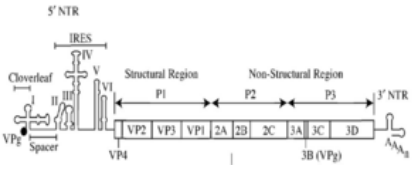
ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

□ Cat. # POLV34-S	Rabbit Anti-Poliomyelitis Virus 3 Viral Protein 1 (Saukett; POLV3-VP1, >95%) antiserum	**SIZE**: 10 ug
□ Cat. # POLV34-C	Recombinant (E.coli) Poliomyelitis Virus 3 Viral Protein 1 control for western blot	**SIZE**: 10 ug

Poliomyelitis, often called polio or infantile paralysis, is an acute viral infectious disease spread from person to person, primarily via the fecal-oral route. Although around 90% of polio infections cause no symptoms at all, affected individuals can exhibit a range of symptoms if the virus enters the blood stream. Spinal polio is the most common form, characterized by asymmetric paralysis that most often involves the legs. Bulbar polio leads to weakness of muscles innervated by cranial nerves. Bulbospinal polio is a combination of bulbar and spinal paralysis. 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. Two basic patterns of polio infection are described: a minor illness which does not involve the central nervous system (CNS), sometimes called abortive poliomyelitis, and a major illness involving the CNS, which may be paralytic or non-paralytic. A laboratory diagnosis is usually made based on recovery of poliovirus from a stool sample or a swab of the pharynx. 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 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. Wild polioviruses can be found in two continents. 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 (or attenuates) the ability of the virus to infect nervous tissue.

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.

Source of Antigen and Antibodies

Poliovirus VP1 Saukett strain (was expressed as his-tag protein in E. coli and purified (1-301-aa, >95%, ~42 Kda). It is supplied in 20 mM Tris-HCl [pH 7.5], 0.25M NaCl, 5 mM beta-Mercaptoethanol, 0.25M Imadazole and 8M urea (or see lot sp. conc on the vial).

Antigen	Rec. POLV3 VP1 protein (Saukett)
Ab Host/type	Rabbit antiserum (#POLV34-S) supplied in PBS/azide (0.05% is liquid or powder forms. Re-suspend powder in 100 ul water. Store frozen in suitable size aliquots.
2-Ab	Goat Anti-rabbit IgG-HRP cat # 20320 (AP, biotin, FITC conjugates also available)
-ve	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control



Poliovirus VP1 Saukett strain (protein accession # AA089594.1, 1-301 aa) was expressed as his-tag protein in E. coli and purified (>95%, ~42 Kda). For Western blot +ve control (**Cat # POLV34-C**) is supplied in SDS-PAGE sample buffer (reduced). Load 10 ul/lane of **POLV34**-C for good visibility with antibody Cat # **POLV34**-S. Store at –20oC in suitable size aliquots. SDS may crystallize in cold conditions. It should redissolve by warming before taking it from the stock. It should be heated once prior to loading on gels. If the product has been stored for several weeks, then it may be preferable to add 5 ul of fresh 2x sample buffer per 10 ul of the **POLV34**-C solution prior to heating and loading on gels. This preparation is not biologically active. It is not suitable for ELISA or other applications where native protein is required. Do not freeze, thaw, or heat repeatedly.

Recommended Usage

ELISA: coat at ~1-5 ug/ml and test with appropriate antibodies (#POLV34-S).
Western: load ~250-500 ng/well and detect with appropriate antibodies (#POLV34-S).

Specificity & Cross-reactivity

POLV35-R (Human poliovirus 3, strain Saukett) capsid protein sequence is 100% conserved in POLV3-VP1 Antibodies made to the polio vaccine recognize the POLV35-R protein.

Reference: Nomoto A (1982) PNAS 79, 5793-5797; Hammerle T (1991) JBC 266, 5412-5416; Hogle J (2002) Ann. Rev. Micorbiol. 56, 677-702; Blatimore 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,

POLV16-S	Anti-Poliomyelitis Virus 1 (LSc,2ab strain) antiserum, neutralizing
POLV17-S	Anti-Poliomyelitis Virus 1 (sabin strain, native) antiserum, neutralizing
POLV21-M	Mouse monoclonal Anti-Poliomyelitis Virus 2 IgG, aff pure
POLV22-S	Anti-Poliomyelitis Virus 2 (P712,Ch,2ab strain) antiserum, neutralizing
POLV23-S	Anti-Poliomyelitis Virus 2 (sabin strain, native) antiserum, neutralizing
POLV31-M	Mouse monoclonal Anti-Poliomyelitis Virus 3 IgG, aff pure
POLV32-S	Anti-Poliomyelitis Virus 3 (Leon1,Ch,2ab strain) antiserum, neutralizing
POLV33-S	Anti-Poliomyelitis Virus 3 (sabin strain, native) antiserum, neutralizing

POLV34-S-Polio3-VP1 160921SV

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