Product Specification Sheet

**Recombinant Bovine Coronavirus Nucleocapsid protein**

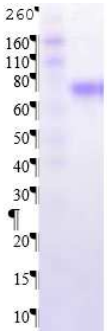
Cat.# BCNP15-R-10 Recombinant (E.coli) Bovine Coronavirus (BCoV/BCV) nucleocapsid protein (GST-tag/His-tag, >95%) Size: 10 ug

Bovine coronaviruses (BCV) is a pneumoenteric virus that causes respiratory and enteric infections in cattle and wild ruminants. They belong to the *Coronaviridae* family in the *Nidovirales* order. Bovine coronavirus (BCV), a group 2 member of the genus Coronavirus, is an important pathogen in cattle worldwide. Coronavirus infection is usually seen in calves between one and three weeks old, although disease may occur up to three months of age. The BCV is involved in the etiology of three distinct clinical syndromes in cattle: calf diarrhea (CD); winter dysentery (WD) with hemorrhagic diarrhea in adults; and respiratory infections in cattle of various ages including the bovine respiratory disease complex (BRDC) or shipping fever of feedlot cattle. BRDC represents a major cause of economic loss in the beef and dairy cattle industries worldwide. This complex represents the leading cause of morbidity and mortality in 6 to 10 month-old beef cattle after entry into feedlots especially in North America. The financial losses due to mortality, can reach up to 69% in beef calves during first 2 months of arrival.

Coronaviruses are enveloped, spherical or pleiomorphic viruses shape,with typical sizes ranging from 80to 120 nmand covered with a double layer of short (hemagglutinin) and long (spike) surface projections.They possess a 5' capped, single-strand positive sense RNA genome, with a length between26.2 and 31.7 kb, the longest amongst all RNA viruses. The genome is composed of six to ten openreading frames (ORFs). The first ORF comprises two-thirds of the genome and encodes the replicaseproteins, whereas the last third contains the structural protein genes in a fixed order: (HE)-S-E-M-N.Some coronaviruses also contain ahemagglutinin esterase (HE). The M and E proteins are involved in virus assembly, the spikeprotein is the leading mediator of viral entry. The spike protein is also the principal player in determining host range.The 50 kDa nucleocapsid (N) is highly conserved among strains, so it is often the target for viral RNA detection assays.

BCV infections can be diagnosed by detection of virus, viral antigen or viral RNA in tissues, secretions or excretions of infected animals. BCV antigens are most commonly detected by enzyme-linked immunosorbent assay (ELISA) using MAbs to improve assay specificity and sensitivity. Highly sensitive molecular assays like RT-PCR and the more sensitive nested RT-PCR and real time qPCR assays are mainly used to detect BCV RNA in nasal secretions, lung lysates or fecesor viral antigen detection in respiratory (trachea, lung) or intestinal (ileum, colon) tissues(frozen or paraffin-embedded), immunofluorescent or immune-histochemical straining is performed using hyperimmune antiserum or MAbs to BCV.

### Source of Antigen




Recombinant Bovine Coronavirus nucleocapsid protein was expressed in E.coli as a his-tag fusion protein (448 aa, >95%, ~78 kda). Purified protein is supplied in 50mM Tris-HCl, 0.5 mM EDTA, 5mM β-mercaptoethanol, 0.25M NaCl, 8M Urea, and 0.25M Imidazole (see lot sp. Conc. on the vial)

**Endotoxin level** : < 1.0 EU per µg protein as determined by the LAL method.

It is suitable for ELISA, Western or other applications where native protein is required. 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**
ELISA, Western blot

Cellular Activity, Histochemistry & Immunofluorescence

**Specificity:**
Bovine Coronavirus (BCoV, 448-aa, protein accession # P10527.1) is 100% conserved in Bovine Coronavirus, 99% conserved in Canine Respiratory Coronavirus, 96% conserved in Human Coronavirus and 92% conserved in Equine Coronavirus.

**General References**: Lapps W, Hogue BG, Brian DA (1987) Virol. 157, 47-57.

*This product is for In vitro research use only.

**Related material available from ADI**
Catalog# Prod Description

BCNP11-C Recombinant (E. coli) Bovine Coronavirus (BCov/BCV) nucleocapsid protein western blot control

BCNP11-S Recombinant (E. coli) Bovine Coronavirus (BCov/BCV) nucleocapsid IgG antiserum

BCNP15-R-10 Recombinant (E. coli) Bovine Coronavirus (BCov/BCV) nucleocapsid protein (GST-tag/His-tag, >95%)

RV-500500-01N Recombivirus Bovine Coronavirus (BCov/BCV) nucleocapsid protein IgG negative control serum

RV-500500-02P Recombivirus Bovine Coronavirus (BCov/BCV) nucleocapsid protein IgG positive control serum

RV-500500-1 Recombivirus Bovine Coronavirus (BCov/BCV) nucleocapsid protein IgG ELISA kit, 96 tests

BCNP15-R-10-BCoV-protein 151112C

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