

ABSTRACT

HOLLOW MICRONEEDLE ARRAY AND METHOD

Rapid, high-volume, intradermal infusion with minimal pain, is achieved by applying an array of 10 to 30 hollow microneedles having a length of greater than 100um to less than 1mm into the skin of a patient, with a microneedle spacing of no less than 1.5mm on average between adjacent microneedles, and pumping greater than 200uL of fluid through the hollow microneedles at a rate of greater than 20 uL/min.

FIG. 1