



## MicroArray Patch Technology for drug/vaccine delivery



ImmuPatch is a platform microarray patch technology for skin-based drug and vaccine delivery. It provides the convenience of self-administration by way of a small, low-cost patch. ImmuPatch contains multiple dissolvable microneedles that are moulded from drug/vaccine-containing formulations. Microneedles are micron-scale protrusions that penetrate the skin creating conduits for drug/vaccine administration. Once the microneedle has inserted into the skin it dissolves, thereby delivering the drug/vaccine to the body.

### WHY IMMUPATCH?

There are a large number of problems associated with injection by Needle-and-Syringe based drug/vaccine delivery including difficulty of use; patient acceptability and compliance; pain and fear of needles; hazardous sharps-waste; accidental needle stick injuries; requirement for trained personnel to correctly reconstitute drug/vaccine to liquid form and correctly inject to indicated site. In the case of vaccines, 'cold-chain' logistics is unsustainable for large Immunization Programmes. ImmuPatch was developed by a multidisciplinary team with expertise in microfabrication technologies, formulation science, immunology, clinical trials and GMP manufacturing experience.

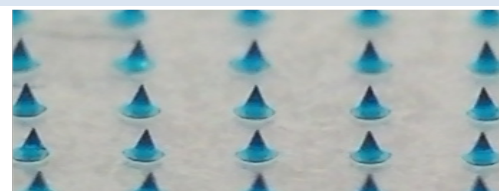
### USP

- ✓ No waste of drug/vaccine during incorporation into dissolvable microneedle
- ✓ Scalable, cost-effective methods of production in a cGMP-compliant environment
- ✓ Controllable, continuous process using equipment that is conventional to the pharmaceutical field
- ✓ Applicable to highly thermo-sensitive biologics and vaccines and to pH- and water-sensitive small chemical drug entities
- ✓ Excipients are approved for injectable products
- ✓ Potential to prolong product life-cycle and increase market size
- ✓ Dosing flexibility: Can be developed for sustained or episodic release
- ✓ Vaccine dose-sparing in small animal models
- ✓ Regulatory, quality and manufacturing strategies have been defined

### DEVELOPMENT OBJECTIVES

We offer CRO services (formulation development, prototype manufacturing, in vivo pre-clinical animal models, technology transfer) to clients looking to develop MAPs using our ImmuPatch technology.

### IMMUPATCH – UP CLOSE (280µM IN HEIGHT)



### INTELLECTUAL PROPERTY

ImmuPatch is a tradename of University College Cork. The technology is protected by a family of patent applications.

### FUNDING



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