

Uncovering New Drugs from Traditional Cures

Traditional Chinese medicine and research presents a large pool of therapeutics that can fill gaps in western medicine by providing therapies to successfully treat patients. Singapore-based drug firm Moleac is refining and introducing such cures to the market.

By **N Ravindran**

A LONGSIDE Ayurveda, traditional Chinese medicine (TCM) is perhaps one of the oldest systems of medical treatment practised today. Based on an intricate balance of energy forces, TCM practitioners believe that illnesses are due to an imbalance in the natural energy flows within a body. The practice of acupuncture, imbibing herbal cures, massaging with salves, and using heated bamboo cups along body meridians seeks to re-balance the flow of energy in patients.

Moleac is a biopharma company headquartered in Singapore. Its operations and research are located in the Biopolis, a purpose built complex for biomedical sciences research. Moleac aims to introduce TCM to the market. Frenchman David Picard co-founded Moleac in 1995 and has served as chief executive since. Over the past decade, he has identified key opportunities and partners in China, Singapore, and Europe, and driven both the clinical and business development processes. Prior to founding Moleac, Picard spent 10 years at the Boston Consulting Group as a member of its worldwide Healthcare Practice Area.



Moleac's chief executive David Picard believes that several TCM therapies hold promise for use as drugs in western medicine.

Moleac is focused on identifying and clinically validating innovative drugs and devices in China and marketing these globally. It started by in-licensing promising TCM products and is extending its scope, by partnering with leading institutes in China to develop promising remedies for international markets.

"We combine modern clinical approach and cutting-edge biotechnologies to develop best-in-class therapeutics. The goal is the development of drugs that extend the benefits of discoveries made in China and of traditional therapies into mainstream western medicine, to reach millions of patients suffering from pain and neurological conditions," explains Picard.

East meets West

He believes that what makes Moleac different is that it represents a true meeting of east and west: "There was a group of European, mainly French scientists who were interested in knowing just what it was about eastern medicine that seemed to have had so much success with medications and how this could be short-cut into western medicine. At the same time there was a respected team of Chinese academicians and TCM experts who were able to advise where the possible breakthroughs lay."

Moleac thus brings together top scientists in traditional medicines, molecular biology, pharmacology, and genetics to carry out its research and development. A management team that is experienced in taking drug development from laboratory to the market supports it.

Together with these scientists and doctors, Moleac's business team embarked on a form of data mining, identifying a range of TCM cures in China, which were little known to the west. The aim was to further study these cures and by way of clinical trials and drug refinement make new drugs available to western medicine.

Picard says: "Moleac focuses on products which address important medical needs currently unmet by existing or in-development pharmaceutical drugs. For each opportunity, we establish and co-own international intellectual property protection. Moleac initiates clinical trials outside China to further validate initial findings. These will be conducted by key opinion leaders in accordance with western clinical

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Moleac's list of medical advisors and experts includes Professor Marie Germaine Bousser, an eminent neurologist in the field of migraine and stroke, and Professor Étienne-Émile Beaulieu, an authority on the metabolism of steroid hormones. Picard says that these experts have chosen to be associated with Moleac despite its relative small size because of the exacting standards that the company has adopted and its novel approach to drug discovery.

The company's partnerships with leading research institutes have enabled it to identify therapeutics with excellent potential. Its multi-disciplinary teams provide the key capabilities and credentials to drive these opportunities.

"The TCM cures we are looking at provide a strong case for use in western medicine. As these cures have been in use for some time, the clinical trials and data collection cycle is cut short, and a new drug for western medicine can be derived in a shorter period, relatively cheaply," says Picard.

"Drug firms spend about US\$800 million on developing new drugs to market. We are looking at short cuts. We should have more efficacy and less side effects as we identify TCM cures that have the potential to be used in western medicine. Even with clinical trials and time to market, the investment involved is just a fraction that would otherwise be spent on drug development from scratch," he adds.

Stroke Drug

The first of Moleac's offering is Neuroaid, the first drug that can help patients recover faster from their stroke disabilities. Known as *Danqi Jiaonang* in China, this drug has shown promise in stroke recovery. A stroke deprives a patient of either sensory or motor capabilities as certain portions of the brain are irreparably damaged.

In the west, treatment for stroke involves physiotherapy, a long and ar-

duous course of action, that may eventually help the brain "re-wire" itself and relearn the lost processes. Western medicine does not offer a pharmacological cure. All the medications that patients receive are to prevent secondary effects of strokes.

In Neuroaid, Picard was confident they had a winner on their hands as the drug was based on the work of the First Teaching Hospital of Tianjin University, the largest TCM hospital of China. The hospital treats, on average, 4,000 outpatients a day.

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Neuroaid is a natural abstracts composition, initially developed at the First Teaching Hospital of Tianjin as a traditional Chinese medicine. After comprehensive clinical trials, where it has shown remarkable success in bringing faster and fuller recovery for stroke patients, it has gained national registration in 2001 in China as a TCM drug for the indication of stroke recovery and the indication to supplement Qi and activate blood circulation.

It has since helped about 500,000 stroke survivors gain a better recovery from their disabilities. It is a natural drug containing a mixture of 14 extracts, which is typically taken concurrently during rehabilitation.

"When we first heard of this Chinese medication for stroke victims, we were excited as nothing similar existed in the west. However, as there was little literature and clinical-based studies on its efficacy, we did our own diligence trials in Singapore to augment comprehensive reviews done in China in accordance to TCM principles but with western end points," says Picard.

Moleac partnered with Chimes Society, a non-profit organisation set up in Singapore by leading international

stroke clinicians to implement an investigator-initiated clinical study of the drug. The initiative was led by Dr Christopher Chen and involved centres in Singapore, Hong Kong, and the Philippines.

Moleac is looking at the benefits of acupuncture. Picard says the company supports the discovery of therapeutic proteins associated with acupuncture: "Acupuncture is widely recognised to be superior to marketed drugs for treating certain diseases. By focusing on diseases where acupuncture is known to work, we are able to minimise both the risk and time associated with drug discovery."

The first product to exploit this is a novel device for smoking cessation called Re:vive. This device is based on research conducted in China, on an innovative treatment based on electro-stimulation for treating smoking addiction. "Unlike current smoking cessation therapies, our device will not deliver nicotine substitutes through an alternative channel, but will instead stimulate the body to restore natural chemical balance to curb cravings," says Picard.

Re:vive is designed as a miniature non-invasive unit that a smoker can easily use several times a day while carrying out normal activities. The device is supported by numerous pre-clinical and clinical studies conducted in China and Moleac completed clinical trials in Singapore in 2005 and is preparing to launch the device in late 2006.

Picard believes Re:vive will offer a safe and economically attractive alternative to existing therapies: "We estimate that millions of individuals attempt to quit smoking every year in Europe, USA, Japan, and South Korea. The success rate however remains quite low because of the substitution therapies offered by nicotine patches and the like. We are seeking partnerships to rapidly establish a successful over-the-counter consumer marketing and distribution network."



Re:vive is a medical device that stimulates acupuncture points to help smokers quit their habit.

Moleac is initiating trials on

- a hot flashes treatment, assembled from a combination of herbals, which is phyto-oestrogen free
- a vitiligo treatment assembled from herbals
- cancer treatment, and
- a range of natural products aimed at mitigating the side effects of chemotherapy.

Picard says: "Our strategy for these TCM derived drugs and natural products is to identify the most efficient channels, including partnerships with like-minded pharmaceutical and biotechnology companies, to market and distribute these therapies outside China. We will also consider opportunities to develop our portfolio in areas such as food biotechnologies and health supplements."

He believes Moleac's strategy of linking up with TCM partners in China will stand it in good stead as the firm is more of a "drug discoverer" as opposed to "drug-maker". He does not see the company building pharmaceutical factories as he reckons its advantage lies in discovering therapies that hold promise and refining these for use in western medicine.

He cites its partnership with Shitian Pharmaceuticals as an example. "Shitian has developed a portfolio of 250 drugs and natural products derived mainly from research carried out in the First Teaching Hospital of Tianjin. We can leverage on their ex-

pertise to bring to market new drugs that have great potential in the west," says Picard.

In an effort to increase awareness of Neuroaid's efficacy in stroke treatment, Moleac, and Singapore Exchange-listed China Healthcare Ltd announced a collaboration in October 2006 to offer more comprehensive treatment using Neuroaid to speed the recovery of stroke patients. Stroke patients account for a large number of patients treated at China Healthcare's seven Econ Medicare Centres and Nursing Homes. Of its 1,000-beds, 20 per cent are dedicated to patients recovering from stroke.

Picard says China Healthcare has strong expertise in integrative medicine and is very experienced in developing rehabilitation programmes. This collaboration reflects a growing trend where traditional medicine is used in combination with western medicine for the treatment and management of a wide range of diseases.

He is confident that Moleac will find ready markets for its products: "The reasons for this vary, but the increasing interest in, and use of TCM is due to its effectiveness, affordability, and lack of adverse side-effects compared to western medicine. If we can identify, trial, and gain approval for TCM medicines . . . I see no reason why western medicine patients cannot benefit from innovative therapies from Moleac."