

# Studies Show Efficiency of 3M's Hollow Microstructured Transdermal System for Delivery of Large Molecules

ST. PAUL, Minn.--([BUSINESS WIRE](#))--3M Drug Delivery Systems presented research today showing that it has created a hollow microstructured transdermal system (hMTS) integrated device for delivery of large molecules not typically compatible with transdermal delivery. The research, presented at the annual meeting of the Controlled Release Society in Copenhagen, Denmark, demonstrates the potential for the hMTS device to deliver peptides and proteins, including antibodies. Kris Hansen, MTS New Technology and Product Development Manager, led the presentation and explained to attendees the system's potential to efficiently and comfortably deliver molecules via this self-applied, easy-to-use low pain transdermal device.

In experiments to determine the effectiveness of the technology, researchers conducted comparative studies, evaluating the pharmacokinetic (PK) profiles and bioavailability of model drug compounds delivered via hMTS device and a traditional syringe injection. Administration via the hMTS device was found to be a good match to injection in both respects. The delivery of antibodies and proteins was found to be as efficient as a syringe, a critical element of any delivery platform targeted at high-cost biopharmaceutical drugs.

"This system opens the door to a new delivery option for drugs that have previously been administered by injection," said Hansen. "Traditionally, transdermal delivery has been limited to classes of molecules that can be absorbed through the skin. However, this research shows that hMTS can provide efficient and fast intradermal infusion of large molecules, providing access to transdermal delivery for much of the biopharmaceutical market."

In additional testing of the hMTS device, a clinical study was conducted in which human subjects were asked to score their discomfort on a 10-point scale while wearing the device during a placebo infusion. Results showed that, for those subjects receiving the highest volume infusions (750-1000µL) the maximum discomfort during infusion was 1.8—almost no pain. Examinations of subjects' skin following infusion found that almost half of subjects showed no visual evidence of the infusion after two hours. After 36 hours, the number of subjects showing no sign of the infusion reached 89 percent, with the remaining 11 percent of subjects showing only very mild erythema at the infusion site.

"The ease of use offered by the hMTS device, along with the low incidence of pain and the highly efficient delivery make hMTS an exciting possibility for at-home use by patients," said Hansen. "3M Drug Delivery Systems is pleased to provide our partners this differentiating technology that offers patients an alternative to often complicated and painful needle-based self-injection systems."

For more information, please contact 3M Drug Delivery Systems at [www.3M.com/dds](http://www.3M.com/dds) or call 1-800-643-8086.

## About 3M Drug Delivery Systems

3M Drug Delivery Systems partners with pharmaceutical and biotech companies to develop pharmaceuticals using 3M's inhalation or transdermal drug delivery technology. 3M offers a full range of feasibility, development and manufacturing capabilities combined with regulatory guidance to help bring products to market. In-house resources, including toxicology, regulatory expertise, quality assurance, operations, and marketed product support, are available for each step of the development and commercialization process. This depth of resources is one reason why more than 50 percent of all metered-dose inhalers worldwide and 80 percent of all transdermal systems in the United States utilize 3M drug delivery technology. For more information, please visit [www.3M.com/dds](http://www.3M.com/dds) or call 1-800-643-8086.

## About 3M Health Care

3M Health Care, one of 3M's six major business segments, provides world-class innovative products and services to help health care professionals improve the practice, delivery and outcome of patient care in medical, oral care, drug delivery and health information markets.

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