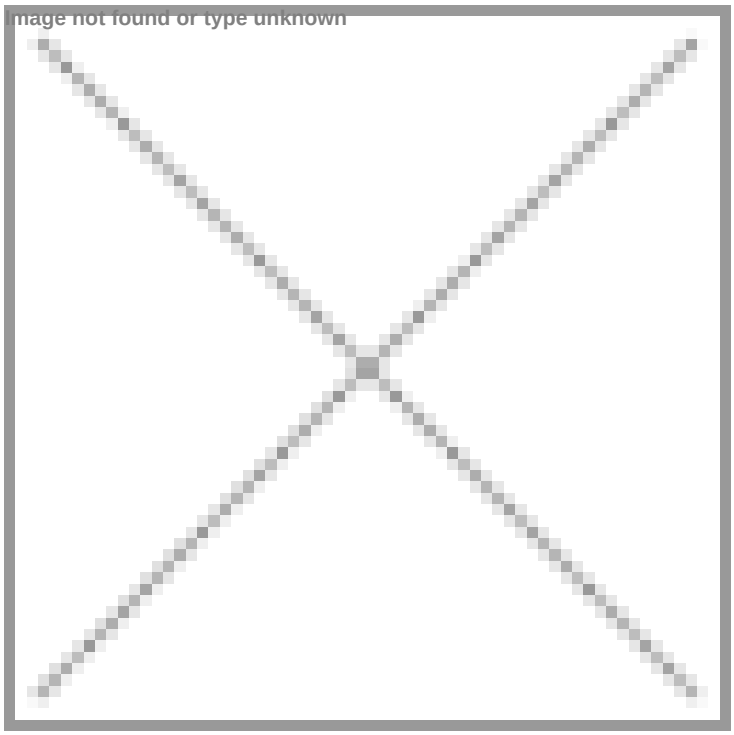
BioSpectrum
the business of Bio & Health Sciences
ASIA EDITION

Milestones in drug delivery technology in Asia

14 March 2012 | News | By Nandita Singh

Milestones in drug delivery technology in Asia



In 2007, Dabur Pharma, one of India's leading manufacturers of anti-cancer drugs, launched Nanoxel, a novel drug delivery system for the widely used anti-cancer drug Paclitaxel. This nanoscale drug delivery system is India's first indigenously developed nanotechnology-based chemotherapeutic agent. It enables therapy to take a preferential course to the cancerous cells and directly interact with the tumor-causing agents, thereby throwing open a larger window for anti-tumor activity.

In 2008, scientists from Singapore's Institute of Materials Research and Engineering scored a breakthrough in microneedle technologies by perfecting a new range of patented microneedles that can be mass produced more readily and at a lower cost than current microneedle technologies for painless injections and extraction of bodily fluids. They had taken five years to perfect the proprietary materials technology and offer unique structures for better drug delivery.

In 2009, Serum Institute of India launched Nasovac, a vaccine for swine flu, administered through intranasal spray.

Australia-based Acrux developed a metered dose transdermal system that enables transdermal delivery of small molecule drugs without the use of skin patches. The technology is based upon absorption enhancers used for over 20 years in sunscreens. The company has applied it to treatments that are currently in clinical testing stage, including estrogen, testosterone and a pain management compound.

Australia-based Phosphagenics is leveraging on its game changing technology of drug delivery, Targeted Penetration Matrix

technology, a novel delivery system that is non-invasive, non-irritant and has unique inherent properties. It has been consistently demonstrated to be able to deliver both small and large molecules through the skin and to promote absorption of the molecules.

In 2010, Taiwan-based SHL launched Molly, an intuitive auto-injector featuring an ultra-compact design, simplified two-step operation and a permanently hidden needle. Molly is claimed to be the market's first pre-configured auto-injector.

In 2011, South Korea's Pohang University of Science and Technology developed a new drug delivery device for pulsatile and on-demand drug release based on electrically actuatable nanoporous membranes made of polypyrrole. Developed by Prof Jin Kon Kim, the device can be manipulated by a remote control while being planted inside a human body. The device can be combined with microchips and sensors, making it possible to program drug release in advance or detect the body's reaction to a drug injection. Experts are anticipating this achievement to be applied to many kinds of hormone therapies for conditions such as infertility, dwarfism, osteoporosis and diabetes, as well as chronic diseases such as insomnia, angina pectoris, asthma and pain control, all of which require discontinuous and prompt drug delivery.

Researchers at National University of Singapore are doing research on 3D patient-specific chemotherapeutic drug delivery to brain tumors and are developing a computer-assisted model of a commercial drug delivery implant system.

In 2011, India's Panacea Biotec developed Albumin bound Paclitaxel particles formulation, PacliALL. A cost-effective and novel drug delivery product, PacliALL offers the advantage of improved safety over conventional formulations of Paclitaxel and is meant to be used as a chemotherapeutic agent for the treatment of breast cancer.