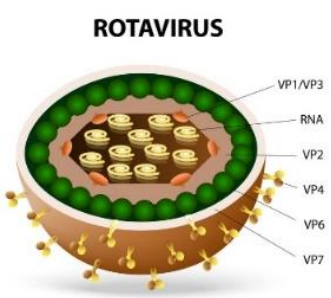
Rotavirus Vaccines: ELISA Kits, Recombinant Proteins, and Antibodies

Rotavirus causes severe gastroenteritis in humans and other mammals, including **mice, rats, cow, pig**, and is readily transmitted via viral shedding in feces. Animal rotaviruses can infect humans, either by direct transmission of the virus or by contributing one or several RNA segments to reassortants with human strains. Most children in the world have been infected with rotavirus by the age of five. Immunity develops with each infection; so subsequent infections are less severe; adults are rarely affected. There are eight species of this virus, referred to as **A-H**. Humans are primarily infected by species A, B and C, most commonly by species A. A–E species cause disease in other animals. Within rotavirus A there are different strains, called serotypes. **Rotavirus A**, the most common species, causes more than **90% of rotavirus infections** in humans. The virus is transmitted by the fecal-oral route. Viral diarrhea is highly contagious. The feces of an infected person can contain more than 10 trillion infectious particles per gram; fewer than 100 of these are required to transmit infection to another person. The virus infects and damages the cells that line the small intestine and causes gastroenteritis (which is often called "stomach flu" despite having no relation to influenza).



Rotavirus is responsible for the death of 450,000 children worldwide each year. **Rotavirus B**, also called adult diarrhea rotavirus or ADRV, has caused major epidemics of severe diarrhea affecting thousands of people of all ages in China and India. **Diagnosis**: Most children admitted to hospital with gastroenteritis are tested for rotavirus A. Specific diagnosis can be made by serology (Antigen or antibodies tests by ELISA) and PCR.

The genome of rotavirus consists of 11 unique dsRNA which are 18kb 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. The RNA is surrounded by a three-layered icosahedral protein capsid. There are six viral structural proteins (VP1-4, VP6-7) that form the virus particle. Nonstructural proteins (NSP1-6) are only produced in cells infected by rotavirus. **VP6** forms the bulk of the capsid (~45 kda, ~780 copies per particle). It is highly antigenic and it is used to identify rotavirus species by immunological techniques.

Therapeutics & Vaccines: High risk infants can be treated with a neutralizing antibody to RSV (**palivizumab or Synagis**®) to reduce the risk of severe RSV illnesses. Palivizumab is a humanized therapeutic antibody against the RSV-F protein. A formalin-inactivated vaccine (FI-RSV) or live attenuated vaccines showed poor immunity. There are two types of vaccine available globally, Rotarix and RotaTeq, with a number of others available in certain countries. **RotaTeq** is a live, oral pentavalent vaccine that contains five rotavirus strains produced by reassortment (A, G1, G2, G3, and G4). **Rotarix** is a monovalent, human, live attenuated rotavirus vaccine containing one 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. Recombinant VP6-based vaccine that is suitable for intranasal instillation is being tested in the chimpanzee, which is the only known animal that develops a respiratory illness similar to humans. Novavax is testing RSV-F nanoparticle vaccine for pregnant women.

About ADI Polio Vaccine LISA Kits-ADI has pruduced recombiant rotavirus proteins that are used in vaccines, made antibodies, and developed antibody ELISA kits. The ELISA kits can be used to assess immune status of humans and animals and to assess vaccine efficacy or formulate new vaccines. Antibody ELISA kits for species and isotypes not listed here can be made availabel as well. ADI ELISA kits are rapid (105 min assay at room temp), sensitive (~ <1 ng/ml IgG or IgM), and quantitative.

Rotavirus ELISA kits

(See Details at the website) http://4adi.com/commerce/catalog/spcategory.jsp?category_id=2779

Vaccines	Target Antigens	ELISA Type	Ab Type	Human	Mouse	Monkey	Rabbit	Others
Rotavirus	VP6	Ab	IgA	AE-300432-1	AE-300402-1			
			IgG	AE-300430-1	AE-300400-1	AE-300440-1	AE-300420-1	AE-300410-1 (rat)
			IgM	AE-300431-1	AE-300401-1			

AE-300460-1	RecombiVirus Sheep EDIM/rotavirus VP6 antibody IgG ELISA Kit, 96 tests
AE-300470-1	RecombiVirus Porcine rotavirus VP6 antibody IgG ELISA Kit, 96 tests

Rotavirus Recombinant Proteins & Antibodies

(See Details at the website) http://4adi.com/commerce/catalog/spcategory.jsp?category_id=2779

Catalog#	Product Description	Product Type
EDIM11-MNC	Mouse Anti- EDIM/Rotavirus Capsid Protein 6 (VP6) antibody negative control serum	Disease Animal serum
EDIM11-MPC	Mouse Anti- EDIM/Rotavirus Capsid Protein 6 (VP6) antibody positive control serum	Positive control serum
EDIM12-RNC	Rat Anti- EDIM/Rotavirus Capsid Protein 6 (VP6) antibody negative control serum	Disease Animal serum
EDIM12-RPC	Rat Anti- EDIM/Rotavirus Capsid Protein 6 (VP6) antibody positive control serum	Positive control serum
EDIM14-C	Recombinant EDIM/Rotavirus Capsid Protein 6 (VP6) control for Western blot	Pure Protein
EDIM14-S	Rabbit Anti- EDIM/Rotavirus Capsid Protein 6 (VP6) antiserum	Antiserum
EDIM15-M	Mouse monoclonal Anti- EDIM/Rotavirus Capsid Protein 6 (VP6) IgG, aff pure	Antibodies
EDIM15-R-10	Recombinant (E. coli) EDIM/Rotavirus Capsid Protein 6 (VP6), full length (>95% pure, his-tag)	Pure Protein
EDIM17-M	Mouse monoclonal Anti-Rotavirus (all serotypes) (p43/VP6) IgG, aff pure	Antibodies

Rotavirus-Vaccine-ELISA-Flr Rev. 160609A