

ImmuPatch

Innovative Solutions to Vaccine Delivery Barriers

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Vaccination in combination with Public Health measures are the **MOST SUCCESSFUL** strategies of combating disease

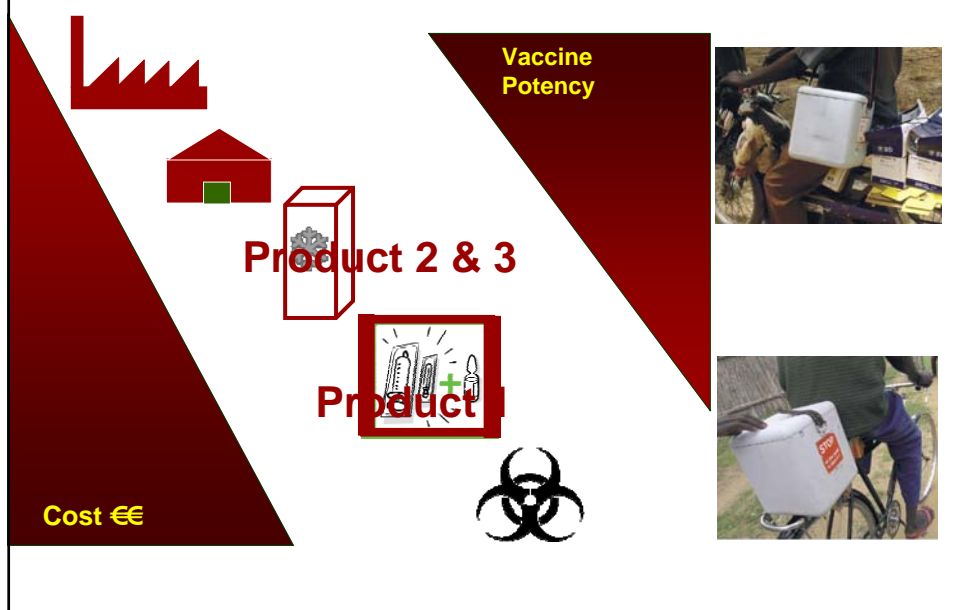


But lots to do...
Malaria, HIV, TB

Issues with Current Vaccination Methods



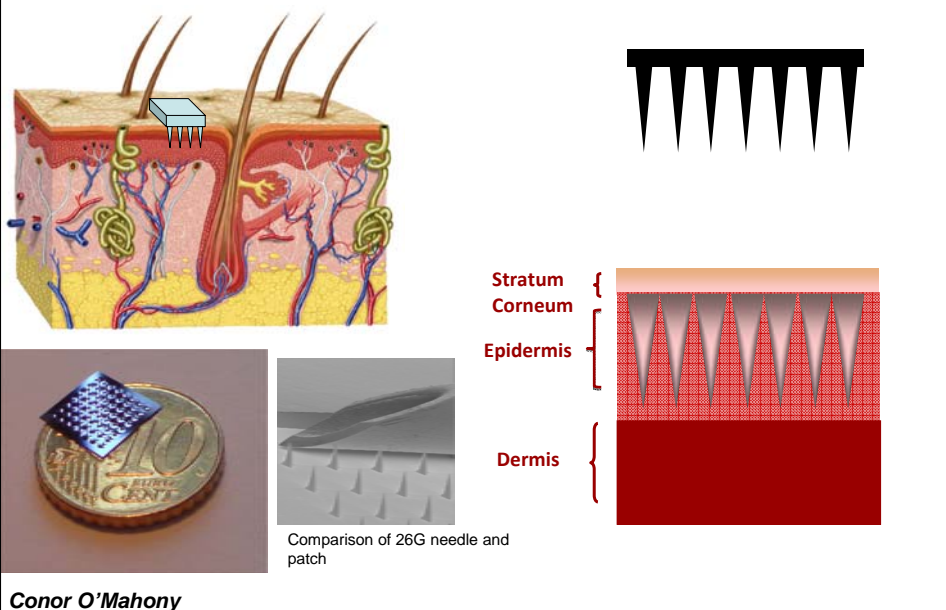
Issues with Current Vaccine Distribution



What is ImmuPatch?

- ❖ ImmuPatch is a transdermal technology that aims to revolutionise vaccine distribution and delivery.
- ❖ ImmuPatch is based on silicon microneedles.
- ❖ ImmuPatch improves current vaccines:
 - ✓ competitive edge to vaccine manufacturer
 - ✓ prolong product life cycle
- ❖ Suite of products in development.

ImmuPatch targets upper skin layers



ImmuPatch: Does Design Affect Function?

NAP Application: “Design and Fabrication of Microneedle Arrays for Transdermal Vaccine Delivery”

- ✓ No prior art
- ✓ Early data: microneedle arrays tested induced strong immunity.
- ✓ Is it the microneedle or the vaccine?
- ✓ Margin of Safety?

NAP170:

- ✓ Fabricate 8 microneedle array designs
- ✓ Parameters: die size, needle height, number of needles per die

Timely and Efficient Progress:

- ✓ Application submitted March 2008
- ✓ Approved May 2008
- ✓ Microneedles available in September 2008
- ✓ Minimum fuss, maximum efficiency

Contribution of NAP170 to ImmuPatch

Direct Research Output

- ✓ Key parameters responsible for enhancing immune responses.
- ✓ Determine safety: microneedles designed not to break
- ✓ T cell-inducing and antibody-inducing vaccines; immunity and efficacy

Contribution to ImmuPatch

- ✓ Timely research discoveries
- ✓ Three patents.. so far...
- ✓ Adding value to ImmuPatch
- ✓ Publications
- ✓ Opens up new areas of research; why does form affect function?

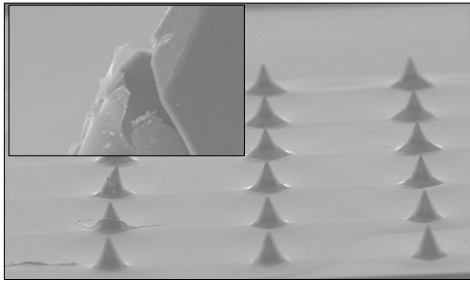
Future Plans: Requirement for New NAP

- ✓ Fabricate optimised microneedle array for (i) T cell inducing and (ii) antibody inducing vaccines
- ✓ Prepare for clinical trial

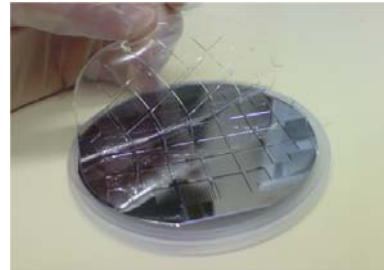
ImmuPatch 2 & 3



Coated ImmuPatch
Vaccine stability maintained



Dissolvable ImmuPatch



*Vaccine incorporated in
Polymer*

EVERYTHING DISSOLVES
- No waste

The ImmuPatch Team

Integrated expertise

Immunology

Micro-engineering



Virology

Pharmaceutics

ImmuPatch

- Conor O'Mahony
- Abina Crean
- John Carey
- Marie McGrath
- Anto Vrdoljak
- Laetitia Tournier
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