

The Recent Trend of Transdermal Drug Delivery System Development

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The potential of transdermal drug delivery systems has been demonstrated in recent years with the approval of several medicines for use by patients who are unable to use conventional dosage routes, like oral administration or injection. To enhance the TDDS (Transdermal Drug Delivery System) potential to include other drug candidates, many researchers have been exploring enhancement approaches to increase the permeability of various drugs through the skin. One classic method, chemical enhancers, is of practical use in some formulations that are available in the market. On top of these, recently, physical enhancement systems are being reported as having more potential by many researchers. In particular, iontophoresis is a very attractive way of delivering ionized drugs by the application of an electric field to the skin. This has been marketed with some topical and systemic drugs (lidocaine and fentanyl). Sonophoresis is also an attractive method to deliver a drug through the skin using ultrasound. Besides these technologies, various physical approaches are under study. Such technologies can be expected to deliver not only small MW compounds but also macromolecules like peptides. In this session, after looking back through the history of TDDS development, I would like to summarize with new physical and chemical approaches and outline how we can overcome some of the critical hurdles in TDDS development to improve patient Q.O.L.