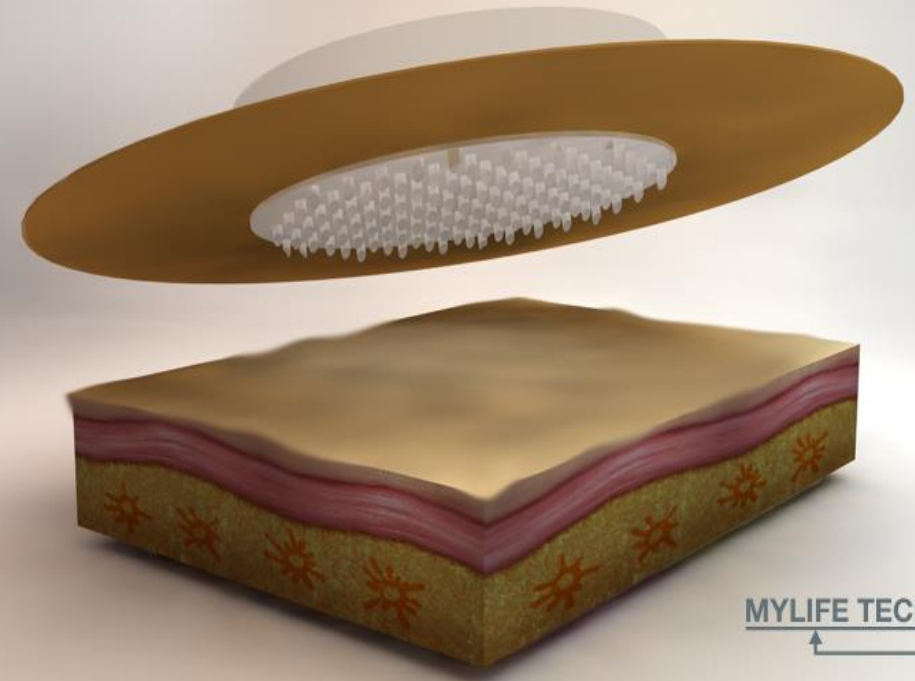


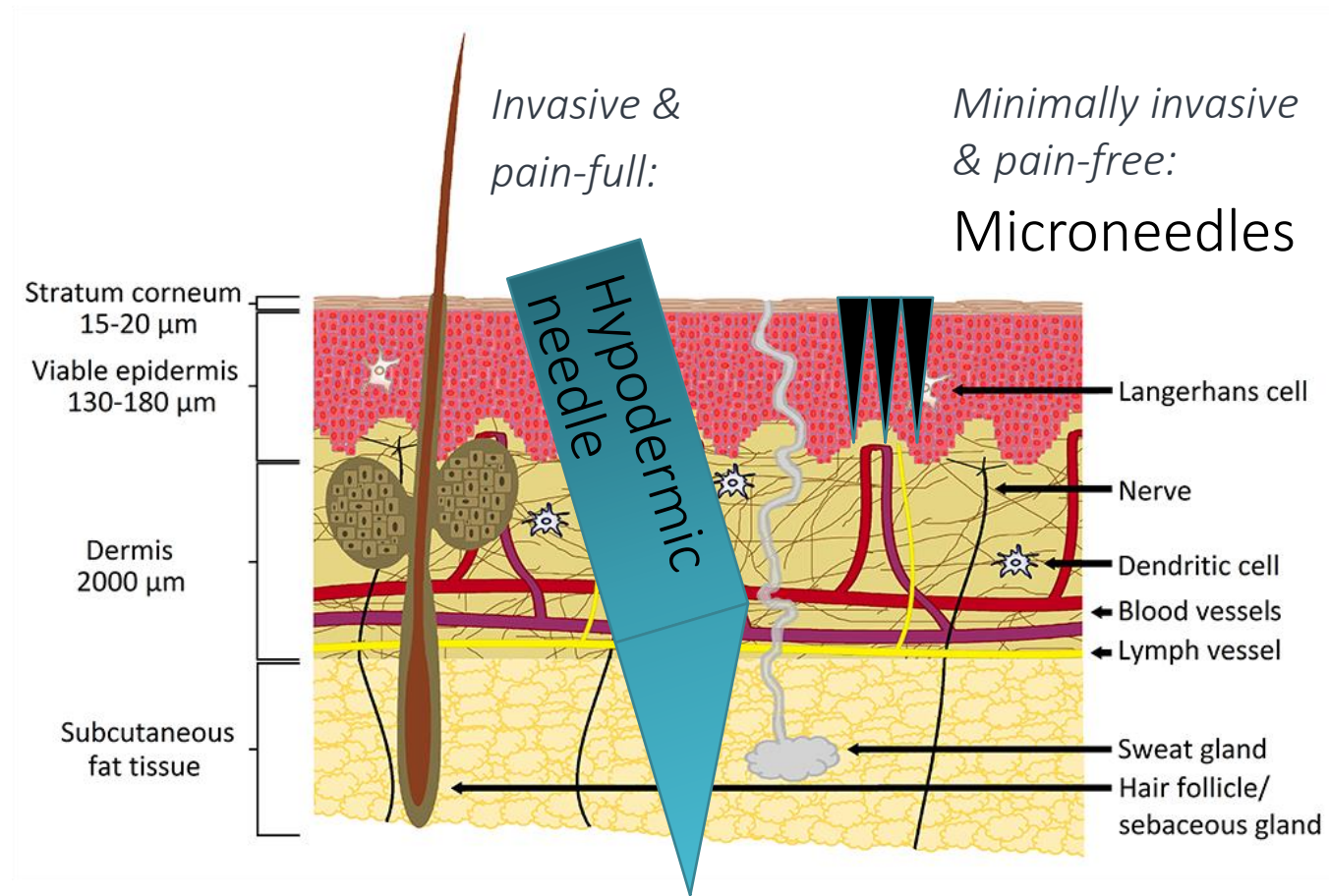


## MicroNeedle technology for dermal drug delivery

*Taiwanese Biotech Industry Organization*

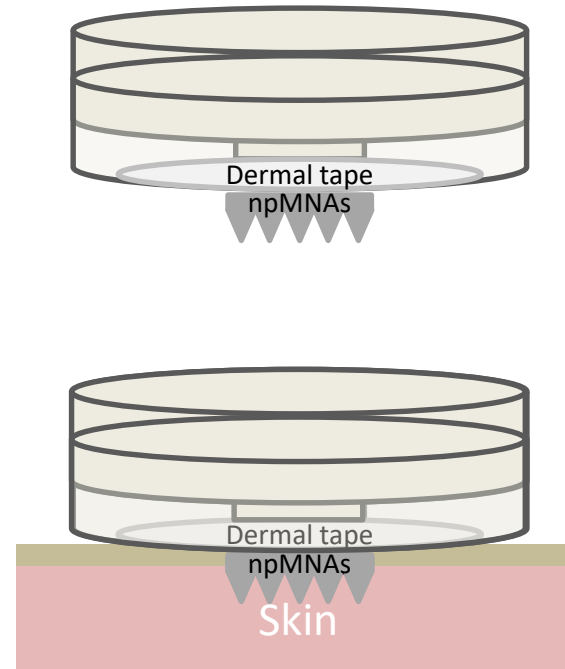


# Needle & syringe injection vs. microneedles



Adapted from: K. van der Maaden et al.,  
*J. Control. Release*, 2012

# Drug delivery solution



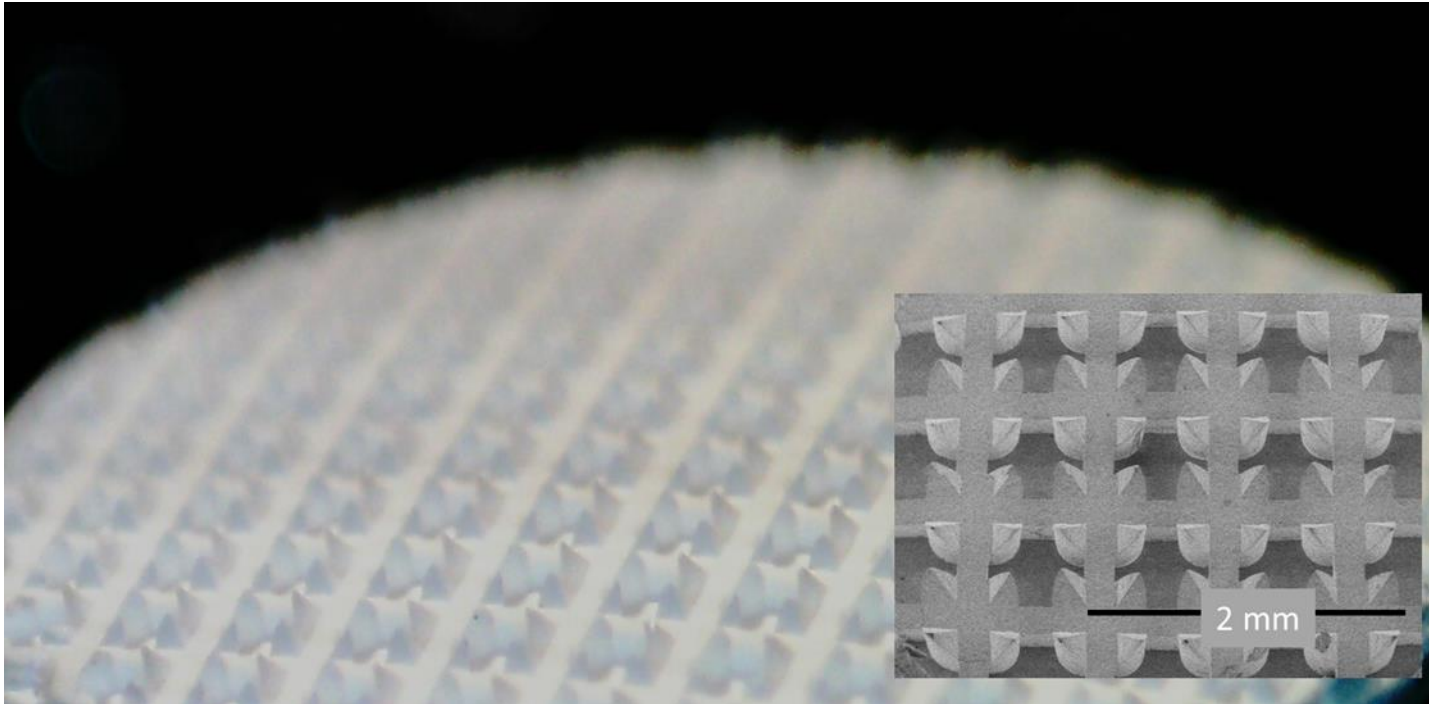
*The npMNA-patch is applied onto the skin by using an applicator.*

*The drug compound diffuses into the skin.*

*The release profile of the drug compound can be tuned by adding excipients to the formulation.*



# Core of the solution: nanoporous microneedle arrays



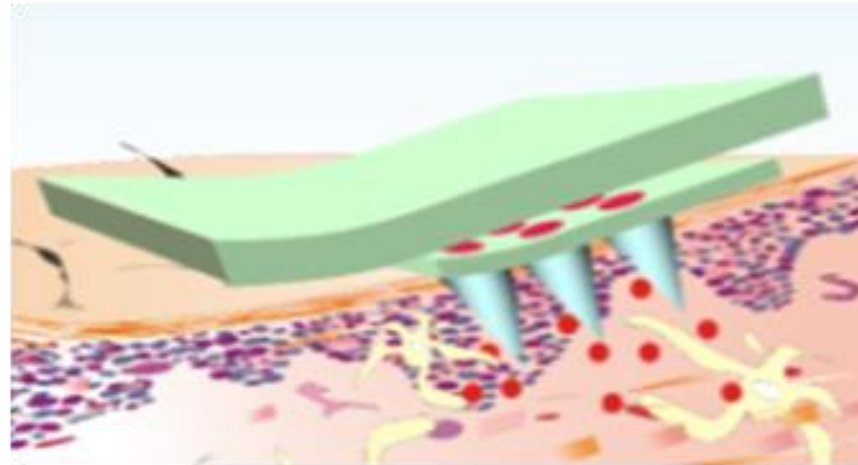
We hold a unique position:

- **Nanoporous material:** nanopores allow for storage of pharmaceuticals
- Microneedles are made of a **bio-inert ceramic** ( $\text{Al}_2\text{O}_3$ ) and allow to overcome the skin's main barrier, i.e. the stratum corneum
- npMNA **design freedom:** microneedle density, porosity, length / shape, surface
- Technology **patented** in USA, Europe, Japan, and China



# COMPANY FOCUS AREAS

- Specific **small molecules**: transdermal delivery
- **Peptides**: transdermal delivery
- **Prophylactic & therapeutic vaccines**: intradermal delivery, targeting dendritic cells



# Contact us for more details!

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