Aradigm's AERx Pulmonary Delivery System

New Class Treatment for Asthma and Obstructive Pulmonary Disease

Ally Tukey

- **Aradigm's pulmonary delivery device (AERx) can be used for many things. It was first made for insulin, and pain management. But with that system now in phase three of testing ,which is the final stage, Aradigm has teamed up with APT Pharmaceuticals to start testing in phase two with the new treatment of Asthma and Chronic Obstructive Pulmonary disease. Aradigm's AERx is a new type of inhaler that can deliver 50 ul of liquid drug formulation into the lungs with a new micro-machined nozzle array. The AERx can do all this in less than 1 second with its piston pressure method.**
- **The AERx is just the device (the nozzle and strip) that delivers the drugs precisely in to the body/lungs but now that they have started to use it for asthma they have found that with the AERx the drug formulation can get deep into the lungs without depositing much in the mouth or throat.**
- **Shown in the Scintigraphic images of the lungs that were deposited with a radio-labeled tracer from a regular inhaler (MDI aerosol), and from the new AERx aerosol. They show that the AERx really does deposit drug formulations into the lungs 7.66 times more efficiently then the leading regular inhaler.**
- **The AERx includes two main parts the nozzle and the strip. The nozzle has many tiny holes that are about 1 micron in diameter with even shape for consistent release of the drug. The strip is the single use dosage part of the AERx system. It can adjust for various needs and treatments.**
- **There are three layers of the AERx strip. The first layer includes the blister container that can hold up to 50 ul of the formulation needed. The second is the lid layer that directly covers the blister layer. The third is the nozzle layer that contains a range of micro-machined holes to expand the flow of the formulation**

Diagram of Aradigm's AERx operating principles; this shows how the sterile blister-packs are pumped through an array of single-use, laser-drilled jets within the drug storage blister. This results in efficient aerosolization and employs breath actuation. This Device is expensive but has high delivery efficiency, humidity and temperature independence. The AERx system can deposit about 60% to 75% of the emitted dosage in to the lungs.

- **http://www.aradigm.com**
- **http://www.aradigm.com/about/pulmonary.html**
- **http://pats.atsjournals.org/cig/content/full/1/4/321**
- **http://www.prnewswire.com/cgi-bin**
- **http://www.aapsj.org/view.asp?art=ps040313**