

## Product Specification Sheet

### RWJ 21757 Synthetic vaccine adjuvant

**Cat. # AV-9010-1**

RWJ 21757 Synthetic vaccine adjuvant

**SIZE: 1 mg**

**Cat. # AV-9010-5**

RWJ 21757 Synthetic vaccine adjuvant

**SIZE: 5 mg**

**General Information:** The word 'adjuvant' is derived from the Latin word 'adjuvare' which means 'to help'. Therefore, Immunologic Adjuvants are added to vaccines to stimulate the immune system's response to the target antigen, but do not in themselves confer immunity. Adjuvants act in various ways in presenting an antigen to the immune system. Adjuvants can act as a depot for the antigen, presenting the antigen over a long period of time, thus maximizing the immune response before the body clears the antigen. Examples of depot type adjuvants are oil emulsions. Adjuvants can also act as an irritant which causes the body to recruit and amplify its immune response. A tetanus, diphtheria, and pertussis vaccine, for example, contains minute quantities of toxins/toxoids produced by each of the target bacteria. The body's immune system develops an antitoxin to the bacteria's toxins, not to the aluminum, but would not respond enough without the help of the aluminum adjuvant. Adjuvants have also evolved as substances that can aid in stabilizing formulations of antigens, especially for vaccines administered for animal health.

**Adjuvants** augment the effects of a vaccine by stimulating the immune system to respond to the vaccine more vigorously, and thus providing increased immunity to a particular disease. Adjuvants accomplish this task by mimicking specific sets of evolutionarily conserved molecules, so called PAMPs, which include liposomes, lipopolysaccharide (LPS), molecular cages for antigen, components of bacterial cell walls (e.g., flagellins), and endocytosed nucleic acids such as double-stranded RNA (dsRNA), single-stranded DNA (ssDNA), and unmethylated CpG dinucleotide-containing DNA (ODNs). Natural proteins such as ovalbumin or OVA-peptides and key hole limpet hemocyanins (KLH) are also being explored not only serve as carrier protein but also as adjuvants. Because immune systems have evolved to recognize these specific antigenic moieties, the presence of an adjuvant in conjunction with the vaccine can greatly increase the innate immune response to the antigen by augmenting the activities of dendritic cells (DCs), lymphocytes, and macrophages by mimicking a natural infection. Furthermore, because adjuvants are attenuated beyond any function of virulence, they pose little or no independent threat to a host organism.

For human vaccines, aluminum hydroxide (Alum) based adjuvants (Aluminum hydroxide or Alhydrogel; Aluminum phosphate or Adjuvaphos) are the only **FDA-approved adjuvants**. Vaccine components that are formulated in Alum are called "Adsorbed Vaccines". The effectiveness of each salt as an adjuvant depends on the characteristics of the specific vaccine and how the manufacturer prepares the vaccine

**Not all vaccines contain Alum** because an adjuvant may not have been needed, was not expected to increase the desired immune response, or was going to cause an imbalance in the immune response. For example, **inactivated Polio Virus (IPV/IPOL)** vaccine, measles, mumps and rubella vaccine (**MMR/MMRI/MMRV**), **Varicella or chickenpox vaccine (Varivax/Proquad/MMRV)**, **Meningococcal conjugate (MCV4/Menomune/Menactra)** vaccine, and **influenza vaccines (Fluzone/Fluaval/Flumist/Fluvirin etc)** do not contain aluminum salts.

#### Product Information

Toll-like receptors (TLRs) are a family of highly conserved germline-encoded pattern-recognition receptors that are essential for host immune responses. TLR ligands represent a promising class of immunotherapeutics or vaccine adjuvants with the potential to generate an effective antitumor immune response. The TLR7/8 agonists have aroused interest because they not only activate antigen-presenting cells but also promote activation of T and natural killer (NK) cells. Recognition of TLR7 ligands by TLR7 leads to the overall activation and maturation of antigen-presenting cells, such as dendritic cells (DCs), and the secretion of proinflammatory cytokines and type I IFN. After recognition of TLR7 ligand, mature DCs are able to fully activate effector T cells and drive more potent immune responses

RWJ 21757 is a Toll-like receptor 7 (TLR7) agonist; induces immune cell activation and increases cytokine production. Displays antitumor and antiviral activity in various animal models.

**CAS No.:** 121288-39-9

**Formula** C<sub>13</sub>H<sub>17</sub>N<sub>5</sub>O<sub>6</sub>

**Mol.wt :** 339.3

**Appearance :** White solid

**Solubility:** 20 mM (water); 75 mM (DMSO)

**Purity:** >98%

**Storage and Stability:** Shipped at room temperature and it should be stored at 2-8 C. Long term storage at -20 C for up to 6 months. Avoid repeated freeze thaw cycles.

**References:** Heil *et al* (2003) Eur.J.Immunol. **33** 2987. Lee *et al* (2003) Proc.Natl.Acad.Sci.USA **100** 6646. Goodman *et al* (1994) Blood **84** 3457

#### Related items:

Catalog#	ProdDescription	
AV-9015-2	TDB (Trehalose-6,6-dibehenate)	Synthetic
AV-9015-5	TDB (Trehalose-6,6-dibehenate)	Synthetic
AV-9020-1	Pam2CSK4 vaccine adjuvant	
AV-9020-B	Pam2CSK4 vaccine adjuvant; Biotin conjugate	
AV-9020-B-100	Pam2CSK4 vaccine adjuvant; Biotin conjugate	
AV-9020-F	Pam2CSK4 vaccine adjuvant; FITC labelled	
AV-9020-F-100	Pam2CSK4 vaccine adjuvant; FITC labelled	
AV-9025-1	Pam3CSK4 vaccine adjuvant, unlabeled	
AV-9025-B	Pam3CSK4 vaccine adjuvant; Biotin labelled	
AV-9025-F	Pam3CSK4 vaccine adjuvant; FITC labelled	
AV-9030-10	Poly(I:C) (Polyinosinic-Polycytidylic)	Synthetic
AV-9030-50	Poly(I:C) (Polyinosinic-Polycytidylic)	Synthetic

Complete list is available at:

[http://4adi.com/objects/catalog/product/extras/Vaccine\\_Adjuvants\\_fr.pdf](http://4adi.com/objects/catalog/product/extras/Vaccine_Adjuvants_fr.pdf)

AV-9010-1

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