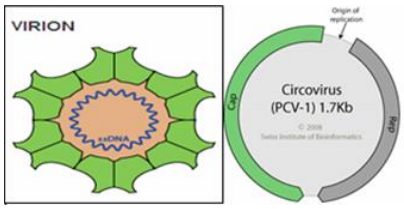
ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Recombinant Porcine Circovirus 2 replicase (PCV2-rep) protein

☐ **Cat** # PCV2R15-R-10 Recombinant (E.coli) Porcine Circovirus 2 replicase (PCV2-rep/ORF1) protein (his tag, 37 kDa) purified **SIZE**: 10 ug

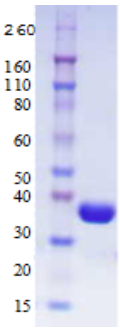
The viral genus **Circovirus** is a part of the family of Circoviridae and contains viral species with non-enveloped, circular ssDNA genomes. These viruses are the smallest viruses replicating autonomously in nucleus of host cells of vertebrate species, including pigs, dogs, and birds such as pigeons, and ducks. The virions of Circoviruses are surprisingly small, with diameters ranging from 17 up to 22 nm. **Porcine circovirus (PCV)** is a small, non-enveloped virus (17 nm in diameter) with a single stranded circular DNA genome. It causes worldwide infection in swine and is highly contagious. Porcine circovirus belong to the genus Circovirus of the Circoviridae family. The virus targets the lymphoid tissue and causes immunosuppression in the host. Pigs affected may experience increased mortality, poor growth, and weight loss, progressing to the level of severe thinning and weakness between 5 to 14 weeks of age. Two species of PCV have been characterized, PCV1 and PCV2. Although PCV1 was initially described as an infectant of porcine kidney cell line (PK15), it shows no pathogenic traits. Recently, PCV2 has been identified as being associated with a new condition in pigs, the post weaning multi-systemic wasting syndrome (PMWS), first described in Western Canada. This syndrome is characterized clinically by progressive weight loss, dyspnea, and jaundice and pathologically by lymphadenopathy, interstitial pneumonia, hepatitis, and nephritis. Similar syndromes have also been recently reported in the United States, Europe, and Asia. Other diseases, such as porcine dermatitis and nephropathy syndrome (PDNS), proliferative and necrotizing pneumonia (PNP), perina-talmyocarditis and reproductive failures are also associated with PCV2. PMWS is commonly diagnosed on the continents of North America, Europe and Asia.



The PCV genome (~1.76 kb) has three main **open reading frames** (ORFs) that encode well characterized proteins: ORF1 encodes the viral **replicase proteins** (REP and REP') that are essential for rolling circle replication. The replicases differ in that Rep is the full ORF1 transcript of 312-aa, whereas Rep' is a truncated form of ORF1 as a result of splicing and is only 168-aa in length. The two replicase enzymes that are created from ORF1, Rep and Rep', are conserved between the two types of PCV, and are part of the early phase of the virus.

ORF2 encodes the viral capsid protein (Cap) involved in host immune response. ORF2 differ slightly between PCV-1 and PCV-2. Antibodies to ORF2 are found in experimental PCV2 infection.ORF3 encodes an apoptotic protein, which is essential for the development of the viral pathogenesis The non-pathogenic PCV1 and the pathogenic PCV2 share ~68-76% protein identity (~90% DNA). PCV2 are divided into five genotypes (PCV2a, PCV2b, PCV2c, PCV2d, and PCV2e) that are ~95% conserved. PCV2a was long the predominant strain in the global pig population and is also the basis of all major commercially available PCV2 vaccines. Currently, PCV2b is the most commonly identified strain in pigs. Diagnosis of PCV is confirmed by finding the typical histologic lesions and demonstration of viral antigen or DNA within the lesions by immunohistochemical (IHC) or in situ hybridization methods (ISH) or by ELISA.

Source and Forms of Protein



PCV2 Rep protein was expressed in E. Coli as his-tag fusion protein (314 aa, >95%, ~37 KDa). Purified protein is supplied in 8 mM Na_2HPO_4, 1.4 mM KH_2PO_4 [Ph: 7.4], 2.6 mM KCl, 1 M NaCl, 2.5 mM β-ME, 0.1 % Sarkosyl and 0.25 M Imidazole (see lot sp. conc. on the vial, typically 10 ug/20 ul).

Store at –20ºC in suitable size aliquots. SDS may crystallize in cold conditions. It should redissolve by warming before taking it from the stock. This preparation is not biologically active. It is suitable for ELISA as coating antigen or western blot +ve control. Do not freeze, thaw, or heat repeatedly

Storage

Short-term: unopened, undiluted vials for less than a week at 4ºC.

Long-term: at –20ºC or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20ºC or below.
Shipping: 4ºC for solutions and room temp for powder.

Recommended Usage

Western Blotting: Purified PCV2 Rep is ~36.8kDa. Load ~100-200 ng/lane for good visibility with appropriate antibodies (#PCVR31-S).

ELISA (1:10-50K; using 50-100 ng antigen/well).

Specificity & Cross-reactivity

Replicase protein sequence is about 68-76% conserved in various isolates. Antibodies and recombinant proteins to PCV2 ORF2 and replicase protein are available for control studies.

References: Shuai J (2007) Virus Genes 35, 619-627; Seo HW (2014) Vet. J. 200, 65-70. Ellis J (2014) Veterinary Pathology 51 (2): 315–327; G. Misinzo, et al. (2005). J Gen Virol. 86 (7): 2057–2068.

*This product is for In vitro research use only.

Related material available from ADI

PCV2C21-C Recombinant Porcine Circovirus 2 Capsid protein (PCV2-ORF2) control for western blot
PCV2C21-NC Porcine Circovirus 2 Open Reading Frame 2 protein (PCV2-ORF2) antibody negative control serum
PCV2C21-PC Porcine Circovirus 2 Open Reading Frame 2 protein (PCV2-ORF2) antibody positive control serum
PCV2C21-S Rabbit Anti-Porcine Circovirus 2 Capsid protein (PCV2-ORF2) antiserum
PCV2C25-R-10 Recombinant (E.coli) Porcine Circovirus 2 capsid (PCV2-ORF2) protein (his tag, 26 kDa) purified
PCV2R11-C Recombinant Porcine Circovirus 2 replicase protein (PCV2-rep/ORF1) control for western blot
PCV2R11-NC Porcine Circovirus 2 replicase protein (PCV2-rep/ORF1) antibody negative control serum
PCV2R11-PC Porcine Circovirus 2 replicase protein (PCV2-rep/ORF1) antibody positive control serum
PCV2R11-S Rabbit Anti-Porcine Circovirus 2 replicase protein (PCV2-rep/ORF1) antiserum
PCV2R15-R-10 Recombinant (E.coli) Porcine Circovirus 2 replicase (PCV2-rep/ORF1) protein (his tag, 36 kDa) purified
AE-200250-1 Recombivirus Q ™ Porcine/Swine/Pig Circovirus 2 Capsid (PCV2-ORF2) IgG ELISA kit, Quantitative, 1x96 tests

AE-200250-5 Recombivirus Q ™ Porcine/Swine/Pig Circovirus 2
AE-200250-1 Recombivirus Q ™ Porcine/Swine/Pig Anti-Circovirus 2 Capsid (PCV2-ORF2) IgG ELISA kit, Quantitative, 1x96 tests
AE-200250-5 Recombivirus Q ™ Porcine/Swine/Pig Anti-Circovirus 2 Capsid (PCV2-ORF2) IgG ELISA kit, Quantitative, 5x96 tests
AE-200260-1 Recombivirus Q ™ Porcine/Swine/Pig Anti-Porcine Circovirus 2 Replicase protein IgG ELISA kit (DIVA test), Quantitative, 1x96 tests
AE-200260-5 Recombivirus Q ™ Porcine/Swine/Pig Anti-Porcine Circovirus 2 Replicase protein IgG ELISA kit (DIVA test), Quantitative, 5x96 tests

PCV2R15-R-10 170106SV

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