Hydrogel Drug Delivery Device as an Alternative to Pressurized Gas or Voltage Transdermal Technology

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a drug delivery device that provides a controlled infusion of a medicine to an individual without using pressurized gas or voltage.

Overview

Oral ingestion of pharmaceuticals is considered the safest, most convenient and most economical method of drug administration. However, many therapeutic drugs cannot be delivered orally because they are too large or too electrically charged to pass through the small intestine to reach the bloodstream. As a result, many pharmaceuticals must be injected into a patient.

Transdermal drug delivery patches offer an alternative. These patches, which incorporate a medicine, adhere to the skin. Molecules of the medicine then pass through the skin and into the bloodstream, providing a specific dose of the medicine. However, existing patches only can be used to deliver small molecule drugs, such contraceptives or those used to treat nicotine addiction. Other transdermal technologies use pressurized gas or voltage to move larger molecules across the skin barrier, but these technologies are limited to small volumes of medicine and may alter the drug.

The Invention

UW-Madison researchers have developed a drug delivery device that provides a controlled infusion of a drug to an individual. The device includes a reservoir that holds the drug. A predetermined stimulus, which may be activated by the individual, causes a hydrogel to exert pressure on the reservoir, dispensing the drug.

Applications

- Drug delivery

Key Benefits

- Does not use pressurized gas or voltage
- Maximizes the volume of drug delivered
- Device is simple and inexpensive to manufacture.
- Chemistry of the hydrogel disc may be altered to provide a desired delivery profile, such as bolus injections, constant infusion or delayed onset.

Additional Information

For More Information About the Inventors

- David Beebe

Tech Fields

- Drug Delivery : Devices

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846