



Mahidol University

Advancing knowledge for the benefit of mankind

As Mahidol University celebrates its 123-year-old history and the 42nd anniversary of the royal bestowal of its name on March 2, the best of science and research by the institution's researchers and academics can be held up as testament to the realization of its namesake's altruistic philosophy.

Though officially established as University of Medical Sciences in 1943, Mahidol University traces its origins to the creation of Siriraj Hospital in 1888 and the founding of the country's first medical school two years later, both under commissions of King Chulalongkorn (Rama V).

In 1969 the university was renamed Mahidol University by His Majesty King Bhumibol Adulyadej after his father, H.R.H. Prince Mahidol of Songkla, who was revered as Father of Modern Medicine and Public Health in Thailand.

Ever since its inception, the university has embraced social responsibility, in addition to academic obligations, seeing its mission as being to be a "university for the people." Currently, its medical facilities—Siriraj Hospital, Ramathibodi Hospital, Tropical Medicine Hospital, Kanchanapisek Medical Center and two dental hospitals— provide medical and dental services for more than 5 million patients each year. It has also given priority to applying academic work and research in solving problems and improving the livelihood of Thai people.

H.R.H. Prince Mahidol once stated *"True success is not in the learning, but in its application to the benefit of mankind."* And his words has been the guiding philosophy that the university has followed in working toward becoming a comprehensive university that nurtures virtue, wisdom and happiness in its graduates.



Kan phai Mahidol (Afgkia mahidoliae B. L. Burt & Chermisr):
The symbolic plants of Mahidol University



Originated from medical school, Mahidol researchers have been at the forefront of the fight against major diseases that have been threatening Thailand and countries around the world. Their roles in some ground-breaking projects indicate international recognition of the high standards of the university's research procedures and personnel.

One of such projects is the development of a safe and effective vaccine against HIV carried out by MU's Vaccine Trials Center in collaboration with the Department of Disease Control, Ministry of Public Health; and Thai and U.S. Army Medical Component, Armed Forces Research Institute of Medical Sciences.

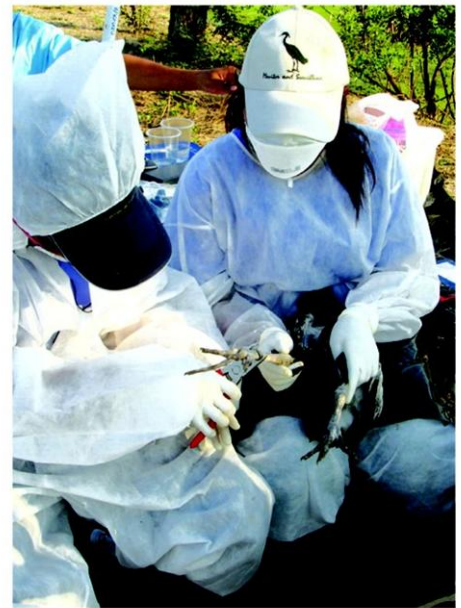
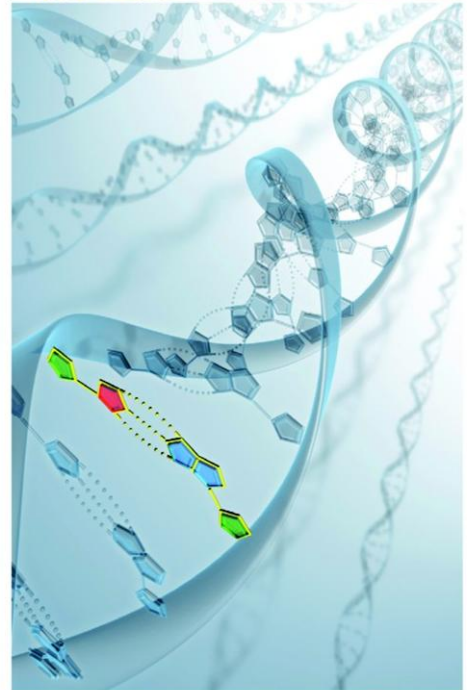
A team of Mahidol researchers led by **Prof. Punnee Pitisutthithum** was responsible for clinical trials in which priming and booster injections of the vaccine regimen and placebo were administered to 16,402 male and female volunteers in the 18-30 age group.

The vaccine was found to be highly safe and may reduce the risk of HIV infection in a community-based population with largely heterosexual risk. Vaccination, however, did not affect the viral load or CD4+ T-cell count in subjects with HIV infection.





H.R.H. Prince Mahidol of Songkla



The findings confirmed for the first time since HIV was discovered 26 years ago that an effective vaccine against the virus can be developed and offered insight that would quicken the development of vaccines against AIDS.





In social sciences, a project by **Prof. Suwilai Premsrirat** of Research Institute for Languages and Cultures of Asia has pioneered in using mother-tongue-based and multilingual approach in education to address language identity issues and resolve socio-political conflicts in the country's southernmost provinces, where more than 80% of the population are ethnic Malay Muslims who speak Pattani Malay as opposed to Thai, which is the official language and used as the only language for instruction in schools.

This action-participatory research has been undertaken with the participation of members of the local Malay Muslim community in all stages of the development of the program including designing curriculum, drawing up teaching plans and preparing class materi-

In the wake of the bird flu epidemic, Mahidol University launched a series of research activities that have helped bolster Thailand's and global control and prevention of the virulent disease.

A Mahidol research team led by **Prof. Dr. Pilaipan Puthavathana** conducted a study on the genome of H5N1 virus collected from the first five Thai patients afflicted with the disease as well as from poultry origin.

When it was compared with those found in other countries including the strain that first

emerged in Hong Kong in 1997, the team found mutations in the H5N1 virus from Thailand that made them resistant to amantadine, an anti-influenza drug. The findings received worldwide attention due to limited information on H5N1 isolated from human at that time.

And in collaboration with national and international partner institutes, Mahidol University conducted an integrated research project on the surveillance of transmission of bird flu in all types of interface—migratory birds to domestic animals, avian to avian species, avian to domestic pets such as dogs and cats, animals to humans, and humans to humans.

This multicenter project was led also by **Prof. Dr. Pilaipan**, with **Assoc. Prof Parntep Ratanakorn**, Faculty of Veterinary Science, chairing the subproject on animal infections; **Dr. Kumnuan Ungchusak** from the Bureau of Epidemiology, Ministry of Public Health, chairing that on human infections and surveillance of bird flu cases among severe pneumonia patients living in outbreak areas; and **Prof. Dr. Prasert Auewarakul** in charge of that on genetic evolution of the viruses.

als. By taking advantage of students' mother tongue and cultural knowledge, the program uses bilingual techniques and various forms of class materials as a bridge to the learning of Thai language.

The project has gained international recognition and received regional attention for its applicability. Indonesia, Malaysia, Lao and the Philippines have shown interest to apply the approach in providing education in areas populated by different ethno-cultural groups.

Also, the institute's Resource Center for Revitalization and Maintenance of Endangered Language and Cultures has been implementing projects to revive indigenous languages and

knowledge in education, known as “Mahidol Model”, for youths in more than 20 ethnic groups nationwide.

Mahidol University also functioned as the parallel laboratory of the Department of Medical Science, Ministry of Public Health in diagnosing the first imported case of the 2009 pandemic A (H1N1).

A high incidence of cancer among the population is another major health problem facing Thailand today. Although chemotherapy is a method of treatment commonly administered to cancer patients, the use of anti-cancer drugs has been constrained by their toxicity and low specificity against the targets. Furthermore, a substantial portion of the drugs is usually lost when passing through multiple systems of the human body, causing side effects on normal cells and organs.

To fix these problems, **Dr. Norased**

Nasongkla, chief of BioNEDD Laboratory, Department of Biomedical Engineering, Faculty of Engineering has been developing biodegradable polymeric drug delivery systems that can be implanted directly in brain or liver tumors. Anti-cancer drugs contained within will be released at controlled rates directly to surrounding cancer cells. A biocompatibility study has been undertaken as part of the project to ensure that the technology is safe for use in humans.

In a related project, nanotechnology has been employed to develop drug delivery systems in which anti-cancer drugs are loaded onto nanoparticles that can be administered through intravenous injections for effectiveness in searching and destroying cancer cells.



The bodies of knowledge generated and advanced by Mahidol University have significantly contributed to efforts to promote and safeguard the health and lives of millions of Thais and people around the world.

Still, these accomplishments cannot be dwelled on; the university, true to its tradition, shall continue to move forward in developing knowledge and innovations for the benefit of mankind.

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