VMDA-3601 was jointly developed by Seoul National University and Dong-A Pharmaceutical Co. This gene-based drug can be used to treat some leg ailments accompanying severe pain or ulcers caused by clogged blood vessels. In this treatment, a blood vessel-growing gene, VEGF-165, is injected into an ailing leg muscle through a gene vector system or delivery vehicle.

By 2002, VMDA-3601 will be on the market. About 40,000 patients will benefit from this new technology. It is also expected to dominate the global market, reaping returns of close to 100 billion won (US$80 million).

RESEARCH NEWS

Taiwanese Scientist to Test AIDS Vaccine in Mainland China

The pioneer of so-called cocktail treatment for AIDS, Dr. David Ho has recently said in Taipei that he is planning to start tests of an AIDS vaccine on humans in mainland China later this year.

Dr. Ho is a US citizen who was born in Taiwan. He is famous for proposing the cocktail treatment for AIDS, which involves combination of a number of AIDS drugs for the treatment.

In his speech on the latest developments in AIDS research at a symposium held on 6 March in Taipei, Dr. Ho stated that the key issue for treating AIDS is to find ways to block the AIDS virus from entering individual cells. As other AIDS researchers, Dr. Ho is also trying to develop a method to interrupt the reaction between protein GP41 and cell receptor CCR5, which is critical to deter the virus from entering human cells.

Up to date, 15 drugs for AIDS are available in the market but no drug has been proven to be totally effective in treating AIDS. The problem is that even if most of the drugs can curbe the AIDS virus, the virus is so manipulative that they will wait for a chance to re-attach to human cells while being in a dormant state.

To find a suitable place for his vaccine tests, Dr. Ho visited Xinjiang in China last year. He plans to continue his search in another province of China, Yunnan, later this year. The tests will be conducted jointly with mainland researchers in the second half of this year and will be announced soon.

Dr. Ho added that Chinese herbal medicine is a rich source of raw materials for manufacturing AIDS drugs and he proposed to apply modern technology to extract the effective substances from the herbs rather than administrating the original herbs. The first step of the research needs to ascertain the chemical ingredients of the herbs and their effect on the AIDS virus.

China to Improve Test Tube Baby Technology

Chinese experts have announced recently that China will conduct a research project to develop the fourth generation of test tube baby technology. This project, which will be sponsored by the Procreation and Inheritance Treatment Center of the Beijing Medical University hospital, will hopefully help sterile women to conceive.

Guo Yinglu, an academic from the Chinese Academy of Engineering and the expert in charge of the project, said the technological preparations for the research are now in hand, and they will start the actual research work soon.

The research project aims at developing the fourth generation technology, which involves the removal of the karyon, or nucleus, from an egg with poor-quality serum, which cannot therefore, sustain the karyon. The karyon would then be put into an egg with healthy serum with its own karyon removed earlier. This process will ensure that the original karyon will have enough sustenance to develop.

The egg would then be exposed to sperms to be fertilized in a test tube. The fertilized egg will form a germ cell, which will then be surgically replaced into the womb. Since the karyon carries all the genes, the characteristics of the resulting child will not be determined by the woman who provides the egg with the healthy serum.

Since China’s first test tube baby was born in 1988 in Beijing, over 80 hospitals have helped 4,000 women conceive. In provincial hospitals, the technology’s success rate is 25 percent, which is quite close to the international level of 30 percent.

Test tube baby technology was first adopted in Britain in 1978. So far it has gone through three stages of development. First-generation test tube baby technology is for women who are unable to conceive due to problems of the fallopian tubes. The second-generation technology involves injecting a single sperm into an egg to help men who cannot father a child naturally due to inadequate sperms. The third generation involves injecting the sperm to the egg and to screen the embryo to make sure it is healthy.

The fourth-generation technology, is expected to contribute a great deal to the technology. The Chinese researchers hope the it will help many more of the country’s would-be parents have their own healthy children.

“Since China’s first test tube baby was born in 1988 in Beijing, over 80 hospitals have helped 4,000 women conceive.”
Harvard Univ. and HKU to Jointly Offer Course on Medical Administration

The Faculty of Public Health of the Harvard University and the Medical and Health Research Network of the Hong Kong University (HKU) have recently signed an agreement to jointly start a course on medical and healthcare administration.

The course, named Reform of Medical and Healthcare Organizations and Their Financial Policy, is expected to give students from related organizations new ideas of how to effectively handle administrative matters in a medical or health-related organization. Initially only 30 students will be admitted to the course.

The principal of HKU said that Hong Kong will be undergoing a number of medical and healthcare reforms. The medical staff should prepare themselves for lifelong learning to attain the medical and healthcare service standards required by the Hong Kong people. This course will make use of the knowledge and expertise of Harvard University and provide students with the opportunity to learn the most advanced knowledge and skills on healthcare administration.

The director of Faculty of Public Health of Harvard University said that he was pleased to witness the collaboration between HKU and Harvard University and hoped cooperation between both parties will be strengthened and furthered in the future.

China and HK Scientists Use Microwaves to Treat Liver Cancer Patients

The Prince of Wales Hospital in Hong Kong and the Chinese People’s Liberation Army General Hospital in Beijing, China are using microwaves to destroy liver cancer tumors. Over the past seven years, nearly 500 patients in these hospitals have undergone the new treatment method — known as microwave coagulation therapy — and the success rate has been encouraging.

Other than feeling hot inside, patients seldom complain of any side effects. The equipment is also rather inexpensive and easy to use.

However, doctors warned that this form of treatment is not suitable for all patients as it should only be used when the tumors are smaller than three centimeters. Other forms of treatments like chemotherapy, liver resection and transcantheter arterial treatment are still useful for patients.

AgResearch’s Interim Profits Up 40%

AgResearch, one of New Zealand’s Crown Research Institutes, has announced that it reaped NZ$2.76 million (US$1.17 million) in profits for the period July to December 2000, an increase of 41.5 percent over the same period in 1999. In terms of revenue, the institute earned NZ$59.02 million (US$25 million), an increase of 24 percent from 1999.

AgResearch’s chief executive, Dr. Keith Steele, said that he was pleased with the results. A noteworthy observation from the statistics is a 71 percent rise in commercial revenue from non-governmental sources. Part of this achievement is attributed to Celentis, AgResearch’s business arm that is responsible for commercializing its research and development output and a joint venture company called Sastek, which AgResearch acquired recently.

A key strategy the institute has adopted is to facilitate the transition from scientific discovery to commercialization of the final product on the market. In the second half of 2000, AgResearch entered into major partnership agreements with Australian company, CSL Pty. Ltd. and British company, PPL Therapeutics. It will be announcing the setting up of two biotech start-ups in the US soon. Based on these favorable conditions, Dr. Steele has forecasted a 43 percent increase in overall product revenue for the financial year ending 30 June 2001.

Vaccine for Australia’s Rabbits

Rabbits are both a boon and a bane in Australia. On the one hand, rabbits have the potential to cause up to A$600 million (US$309 million) losses in agriculture every year. On the other hand, they are also one of the most popular pets.

A student from the Australian National University and the Cooperative Research Center for Pest Animal Control will be working on a project to develop a vaccine to protect pet rabbits from myxomatosis. Myxomatosis is a disease that is caused by a pox virus and shows symptoms such as skin tumors. It is usually lethal to rabbits and farmers have introduced this disease to control the rabbit population on their farms. Pet owners, however, do not wish for their rabbits to contract this disease.

Live vaccines to protect rabbits against myxomatosis is currently available, but Australia has prohibited their use as wild rabbits may acquire the protection, deeming myxomatosis ineffective as a form of pest control. The difficulty is to design a vaccine that has the ability to protect selectively. The research team is attempting to develop a type of DNA vaccine that contains genes from the virus. When injected, the vaccine could cause an expression of an antigenic viral protein directly within the cells, and the immune system will then target these foreign antigens to attack the virus when the rabbit is exposed.
Korean Scientists Elucidate Bacterium Genome

Korean scientists at the Kyongsang University have recently announced the successful elucidation of more than 95 percent of the genetic code of Helicobacter pylori — a lethal bacterium which causes gastritis, stomach ulcers and cancers in adult humans.

This common bacterium inhabits the stomach of more than 90 percent of Koreans resulting in symptomless stomach diseases. It survives in the thick mucus layer lining the inside of the stomach. Upon invasion, the bacteria release molecules which irritate and degrade the stomach epithelial cells, thus creating food for the bacterial colony.

The World Health Organization has classified H. pylori as a Group One carcinogen. It has the ability to mutate in an unlimited number of ways, resulting in different genetic structures according to the bacterial host. Due to its durability and diversity, scientists have been unsuccessful in their attempts to eradicate this bacterial pathogen.

Previous efforts to control the bacteria have been futile. So far, the most promising approach is still the molecular-based one. A comprehensive computer analysis has allowed Professor Rhee Kwang-ho’s team at Kyongsang University to identify most of the 1.6 million chromosomal base pairs in a four-year project. The Korean scientists believe that this genetic breakthrough will help provide valuable clues on how these stomach diseases evolve, and thus develop new treatments to combat them.

In Brief

• Australian Wins Marcus Wallenberg Prize

Australian scientist, Dr. Rob Evans, has won the Marcus Wallenberg Prize for 2001. The Prize is regarded as the Nobel Prize for forestry and timber research. Dr. Evans, from CSIRO, was awarded the Prize for his pioneering work in characterizing the quality and structure of wood. This led to the development of an instrument called Silviscan, which allows the rapid analysis of wood samples to determine the optimum and most valuable end use of timber.

ALTERNATIVE MEDICINE

Asia’s Largest TCM Plant Set Up in China

China is now in the process of building the largest plant in Asia for extracting and processing traditional Chinese medicine (TCM). The plant, which will cover 3 square km, will be the third largest of its kind in the world.

The first phase construction of the plant was completed in Wuhu Biomedical Science and Technology Garden, Wuhu, Anhui.

The Chinese company to undertake the second phase construction has spent RMB1 billion (US$120 million) to introduce the latest technology of super hydro-sulfur dioxide, which is very efficient in extracting essence from herbs in large quantity. The production line was imported from Germany. Experts believe using modern technology is critical in industrializing TCM.

TCM Production Base to be Built in Yunnan

Yunnan is ranked first in China for natural resources used in traditional Chinese medicine (TCM) herbs. About 6599 types of herbs, of which about 60 to 70 percent are rare medicinal species can be found in Yunnan. The pharmaceutical industry has become a leading industry in the province, where 137 pharmaceutical plants are now located, producing 3000 types of medicines.

In light of its strong pharmaceutical base, the local government of Yunnan has proposed to build a modernized TCM production base in this province. The plan has been approved by experts of the Chinese Academy of Sciences.

The local government has already allocated RMB20 million (US$2.4 million) for the early-stage preparation. Experts estimate that it will take RMB3.1 billion (US$364 million) and five years to complete the construction of the production base. Five herbal plantations, three demonstration zones and five drug processing centers will be built during the first phase construction.

New Anti-malaria Ayurvedic Medicine to be Included in India’s Health Program

The Indian government is planning to include a new anti-malaria ayurvedic medicine, Ayush-64, in its National Health Program. Ayush-64 was developed by the Central Council for Research in Ayurveda. Research on Ayush-64 was carried out at the Council laboratories in Chennai and Calcutta.

The efficacy of Ayush-64 against malaria caused by Plasmodium vivax was tested in these laboratories. The medicine has been found to have curative values, and is also effective in preventing the relapse of malaria. Clinical trials involving 30 000 malaria patients shows that Ayush-64 has 90 percent efficacy. Preliminary studies indicate that Ayush-64 is also effective in treating malaria caused by Plasmodium falciparum.

A member of the Council said that during malaria outbreak, healthy individuals can take one tablet a day to prevent infection, while those already suffering from malaria should take an increased dosage.