Plexera and MitoSciences to develop ADME/Tox arrays
By Dr Matt Wilkinson

26/09/2007- Plexera and MitoSciences will collaborate to commercialise an antibody array designed to study mitochondrial function that could become an integral part of ADME/Tox (absorption, distribution, metabolism, excretion and toxicology) screening.

The new mitochondrial antibody assays will measure changes in the expression of proteins by mitochondria, which are often indicative of various disease pathologies and adverse drug effects.

Mitochondria are membrane enclosed organelles found in most eukaryotic cells and generate the majority of a cell's energy supply, ATP (adenosine triphosphate).

Both genetic and environmental factors, such as drug candidates, can cause mitochondrial damage and dysfunction leading to disruption of cell metabolism processes.

Many diseases, including schizophrenia, bipolar disorder, dementia, Alzheimer's, Parkinson's, epilepsy, heart disease and diabetes, have been linked to such damage.

According to market research firm Business Insights, up to 60 per cent of all preclinical drug failures can be ascribed to poor ADME/Tox results with the US ADME/Tox market being predicted to grow to $2.8bn (£2bn) by 2009 from $1.1bn in 2003.

High-throughput (HT) techniques that can quickly identify toxic drug compounds should enable pharma firms to increase the efficiency of their preclinical research and reduce the number of drugs that fail in the clinic.

"This [new array] has the potential to become a mainstream assay in the ADME and toxicology market as pharmaceutical companies desperately need to find new ways to screen and eliminate problematic compounds sooner in the process," said Dr Tim Londergan, president and chief operating officer of Plexera.

The new system will combine MitoSciences' expertise in developing mitochondrial antibody and assays for understating mitochondrial function with Plexera's Surface Plasmon Resonance (SPR) -based ProteomicProcessor.

Plexera was established in July this year as a wholly owned subsidiary of Lumera Corporation to develop tools, content, and methods to simplify and accelerate proteomic discovery for therapeutic antibodies and predictive biomarkers.

The new product is being developed based on results from a separate collaboration between Lumera and the Medical University of South Carolina (MUSC), where researchers are developing protein expression profiling assays using ProteomicProcessor and MitoSciences' antibodies.

"Changes in mitochondrial proteins are known to be markers for certain pathologies and many adverse drug effects," said Dr Craig Beeson, associate professor of Pharmaceutical Sciences at MUSC and the principle investigator on the project.

"We feel that by combining MitoSciences' well characterised antibodies and Plexera's ProteomicProcessor we will have an assay that will have significant time and cost advantages over existing technologies."