ALPHA DIAGNOSTIC INTERNATIONAL

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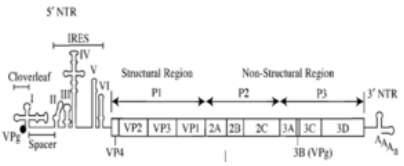
Product Specification Sheet

☐ Cat. # POLV32-S Rabbit Anti-Poliomyelitis Virus 3 (Leon1,Ch,2ab strain) antiserum, neutralizing **SIZE**: 100 ul

Poliomyelitis, often called polio or infantile paralysis, is an acute viral infectious disease spread from person to person, primarily via the fecal-oral route. Spinal polio is the most common form, characterized by asymmetric paralysis that most often involves the legs. The term poliomyelitis is used to identify the disease caused by any of the three serotypes of poliovirus. Type 1 (Brunhilde): often with severe symptoms Type 2 (Lansing): with milder symptoms Type 3 (Leon): rare, but with severe symptoms. Antibodies to poliovirus can be diagnostic, and are generally detected in the blood of infected patients early in the course of infection.



Poliovirus is a human enterovirus and member of the family of Picornaviridae. It composed of an ss-positive sense **RNA genome** (~7500 nt) and a **protein capsid**. Because of its short genome and its simple composition—only RNA and a non-enveloped icosahedral protein coat that encapsulates it—poliovirus is widely regarded as the simplest significant virus. Poliovirus mRNA is translated as one long polypeptide. This polypeptide is then auto-cleaved by internal proteases into approximately 10 individual viral proteins, including: 3Dpol, an RNA dependent RNA polymerase; 2Apro and 3Cpro/3CDpro, proteases which cleave the viral polypeptide; VPg (3B), a small protein that binds viral RNA and is necessary for synthesis of viral positive and negative strand RNA; 2BC, 2B, 2C, 3AB, 3A, 3B proteins which comprise the protein complex needed for virus replication; VP0, VP1, VP2, VP3, VP4 proteins of the viral capsid. Capsid proteins VP1, VP2, VP3 and VP4 form a closed capsid enclosing the viral positive strand RNA genome. VP4 lies on the inner surface of the protein shell formed by VP1, VP2 and VP3. Together they form an icosahedral capsid (T=3) composed of 60 copies of each VP1, VP2, and VP3. The capsid interacts with human PVR at this site to provide virion attachment to target cell. Poliovirus capsid protein VP1 is one of four structural proteins and its antigenic The N-termini of most EV VP1 proteins contain highly conserved immunogenic regions that are recognized by sera from most EV-infected patients. Poliovirus VP1 has been considered a candidate for recombinant poliovirus subunit vaccine.

Poliovirus is structurally similar to other human enteroviruses (coxsackieviruses, echoviruses, and rhinoviruses), which also use immunoglobulin-like molecules to recognize and enter host cells. There are **three serotypes of poliovirus**, PV1, PV2, and PV3; each with a slightly different capsid protein. Capsid proteins define cellular receptor specificity and virus antigenicity. PV1 is the most common form encountered in nature, however all three forms are extremely infectious. Specific strains of each serotype are used to prepare **vaccines against polio**. **Inactive polio vaccine (IPV)** is prepared by formalin inactivation of three wild, virulent reference strains, Mahoney or Brunenders (PV1), MEF-1/Lansing (PV2), and Saukett/Leon (PV3). Oral polio vaccine (OPV) contains live attenuated (weakened) strains of the three serotypes of poliovirus. Passaging the virus strains in monkey kidney epithelial cells introduces mutations in the viral IRES, and hinders (attenuates) the ability of the virus to infect nervous tissue.

Antigen	Highly purified Poliomyelitis Virus 3 (Leon1,Ch,2ab strain) grown in Vero cells
Ab Host/type	Hyperimmunized Rabbit antiserum (#POLV32-S). is heat inactivated and lyophilized (no preservatives added). Dissolve powder in 100 ul water to bring it to the original volume. Antiserum after dissolution must be sterile filtered for cell culture use. Store solutions at 2-4oC or freeze in suitable aliquots.
-ve control serum	# NRBS-1, Rabbit (non-immune) antiserum, suitable for –ve control

Storage and Shelf Life: Store lyophilized antiserum at 2-4oC. Stable for 1 year.

Recommended Usage

Virus Neutralization- We recommend the microtiter neutralization method using Vero cells grown in 96-wells. Mix 25 ul of test virus containing 100 TCID50 in 25 ul (or serial dilutions of the virus) and add 25 ul of the neutralizing antibodies and 2-4 fold serial dilutions containing 0.1% BSA or culture medium. Follow the protocol for observing CPE (cytopathogenic effect) and correlation with the virus type and neutralization ability of the antisera. Antiserum titer (virus neutralization is typically ≥1:320 or specified on the vials.

Identification of the test Virus- neutralization antibody titration to contain 20 TCID50 units (50% tissue culture infectious dose) We recommend the microtiter neutralization method using Vero cells grown in 96-wells. Mix 25 ul of test virus containing 100 TCID50 in 25 ul (or serial dilutions of the virus) and add 25 ul of the neutralizing antibodies and 2-4 fold serial dilutions. Follow the protocol for observing CPE (cytopathogenic effect) and correlation with the virus type and neutralization ability of the antisera.

Notes: Filed strains of polio virus are difficult to neutralize. Bovine serum used for cell culture or the culture medium must be used as a control to determine any non-specific viral neutralization.

Specificity & Cross-reactivity

Antibodies are specific to poliomyelitis Virus 3 (Leon1,Ch,2ab strain) with no reactivity with heterologous enteroviruses. Antibodies are not toxic to Vero cells or GMK cells.

Reference: Nomoto A (1982) PNAS 79, 5793-5797; Hammerle T (1991) JBC 266, 5412-5416; Hogle J (2002) Ann. Rev. Micorbiol. 56, 677-702; Baltimore D (1981) PNAS 78, 4887-4894; Kitmaura N (1981) Nature 291, 547-553

Related items available from ADI

970-100-PHG Human Anti-Poliomyelitis Virus 1-3 IgG ELISA
970-120-PMG Mouse Anti-Poliomyelitis Virus 1-3 IgG ELISA
970-130-PRG Rabbit Anti-Poliomyelitis Virus 1-3 IgG ELISA
970-140-PRM Rabbit Anti-Poliomyelitis Virus 1-3 IgM ELISA
970-150-PMG Monkey Anti-Polio Virus 1-3 IgG ELISA Kit,

POLV11-S Anti-Poliomyelitis Virus 1-3 antiserum
POLV21-M Mouse monoclonal Anti-Polio Virus 1-3 IgG,
POLV13-A Anti-Poliomyelitis Virus 1-3 IgG
POLV13-BTN Anti-Polio Virus 1-3 IgG-Biotin Conjugate
POLV13-FITC Anti-Polio Virus 1-3 IgG-FITC Conjugate
POLV13-HRP Anti-Polio Virus 1-3 IgG-HRP Conjugate

POLV14-M Mouse monoclonal Anti-Poliomyelitis Virus 1 IgG, aff pure
POLV15-R-10 Recombinant (E. Coli) Poliomyelitis Virus 1 Viral Protein 1 (Sabin; POLV1-VP1, 302-aa; full length, >95%)
POLV15-S Anti-Poliomyelitis Virus 1 Viral Protein 1 (Sabin; POLV1-VP1)
POLV16-S Anti-Poliomyelitis Virus 1 (LSc,2ab strain) antiserum, neutralizing
POLV32-S Anti-Poliomyelitis Virus 1 (sabin strain, native) antiserum,
POLV21-M Mouse monoclonal Anti-Poliomyelitis Virus 2 IgG, aff pure
POLV22-S Anti-Poliomyelitis Virus 2 (P712,Ch,2ab strain) antiserum,
POLV32-S Anti-Poliomyelitis Virus 2 (sabin strain, native) antiserum,
POLV31-M Mouse monoclonal Anti-Poliomyelitis Virus 3 IgG, aff pure
POLV32-S Anti-Poliomyelitis Virus 3 (Leon1,Ch,2ab strain) antiserum,
POLV33-S Anti-Poliomyelitis Virus 3 (sabin strain, native) antiserum, neutralizing

POLV32-S 140109A

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