New cancer therapy by Singapore researchers reduce painful side-effects
(Released on March 21, 2005)

SINGAPORE, March 21 (AFP) - Singaporean researchers have discovered a new method of combating cancer that delivers drugs with microscopic precision and minimises painful side-effects, a scientific institute said Monday.

Scientists from the Institute of Bioengineering and Nanotechnology (IBN) have created "smart" polymer nanoparticles that deliver anti-cancer drugs directly to diseased tissues, according to a press statement.

The new cancer treatment, which has been successfully tested on small animals, will significantly reduce side-effects that cancer patients who undergo traditional chemotherapy commonly suffer, such as fatigue and hair loss.

"Previous attempts by other scientists involved the use of core-shell nanoparticles that were only sensitive to temperature," said lead scientist Yang Yi-Yan.

Drug delivery may be controlled by superficially heating or cooling the environment of the nano-particles.

Yang said the novelty of the invention was "the ability of (our) nanoparticles to target drugs to deep tissues or cell compartments without changes in temperature."

Biological signals tagged onto the nanoparticles, which are less than 200 nanometres in size, enable them to recognise tumour sites present in the body, and subsequently release the anticancer drugs into the cancer cells.

A nanometer is a billionth of a meter, or roughly one-hundred-thousandth the diameter of a human hair.

The technology will undergo clinical trials within the next five years, said Yang. It is expected to make inroads into the cancer drug delivery market, which is forecast to grow to 15.4 billion dollars by 2007.