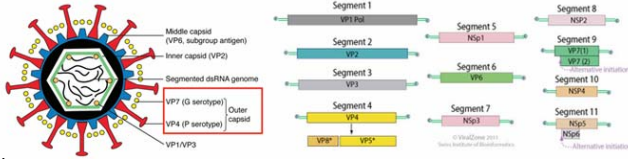


Rotavirus (EDIM) Vaccine ELISA Kits, Recombinant Proteins, and Antibodies

Rotavirus gastroenteritis is a mild to severe disease characterized by vomiting, watery diarrhoea, and low-grade fever. Rotavirus is the most common cause of severe diarrhoea among infants and young children. Rotavirus is usually an easily managed disease of childhood, but worldwide more than 450,000 children under five years of age still die from rotavirus infection each year, most of who



live in developing countries, and almost two million more become severely ill. The incidence and severity of rotavirus infections has declined significantly in countries that have added rotavirus vaccine to their routine childhood immunization policies. Rotavirus is a genus of dsRNA virus in the family Reoviridae. There are five species of this virus, referred to as A, B, C, D, and E. **Rotavirus A**, the most common, causes more than 90% of infections in humans. As with influenza virus, a dual classification system is used based on two proteins on the surface of the virus. The glycoprotein VP7 defines the **G serotypes** and the protease-sensitive protein VP4 defines **P serotypes**. The genome of rotavirus consists of 11 unique double helix molecules of RNA which are 18,555 nucleotides in total. Each helix, or segment, is a gene, numbered 1 to 11 by decreasing size. Each gene codes for one protein, except genes 9, which codes for two. Viral particles are up to 76.5 nm in diameter and are not enveloped. There are six viral proteins (VPs) that form the virus particle (virion). These structural proteins are called **VP1, VP2, VP3, VP4, VP6 and VP7**. In addition to the VPs, there are six nonstructural proteins (**NSP1-NSP6**) that are only produced in cells infected by rotavirus. VP6 forms the bulk of the capsid. It is highly antigenic and can be used to identify rotavirus species. This protein is used in laboratory tests for rotavirus A infections.

Specific diagnosis of infection with rotavirus A is made by finding the virus in the stool by ELISA. Two approved **vaccines** against Rotavirus are available: **Rotarix** by GlaxoSmithKline and **RotaTeq** by Merck. Both are taken orally and contain attenuated live virus. Rotarix is a human, live attenuated rotavirus vaccine containing a rotavirus strain of G1P specificity. ROTARIX is indicated for the prevention of rotavirus

gastroenteritis caused by G1 and non-G1 types (G3, G4, and G9) when administered as a 2-dose series in infants and children. RotaTeq contains five rotaviruses produced by reassortment. Four reassortant rotaviruses express one of the outer capsid, VP7, proteins (serotypes G1, G2, G3, or G4) from the human rotavirus parent strain and the attachment protein VP4 (type P7) from the



bovine rotavirus parent strain. The fifth reassortant virus expresses the attachment protein VP4, (type P1A), from the human rotavirus parent strain and the outer capsid protein VP7 (serotype G6) from the bovine rotavirus parent strain. Rotavirus vaccines are licensed in more than 100 countries, but only 31 countries have introduced routine rotavirus vaccination as of 2011. The obvious concerns about using the live virus vaccines revolve around safety and efficacy. One of the live rotavirus vaccines (**Rotashield**) was withdrawn after 1 year because of its association with intussusception. Rotarix, produced in monkey cells (Vero), have been shown to be contaminated with pig/swine virus (PCV) and still considered safe. Several new vaccines formulations are being tested: Inactivated rotavirus strains, virus-like particles (VLPs), and subunit vaccine (VP2/VP6). **The capsid protein VP6** ~45 kda forms the intermediate layer of the virus and it is the most abundant (780 molecule per virus) and antigenic protein. VP6 is highly conserved with only about 10-12% divergence in any two mammalian groups A rotavirus. When rotavirus enters cells, its outer layer proteins, VP4 and VP7, are removed before replication, thus exposing virus layered with VP6. Recombinant VP6 protein vaccine has been shown to protect animals from rotavirus infection.

ADI has cloned and expressed murine rotavirus VP6 that is highly conserved in human, monkey, mouse, bovine, sheep, and porcine rotaviruses. Antibodies to VP6 are also available. Antibody ELISA kit was developed to determine the efficacy of various existing vaccines and test new vaccines. These kits help determine the levels of VP6 antibody during natural infection or in vaccinated individuals.

Roavirus vaccine Related ELISA kits

Items	Species	IgG Specific Cat#	IgM Specific Cat#	IgA-Specific Cat#
Rotavirus (EDIM) VP6 Vaccine antibody ELISA	Mouse	AE-300400-1	AE-300401-1	AE-300402-1
	Rat	AE-300410-1		
	Rabbit	AE-300420-1		
	Human	AE-300430-1	AE-320431-1	AE-320432-1
	Monkey	AE-300440-1		
	Bovine	AE-300450-1	AE-300450-1	AE-300452-1
	Sheep	AE-300460-1		

Rotavirus vaccine Related Antibodies, Proteins and other Reagents

Item	Catalog#	Product Description	Product Type
EDIM	EDIM14-S	Rabbit Anti-Epizootic diarrhea of infant mice (EDIM)/rotavirus Capsid Protein 6 (VP6)	Antiserum
	EDIM15-M	RecombiVirus Mouse monoclonal Anti-Epizootic diarrhea of infant mice (EDIM)/rotavirus Capsid Protein 6 (VP6) IgG, aff pure	Antibodies
	EDIM15-R-10	Recombinant (E. coli, his-tag, ~46 Kda) Epizootic diarrhea of infant mice (EDIM)/rotavirus Capsid Protein 6 (VP6), full length (>95% pure)	Pure Protein
	EDIM17-M	RecombiVirus Mouse monoclonal Anti-Rotavirus (all serotypes) (p43/VP6) IgG, aff pure	Antibodies
	EDIM18-S	Anti-Nebraska calf diarrhea virus (NCDV) antiserum	antiserum