Associate Prof. Mei-Chin Chen

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Research Interests

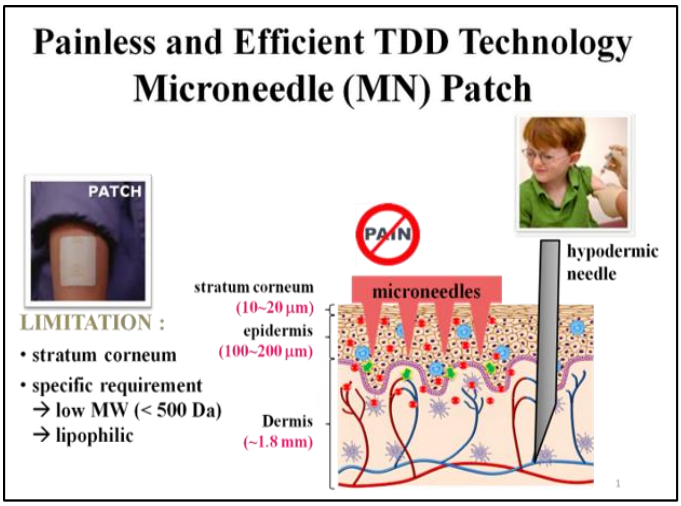
Professor Chen's research interest focuses on biomaterial which can be applied in drug controlled release and tissue engineering, particularly on development of various **polymeric microneedle patches** for **transdermal drug delivery**.

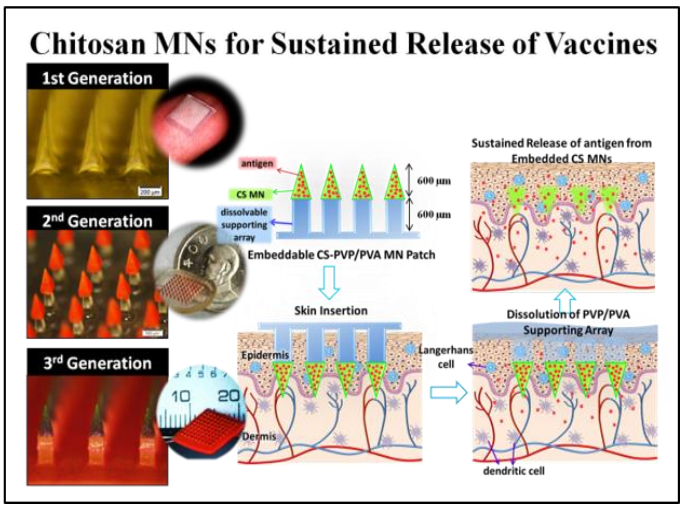
We have designed three kinds of polymer microneedles:

- Dissolving microneedles for rapid delivery of **insulin** or **depigmentation agents**
- Degradable microneedles for sustained delivery of **vaccines**
- Triggerable microneedles for on-demand delivery of **anti-cancer drugs or analgesics**

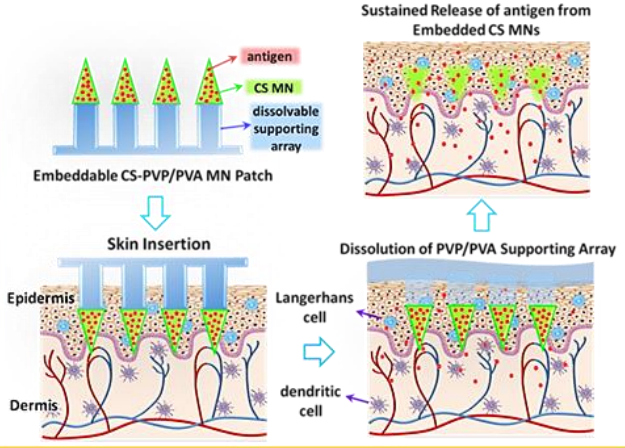
Representative Publications

1. **Chen, M.-C.***, Lin, Z.-W., Ling, M.-H., "Near-Infrared Light-Activatable Microneedle System for Treating Superficial Tumors by Combination of Chemotherapy and Photothermal Therapy," ACS Nano, vol. 10, pp. 93-101, 2016. (**SCI 12.881**)
2. **Chen, M.-C.***, Ling, M.-H., Kusuma, S.-J., "Poly-γ-glutamic Acid Microneedles with a Supporting Structure Design as a Potential Tool for Transdermal Delivery of Insulin," Acta Biomaterialia, vol. 24, pp. 106-116, 2015. **(SCI 6.025)**
3. **Chen, M.-C.***, Huang, S.-F., Lai, K.-Y., Ling, M.-H., "Fully Embeddable Chitosan Microneedles as a Sustained Release Depot for Intradermal Vaccination," Biomaterials, vol. 34, pp.3077-3086, 2013. (**SCI 8.557**)

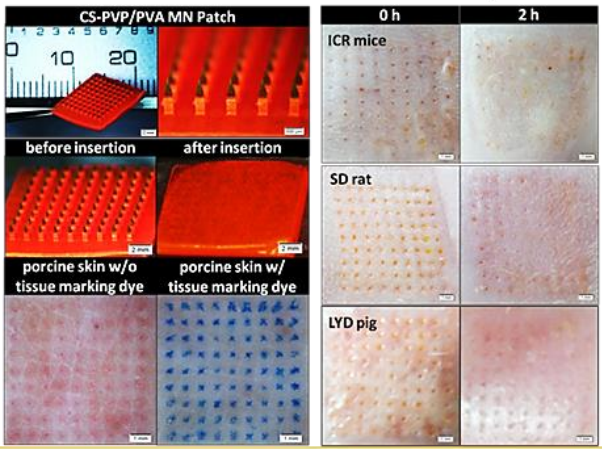




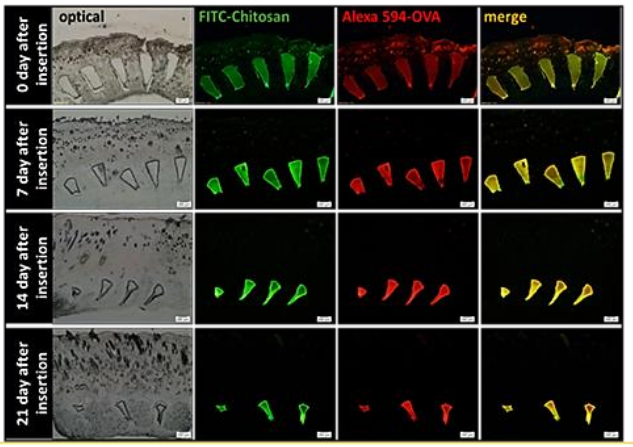
Chitosan MNs for Sustained Release of Vaccines



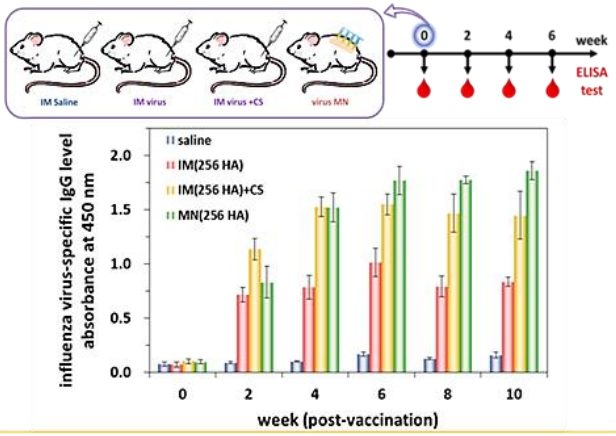
Skin Insertion and Recovery



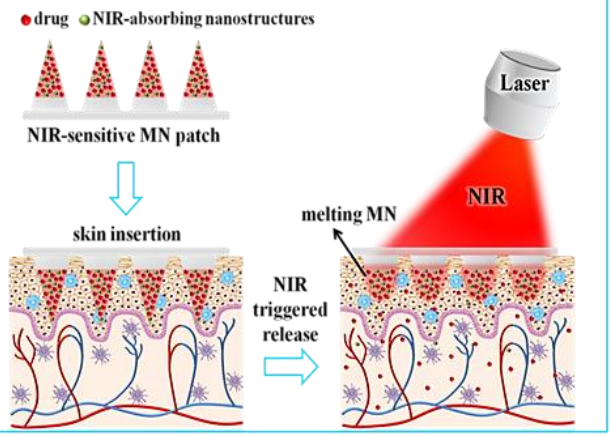
In Vivo Degradability of MNs



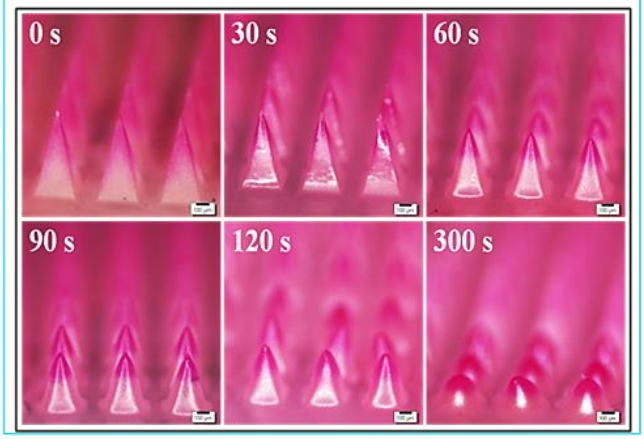
Influenza Immunization using Vaccine-loaded MNs



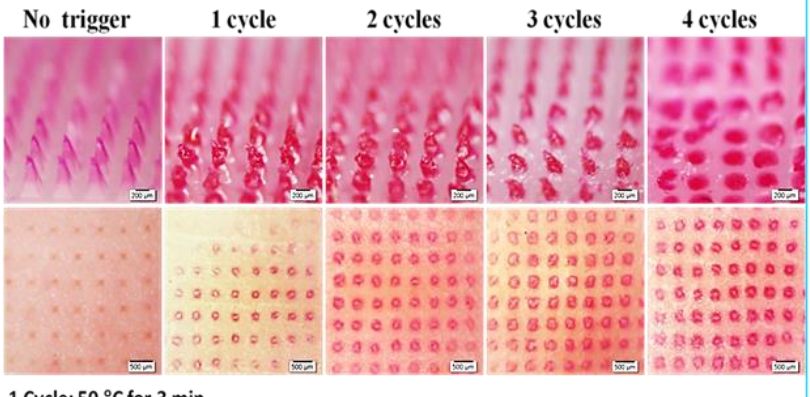
Triggerable MNs for on-demand Drug Release



NIR-sensitive Property



NIR Triggered Drug Release



On-demand Drug Release