

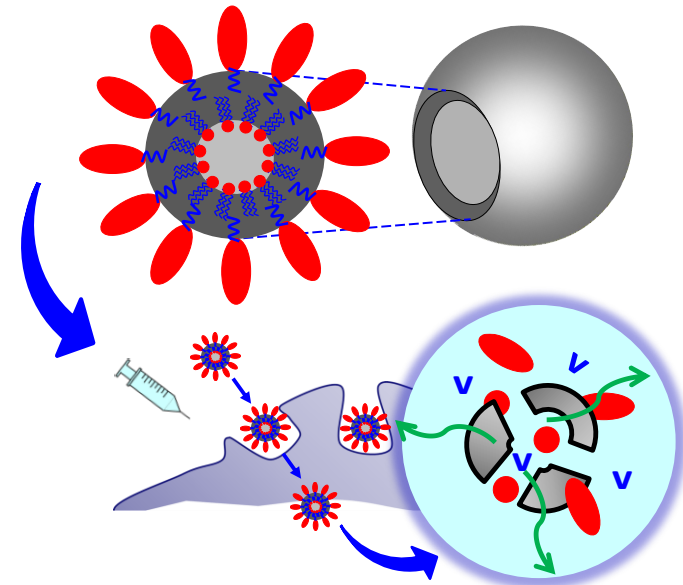


Constructing colloidal delivery vehicles based on amphiphilic bioresorbable copolymers for vaccines and therapeutics

Company	PEGylated compound	Structure
	Tween®80	$\text{HO}(\text{C}_2\text{H}_4\text{O})_w \begin{array}{c} \diagup \\ \diagdown \end{array} \begin{array}{c} (\text{OC}_2\text{H}_4)_x\text{OH} \\ \text{CH}(\text{OC}_2\text{H}_4)_y\text{OH} \\ \text{CH}_2(\text{OC}_2\text{H}_4)_z\text{OH} \end{array}$
	ABC	$\text{H} \left[\text{O} \left(\text{CH}_2 \right)_6 \text{C}(=\text{O}) \left(\text{CH}_2 \right)_8 \text{C}(=\text{O}) \right]_n \text{O} \left[\text{CH}_2 \left(\text{CH}_2 \right)_2 \text{O} \right]_m \text{H}$ <p style="text-align: center;">PLACL-PEG 5000</p>



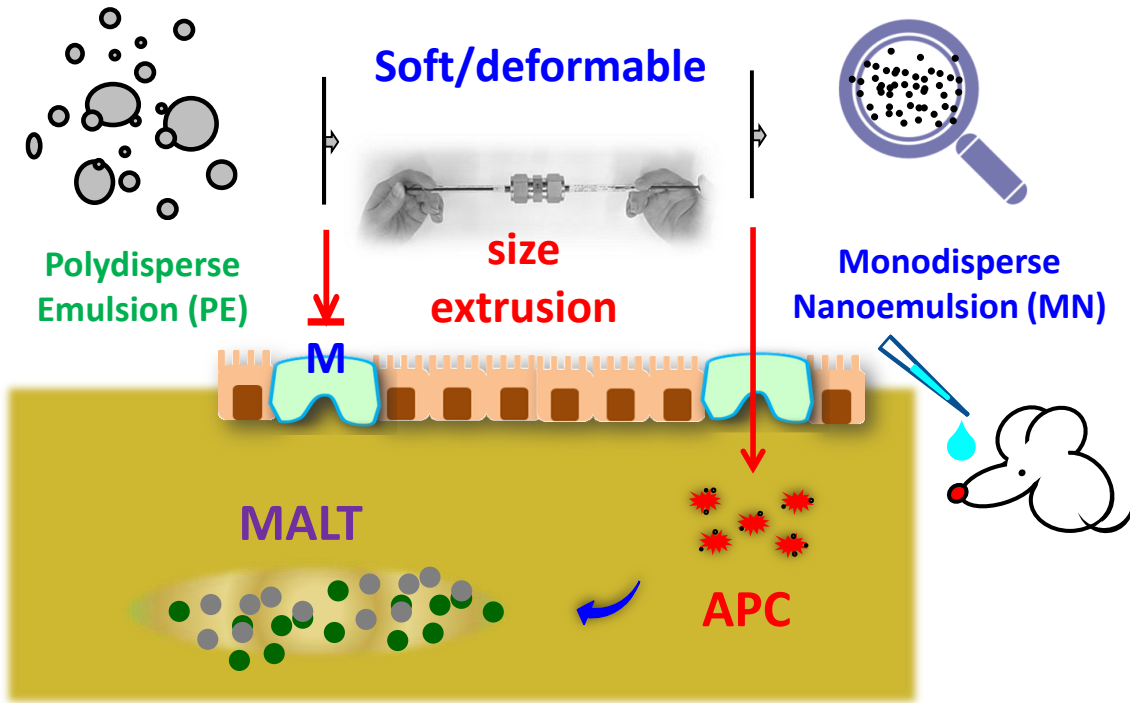
A colloidal vesicle based on amphiphilic bioresorbable copolymers (ABC)

The vesicles to act as **an immunogenic depot** for sustained delivery of vaccine antigens and to be **absorbable** post-vaccination, suggesting new insights into innovative vaccine design.

Outcomes : Intellectual Property

Patent Granted	Patent No.	Description
Multi-phase emulsions based on amphiphilic block copolymers	US 8,444,993 TW I383806	Emulsion-based adjuvant Degradable emulsifiers
Sorbitan polyester conjugates for stabilizing water-in-oil emulsions and delivering controlled release of bioactive agents	TW I598114 US 10,172,945 AU 2016215757 CN 107405304	Emulsion-based adjuvant Polysorbosome 2018 Futuristic Technology Award
Novel multivalent vaccine against enterovirus, influenza virus, and/or Japanese encephalitis virus	TW I522469 CN 102988977	Peptide-based adjuvant 3-in-1 vaccine
Immunogenic peptide containing a B cell epitope of tumor associated antigen L6	TW I675843 US 10,995,126	Combo adjuvant Tumor associated antigen therapy
A nanoemulsion adjuvant for nasal mucosa and preparation method thereof	TW I719263 US 11,160,862 CN 109718372	Emulsion-based adjuvant Mucosal vaccine carrier 2022 Futuristic Technology Award
Nucleic acid-lipid nanoparticle and method using the same	TW I853485	Lipid nanoparticle, LNP mRNA/DNA vaccine carrier

Mucosal adjuvantation strategy using nanoparticles



metastatic tumor



**Tumor cells:
B16-F10-OVA**

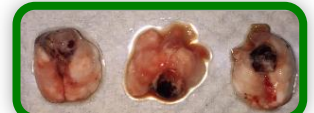
No treatment



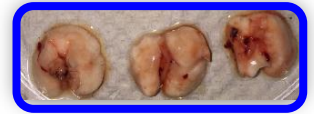
Vaccine alone



Vaccine/PE

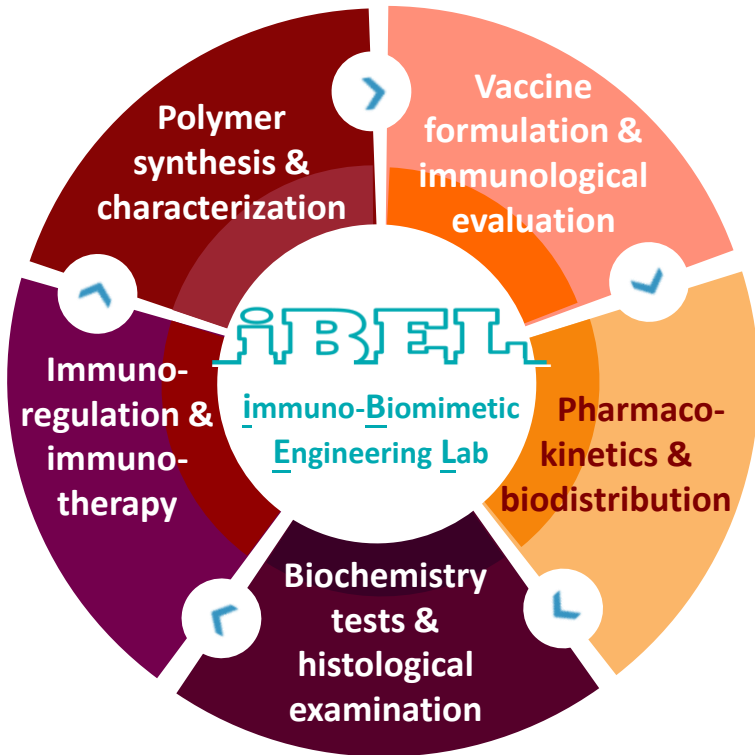


Vaccine/MN



Journal for ImmunoTherapy of Cancer, 2020; TW I719263; US 11,160,862

Vaccine Formulation/Delivery Platform

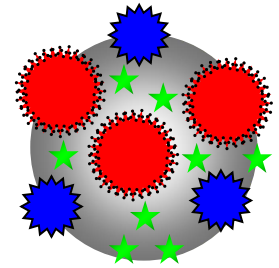


Mission Statement

This platform is tasked with integrating **immunology** and **material science** to manipulate **vaccine immunity** and enable **versatile vaccination routes**.

Research Strategy

- (1) Emulsion-based adjuvants
- (2) Peptide-based adjuvants
- (3) Lipid nanoparticles (LNPs)
- (4) Polymer-based carriers



Outcomes

- (1) Antigen sparing
- (2) Single-dose injection
- (3) Mucosal delivery
- (4) Cancer vaccine

