASES	US
US 7,390,491	AGENTS COMPRISING MIDKINE OR AN INHIBITOR THEREOF AS ACTIVE INGREDIENT	US, GE, FR, GB, CH
EP 1057489	USE OF MIDKINE FAMILY PROTEINS IN THE TREATMENT OF ISCHEMIC DISEASES	AU, KR, CN, GE, FR, GB, CH
PCT JP99/03740	REMEDIES FOR APOPTOSIS-ASSOCIATED DISEASES	
US 6,867,037	EXPRESSION SYSTEM OF INTACT MK FAMILY	US
US 7,309,695	PHARMACEUTICAL COMPOSITIONS FOR THE PREVENTION AND TREATMENT OF ARTERIOSCLEROSIS AND RESTENOSIS AFTER PTCA	US
US 7,090,983	METHODS FOR DETECTING EARLY CANCER	AU, US, BE, IT, GE, FR, GB, CH, KR, CN
PCT JP2004/002888	AGENTS FOR PREVENTING POST-LAPAROTOMY ADHESIONS	
PCT JP2004/004352	ARTHRITIS-ASSOCIATED GENE IN EXAMINING ARTHRITIS	
PCT JP2005/022354	TREATING OR PREVENTING MYOCARDIAL DISORDER	
PCT JP2006/310375	COMPOSITION FOR OBSTRUCTIVE VASCULAR DISEASE	
PCT JP2006/322659	METHOD FOR TREATMENT OF FUNCTIONAL DISORDER OF REGULATORY T-CELLS	
PCT JP2007/001238	ANTIBODIES RECOGNIZING C-DOMAIN OF MIDKINE	
PCT JP2007/070441	COMPOSITION FOR OBLITERATIVE VASCULAR DISEASE	
PCT JP2008/000815	AGENT FOR ACTIVATING NITRIC OXIDE SYNTHASE	
JP 3887154	ANTI MK MONOCLONAL ANTIBODY	JP
JP 4048293	METHOD FOR DIAGNOSING RHEUMATIC ARTHRITIS	JP
JP/H06-209613	PRODUCTION OF MIDKINE	
JP 3694731	RECEPTOR METHOD FOR SUPPRESSING MIDKINE DEP CELLS	

Source: MTY

“MTY owns 21 patent families out of a total of 51 worldwide”

Potential

Medical Therapies is looking for large pharmaceutical or biotechnology companies to partner their various therapeutic product development programs. A suitable partner would help fund the costs of phase I-III trials in exchange for collecting a large part of potential revenue stream should the drug make it all the way to the market. If Medical Therapies is able to find a suitable partner their initial revenue will consist of upfront and milestone payments until royalty payments eventuate.

Table 2: Partnering opportunities

Indication	Active	Partners sought
AMI (Acute Myocardial Infarct)	Midkine protein	Co-development partner with cardiac product development experience
Brain ischemia	Midkine protein	Co-development partner or licensee with clinical experience in stroke
Multiple sclerosis	Anti-midkine antibodies	Co-development partner or licensee with antibody experience and/or focus on autoimmune diseases
Rheumatoid arthritis	Anti-midkine antibodies	Co-development partner or licensee with antibody experience and/or focus on autoimmune diseases
Restenosis	Anti-midkine nucleotides, anti-midkine antibodies	Co-development partner or licensee with antibody, antisense or siRNA experience and/or focus on restenosis
Cancer and chemotherapy resistance	Anti-midkine nucleotides, anti-midkine antibodies	Co-development partner or licensee with antisense or siRNA experience and/or focus on chemotherapy resistance
Early diagnosis and prognosis of cancer	Midkine immunoassays, including proprietary anti-midkine antibodies	Co-development partnership or license arrangements with diagnostic companies

Source: MTY

If a new drug, from the current patent portfolio, is able to make it to the market the potential revenue stream could be quite large although any development may take up to a decade.

A potential revenue scenario from royalties may be as follows. In this scenario we assume the final drug is able to capture 10% of the total market. Medical Therapies would then receive a royalty stream which we assume would be 5% based on the development currently being at pre-clinical stage for the therapeutic programs.

Further we have assumed the patents to last for 10 years and the drug doesn't deliver peak annual sales until year 4. Developing a new drug is both costly and takes considerable time. A small percentage of pre-clinical go to IND (Investigative New Drug). From there about 70% pass phase I trials. 30% of the original ones pass phase II and about 80% of the ones left pass phase III. Roughly, 1/5th of the drugs from pre-clinical make it to the market. Thus, we have multiplied the cash flow by 15% to take into account risk the drug won't make it past phase III. A straight DCF has then been applied to the cash flow. The discount rate used is 10.8%, discounted from year 10-20. The AUD/USD exchange rate has been set at 1.4.

The below scenario is based on one of Medical Therapies' asset groups. In total the company has four assets groups:

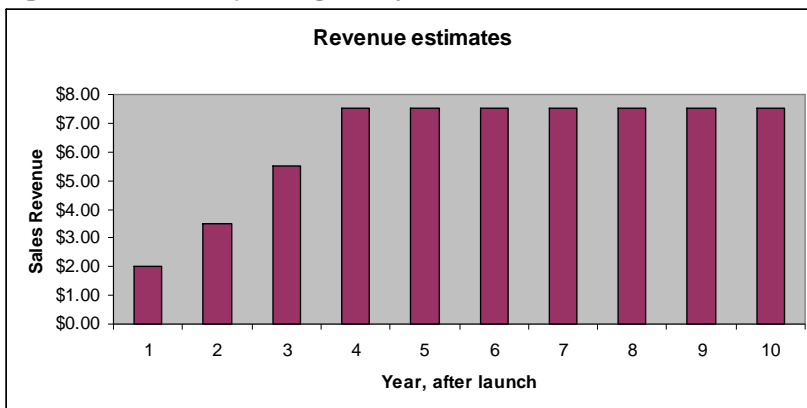
- Diagnostic (potential market US\$45bn)
- Therapeutic antibodies (US\$4.9bn)
- Therapeutic anti-MK nucleotides (US\$16bn)
- Midkine protein for post-myocardial infarction (US\$1.5bn)

Table 3: Potential market penetration scenario for one asset

	Post-myocardial infarction (heart attack)
Potential market size	US\$1.5 billion
Market penetration rate	10%
Estimated market size	US\$150 million
Royalty rate	5%
Peak annual sales revenue	US\$7.5 million

Source: Wise-owl

Figure 4: Revenue peaking after year 4



Source: Wise-owl

Table 4: Potential revenue scenario (in millions)

Year	1	2	3	4	5	6	7	8	9	10
Revenue	\$2.00	\$3.50	\$5.50	\$7.50	\$7.50	\$7.50	\$7.50	\$7.50	\$7.50	\$7.50
Risk @ 15%	\$0.30	\$0.53	\$0.83	\$1.13	\$1.13	\$1.13	\$1.13	\$1.13	\$1.13	\$1.13
Discount factor	0.90	0.81	0.74	0.66	0.60	0.54	0.49	0.44	0.40	0.36
Discount cash flow	0.270758	0.427641	0.606505	\$0.75	0.67368	0.608015	0.54875	0.495261	0.446987	0.403418

Source: Wise-owl

Board of Directors

Dr David King – Independent Chairman

Dr David King brings a depth of corporate governance, capital markets and listed company board experience to Medical Therapies. He has previously held positions as Executive Director, Chief Executive Officer and Managing Director in a number of private and listed companies.

An expert in high growth companies Dr King has a track record in starting business ventures and developing them into attractive investment and/or take-over targets. His experience in successful start-up businesses has been instrumental in MTY's recent acquisition of the midkine intellectual property portfolio.

Dr King is a Fellow of the Australian Institute of Company Directors, a Fellow of the Australian Institute of Geoscientists and the Australian Institute of Mining & Metallurgy (Chartered Professional, Management) and holds degrees in physics and geophysics and a PhD in Seismology from the Australian National University.

Maria Halasz – Managing Director & Chief Executive Officer

Maria Halasz has been involved with biotechnology companies for 16 years; initially working in executive positions in biotechnology firms, then managing investment funds and later holding senior positions in corporate finance specialising in life sciences.

Prior to joining Medical Therapies Ms Halasz had been an adviser to an independent sector based research firm in life sciences and managed Direct Capital Group Pty Ltd, a specialist biotechnology fund. She has also been a venture partner at the Emerging Technology Fund of venture capital firm Allen and Buckeridge.

Since taking over as Chief Executive and Managing Director of Medical Therapies Ms Halasz has led the restructure of the business, the acquisition of the midkine intellectual property portfolio and the recapitalisation of the company.

Ms Halasz is a Member of the Australian Institute of Company Directors and holds a science degree in microbiology and an MBA.

Koichiro Koike – Director

Mr Koichiro Koike is based in Tokyo and is co-principal of V2V, a corporate advisory firm specialising in cross border life sciences transactions between Australian and Japanese companies. Following his early career as a corporate finance and M&A specialist in Tokyo for a European investment bank Mr. Koike lived in Melbourne for 15 years.

While in Australia, Mr Koike has served on a number of public and private life science company boards and has developed a strong track record in facilitating business and corporate development events between firms of all sizes in the sector.

As an adviser he has been involved in out-licensing technology, capital raisings and initial public offerings. Whilst having a thorough understanding of the day to day requirements of high growth

companies Mr Koike also has extensive contacts in some of the most prominent diagnostic and pharmaceutical companies in Japan. These companies are key candidates for MTY's out-licensing activities, particularly for its diagnostic portfolio.

Mr Koike has been closely involved with the Midkine technology for over a year and was an adviser to Cell Signals Inc., the vendors of the technology, during the acquisition process.

Wise-owl.com recommendation system

Care has been taken to define the level of risk to return associated with a particular company. Our recommendation ranking system is as follows:

Spec Buy

We forecast strong earnings growth or value creation that may achieve a return well above that of the broader market. These companies also carry a higher than normal level of risk.

Buy

Companies with 'Buy' recommendations have been cash flow positive for some time and have a moderate to low risk profile. We expect these to outperform the broader market.

Hold

A sound well managed company that may achieve market performance or less, perhaps due to an overvalued share price, broader sector issues, or internal challenges.

Sell

Risk is high and upside low or very difficult to determine. We expect a strong underperformance relative to the market and see better opportunities elsewhere.

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