Microneedle Coating

A method for making microneedles, coating them, and using them for drug transport

Researchers at Georgia Tech have developed a technology that provides a method for making microneedles, coating them, and using them for drug transport. Advantages of this technology include coating uniformity, spatial control on coating length, and prevention of microneedle base contamination. The coating can also be used for low concentration drugs, molten drugs, and can even be used without the incorporation of surfactants. Coated microneedle devices and methods of making such devices are provided. In one aspect, a method for coating includes providing a microstructure having at least one surface in need of coating; and applying a coating liquid, which comprises at least one drug, to the at least one surface of the microstructure, wherein the surface energy of the coating liquid is less than the surface energy of the surface of the microstructure.

Summary Bullets

- Alternative method for hypodermic needles
- Coating uniformity
- Spatial control on coating length

Solution Advantages

- Alternative method for hypodermic needles
- Coating uniformity
- Spatial control on coating length
- Prevention of microneedle base contamination
- Used without the incorporation of surfactants

Potential Commercial Applications

- Low concentration drugs
- Molten drugs

Background and More Information

Biopharmaceuticals, such as peptides, proteins, and future uses of DNA and RNA, represent a rapidly evolving segment of pharmaceutical therapies. These drugs are delivered almost exclusively by the parenteral route, as the

oral route is generally unavailable due to poor absorption, drug degradation, and low bioavailability. However, conventional parenteral administration with hypodermic needles undesirably requires expertise for delivery, can lead to accidental needle sticks, and causes pain, which results in reduced patient compliance. Given these problems, efforts have been made to develop alternate drug delivery routes that would ideally replace hypodermic needles. It would be desirable to provide drug delivery methods and devices that eliminate the limitations and disadvantages associated with the use of conventional hypodermic needles.

Inventors

- Dr. Mark Prausnitz
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IP Status

: US9364426B2

Publications

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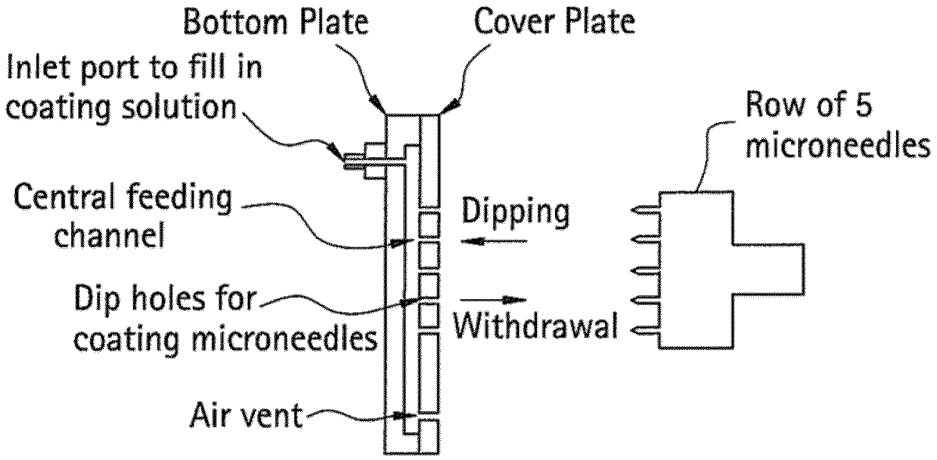
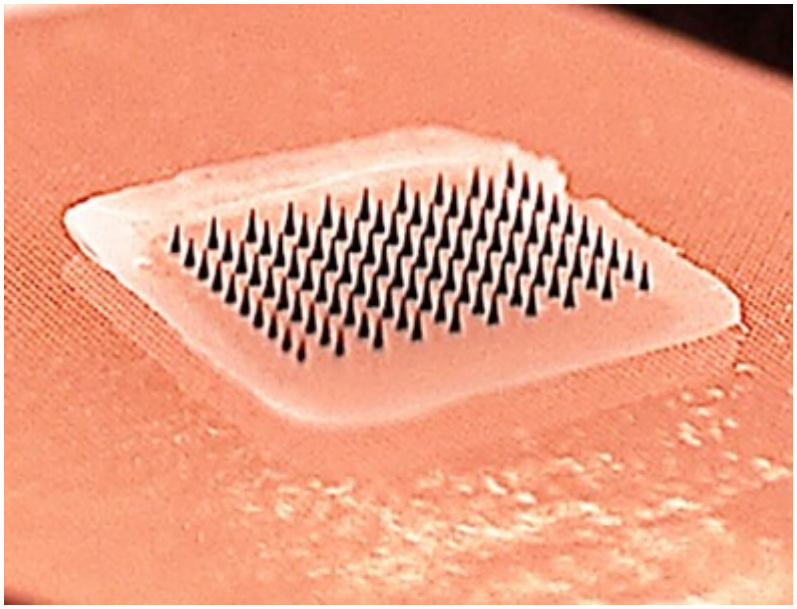
Images





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