ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Cat # BCNP11-S	Rabbit Anti Bovine Coronavirus (BCov) nucleocapsid IgG antiserum	**SIZE**: 100 ul
Cat # BCNP11-C	Recombinant Purified Bovine Coronavirus (BCov) protein control for western blot	**SIZE**: 100 ul

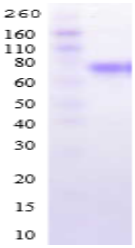
Bovine coronaviruses (BCV) is a pneumoenteric virus that causes respiratory and enteric infections in cattle and wild ruminants. They belong to the *Coronaviridae* family in the *Nidovirales* order. Bovine coronavirus (BCV), a group 2 member of the genus Coronavirus, is an important pathogen in cattle 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 and Antibodies

Antigen	Recombinant E. coli expressed BCov NP
Ab Host/type	Rabbit, Polyclonal antiserum-agarose (Cat # **BCNP11-S**) supplied in PBS/0.1% azide
2-Ab	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
-ve control IgG	Cat # 20009-1, Rabbit (non-immune) Serum IgG, purified, suitable for ELISA, Western, IHC as –ve control



(#BCNP11-C): Bovine Coronavirus (BCov) NP is expressed in *E.coli* and purified using proprietary technique (>95%, ~78 kDa). For Western blot +ve control (**Cat # BCNP11-C**) is supplied in SDS-PAGE sample buffer (reduced). Load 10 ul/lane of **BCNP11-C** for good visibility with antibody Cat # **BCNP11-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 **BCNP11-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

Form & Storage of Antibodies/Peptide Control

Antiserum

☐ 100 ul ☐ Solution ☐ Lyophilized powder

Buffer: PBS + 0.1% azide **Reconstitute powder** in 100 ul PBS.

Storage

Short-term: unopened, undiluted liquid vials at **-20°C** and powder at **4ºC or -20ºC**..

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

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

Recommended Usage

ELISA: Assay dependent concentration

Western blot: An initial dilution of 1:500-2K is recommended for Western. Users must optimize antibody dilution depending upon the nature of samples and other technical conditions. Not Tested

Above concentrations are a suggestion, user's must optimize conditions based on their own assay. The antibody will likely work in other applications, other methods have not been tested by ADI.

Specificity & Cross-reactivity

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

BCNP11-S 180730A

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