Discovery Promises More Patchwork

New skin technique 'scopes' rare formulations

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January 5, 2004

Santa Barbara, Calif. -- Researchers at the University of California at Santa Barbara (UCSB) have invented a new technique for "High Throughput Discovery of Transdermal Enhancers." The discovery represents a new way to move large molecules through the skin without harming the user.

The method was reported in the January 4, 2004 advance online edition of *Nature Biotechnology*, by Dr. Samir Mitragotri and his team members, Pankaj Karande and Amit Jain, also of UCSB's department of Chemical Engineering, and is projected to lead to the rapid discovery of significant numbers of "SCOPE formulations" that can then be used to deliver large molecule drugs (previously delivered by injections) in a convenient, lower-dosage, painless manner via a skin patch.

Decades after researchers began their quest for safe and efficient transdermal formulations for drug (therapeutic) applications, there are only a handful on the market, including the nicotine and the birth control patches. The premise of this work is that scientists wish to safely drive drugs through skin, which is designed by nature to act as a barrier.

The study reports a novel way to identify unique and rare mixtures of chemicals, called "SCOPE formulations," from a colossal candidate pool. Mitragotri, an assistant professor in chemical engineering, stated: "These formulations exist very rarely, so traditional experimental methods would take years to find them. Using our new approach, 'INSIGHT Screening,' we can now perform up to thousand experiments per day. This means previously unseen opportunities in design for skin treatments, including cosmetics, dermatologics, and therapeutics."

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