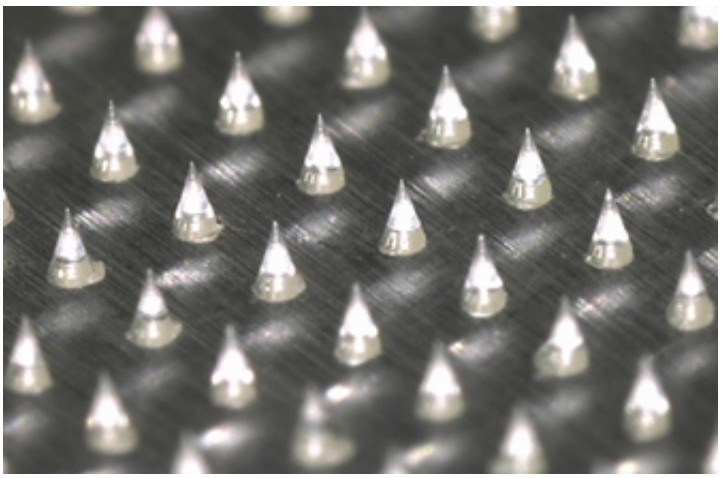
Micro-needle array: New method for delivering the drug into the body just by attaching it onto the skin

November 14 2012



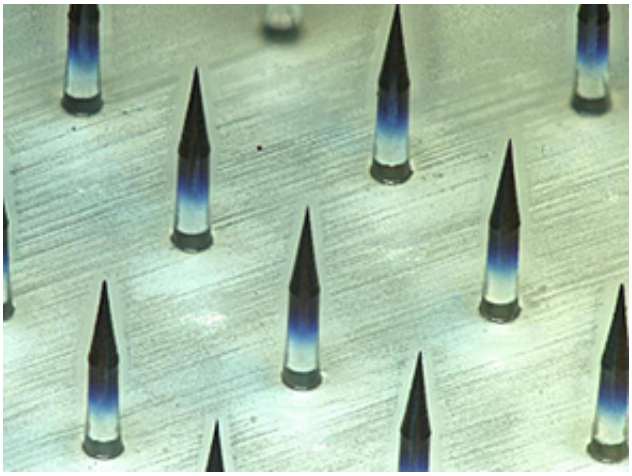
A sample of Fujifilm's micro-needle array (L500μm x D200μm).

Fujifilm Corporation has developed the micro-needle array which is a new drug administration method that has gained attention for delivering the drug into the body just by attaching it onto the skin.

A micro-needle array is a sheet arrayed with projections of 100-2000 micrometers. When the sheet is placed on the skin surface, the drug is injected into the skin from the projections and delivered into the body. The penetration of the projections of a micro-needle array will not cause pain like an injection. As drugs are efficiently delivered to affected

areas, micro-needle arrays are prospected to become a new drug administration method.

The projections of the developed micro-needle array are made of polysaccharides which are known to be used for injectable drugs. This micro-needle array is a dissolving type with the projections dissolve into the skin within minutes and the drug is delivered into the body. Array types with projections that do not dissolve into the skin have risks of the projections breaking off and remaining inside the body. However, Fujifilm's micro-needle array proves to be highly safe as the projections do not retain its form.



A micro-needle array injected with pigments instead of drugs. Drugs can be injected into the projections (L1000μm x D170μm).

Fujifilm incorporates the high-precision processing technology developed through the manufacturing of photographic films. The array can also be designed and mass-produced with projections of any desired length or form.

Currently, Fujifilm is undergoing animal experiments using micro-needle arrays filled with vaccines and hormones. The experiments of vaccine administration have already proved to generate the same amount of or more antibodies than an injection. Preparations will soon take place for clinical research with human bodies. Equipment to manufacture investigational new drugs, compliant with GMP, will also be developed aiming for the start of operations in the latter half of next year.

Fujifilm will strive for the commercialization of original micro-needle arrays that can carry valuable drugs and for the expanded application of micro-needle arrays through coordination with other pharmaceutical manufacturers.

Provided by Fujifilm

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