

Adjuvants approved for Human Use (NIAID (NIH), 2014)

❖ Adjuvants (Latin word- Adjuvare= To help or to enhance):

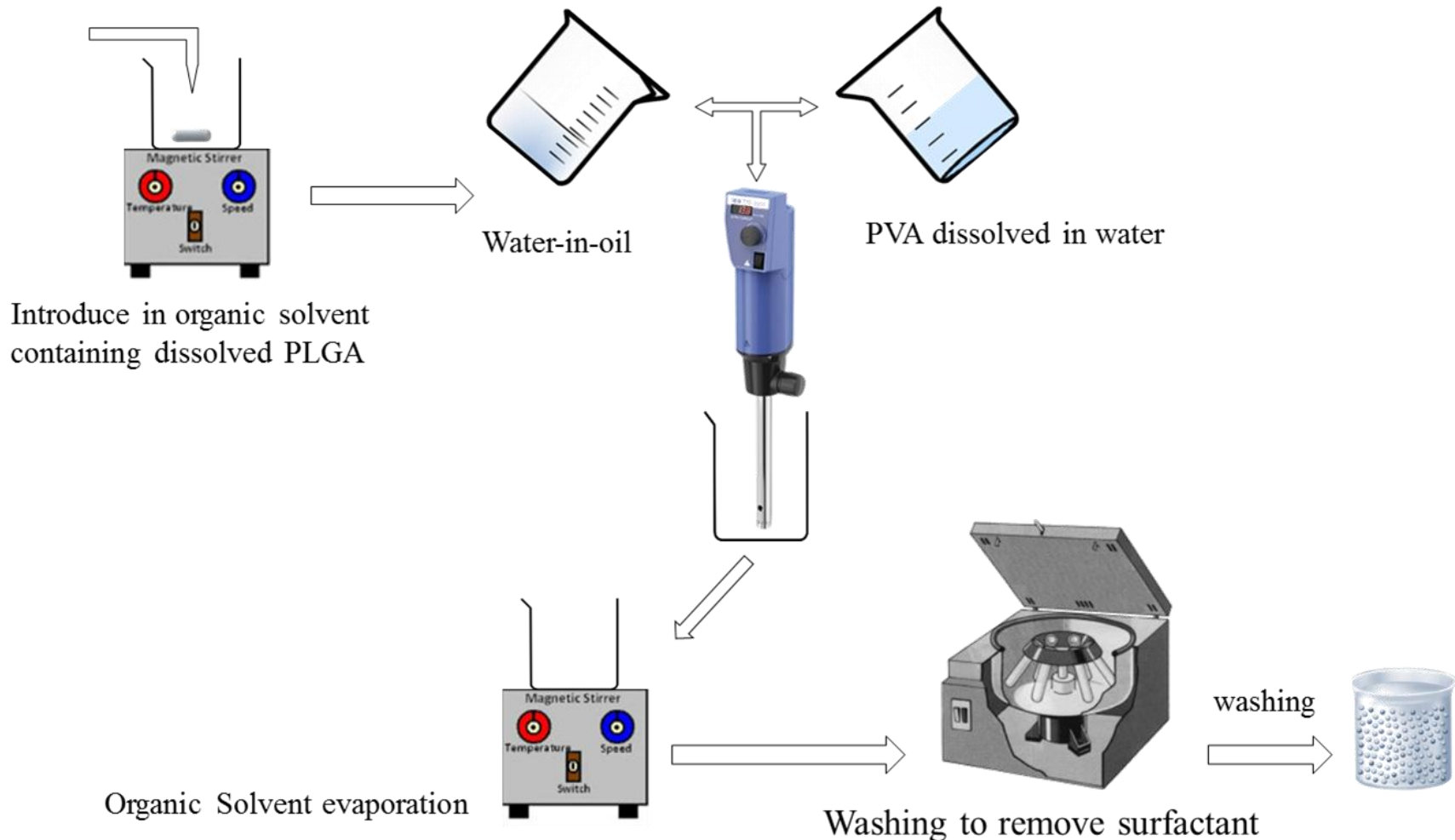
❖ Potentiates the immune response to an antigen or modulates it towards the desired immune responses

Category	Examples	Target (likely)	Approved
Aluminum salts	Alum	TH2	US & Asian Countries
Pathogen Components	MPL/TLR-4 agonist	TLR-4	EU Only
Emulsions	MF59	APC	Fluad (Influenza) EU only
Liposomes	Virosomes (Lipid + hemagglutinin)	APC	Inflexal (influenza) EU only Epaxal (hepatitis A)
Combinations AS03 (Squalene, Tween 80, α -tocopherol) AS04* (Aluminium hydroxide+ MPL)	AS03 (GlaxoSmithKline; 2009) AS04* (GlaxoSmithKline; 2005)	Multiple TLR4 agonist	Pendemrix (Influenza) Fendrix (HBV) EU Only; Cervarix (HPV) EU/US

Apart from above adjuvants, micro/nanoparticles may also act as adjuvant for vaccine

Polymeric Microparticles- As Adjuvant Therapy for Vaccine Delivery

Emulsification method using PLGA (50:50)



Scanning Electron Microscopy and Physicochemical Characterization of PLGA Nanoparticles

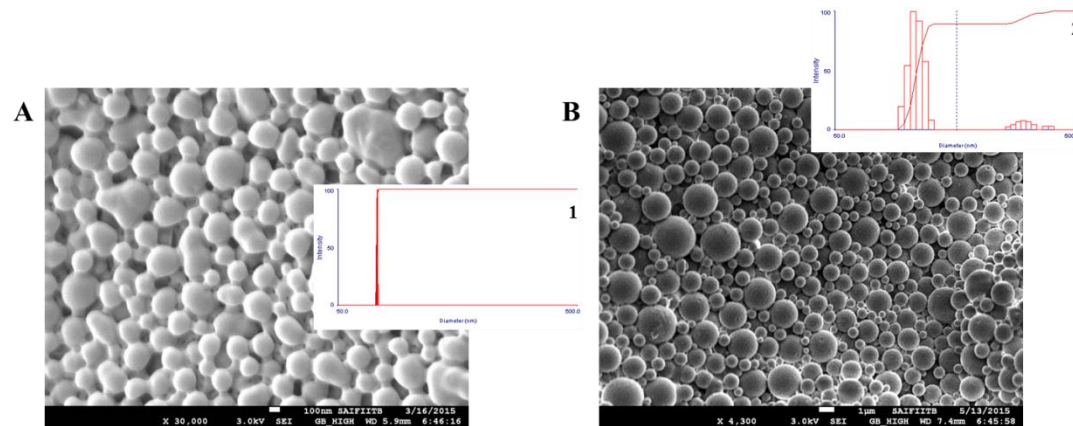


Fig: Variable sizes of PLGA nanoparticles in a solution

A: Monodisperse nanoparticles in solution (inset 1: DLS spectrum)

B: Polydisperse nanoparticles in solution (inset 2: DLS spectrum)

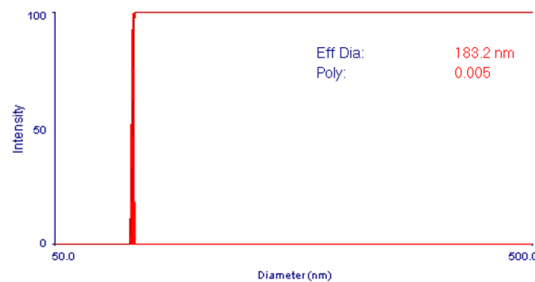


Fig: Dispersion of PLGA nanoparticles (mean diameter: 172.6nm) obtained through Dynamic light scattering

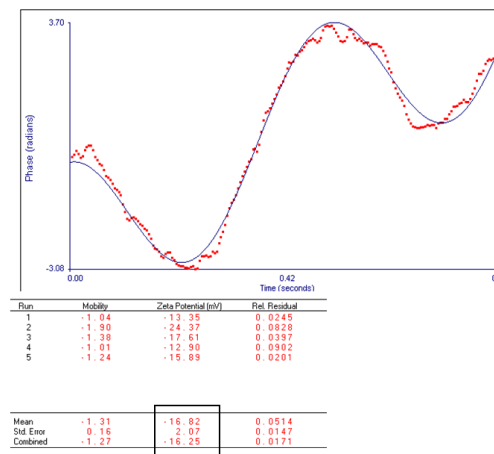


Fig: Zeta potential of PLGA nanoparticles