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(54) Title: MICROPORATION OF HUMAN SKIN FOR DRUG DELIVERY AND MONITORING APPLICATIONS

(57) Abstract

A method of enhancing the permeability of the skin (120, 274) to an analytic for diagnostic purposes or to a drug for therapeutic purposes is described utilizing micro-pore and optionally sonic energy and a chemical enhancer. If selected, the sonic energy may be modulated by means of frequency modulation, amplitude modulation, phase modulation, and/or combinations thereof. Micro-pore is accomplished by (a) ablating the stratum corneum (274) by localized rapid heating of water such that water is vaporized, thus eroding cells; (b) puncturing the stratum corneum (274) which a micro-lancet calibrated to form a micro-pore of up to about 1000 μm in diameter; (c) ablating the stratum corneum (274) by focusing a tightly focused beam of sonic energy onto the stratum corneum (274); (d) hydraulically puncturing the stratum corneum (274) with a high-pressure jet of fluid to form a micro-pore of up to about 1000 μm in diameter; or (e) puncturing the stratum corneum (274) with short pulses of electricity to form a micro-pore of up to about 1000 μm in diameter.

