RecombiVirus Classical Swine Fever Virus (CSFV) or Hog Cholera Virus (HCV) Disease ELISA and DIVA Tests

RecombiVirus™ series of ELISA kits are 2nd generation ELISA and quantitative ELISA kits to detect CSFV virus specific antibodies using recombinant and highly purified viral antigens. Advantages of **RecombiVirus™** ELISA kits:

- **Recombinant viral antigens**: Safe, no risk of contamination
- **Qualitative or Quantitative**: Use single Positive antibody calibrator at 100 U/ml for +ve or –ve samples (Qualitative) or use full standard curve to measure antibody concentration in vaccinated or infected animals (Quantitative).
- **Rapid tests:** assay time ~105 mins
- **Sensitive**: higher sensitivity allows sample dilution of 1:100 or more. Less background. Antibody detection to <1.0 ng/ml.
- **Convenient**: Room temp incubations, all reagents in stable solution format; strips of 8-wells for maximum usage
- **Stable**: 1 year shelf life
- **CSFVE2 antibody** ELISA kit can be used to assess the antibody status of vaccinated animals or infection in non-vaccinated animals. **CSFV-Erns antibody** ELISA kit will serve as **DIVA test** (differentiation of infected from vaccinated animals) since several PCV2 vaccines.
- **Mouse kits are particularly suited for testing CSFV vaccines. Other species are also available.**

Assay Procedure: Arrange required number of strips on the plate.

Step 1. Add **100µl of pre-diluted anti-CSFV IgG standards** (0, 3, 10, 30, 100 U/ml) and **100 ul samples** (diluted 1:100 or higher) into respective wells. Mix gently and incubate at room temp for **60 mins** (25-28oC; no shaking necessary).

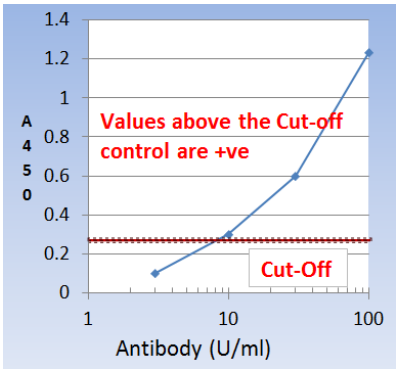
Step 2. Aspirate well contents and wash 3X with wash buffer. Add 100 ul of supplied antibody-HRP Conjugate into all wells; mix gently and incubate at RT for 30 mins.

Step 3. Aspirate or wash 5xwith wash buffer. Tap plates over paper towels. Add 100 ul of TMB Substrate. Mix gently and Incubate for 15 min at RT. Blue color develops in positive wells.

Step 4. Add 100 ul of stop solution into each well and mix gently (blue color turns yellow). Measure yellow color at 450 nm. Results are compared to Cut-off control and expressed as +ve and –ve or antibody values determined from Antibody standard curve and expressed as U/ml.

Calculation of Results

Results can be expressed as simple –ve and +ve as compared to Cut-off standards or CSFV antibody concn (U/ml) determined from standard curve.



List of Porcine circovirusELISA Kits available from ADI.

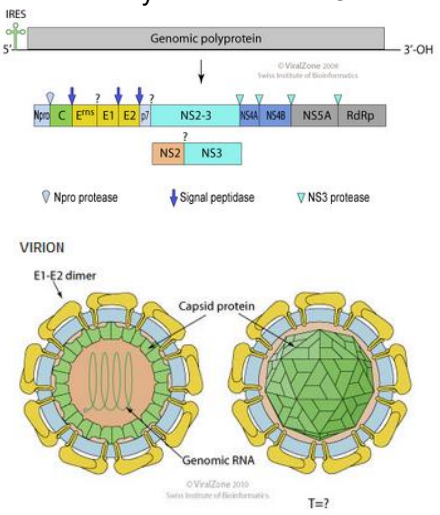
Product details, data sheets, and pricing available (http://4adi.com/commerce/catalog/spcategory.jsp?category_id=2793)

Ca t#	Product Description	Product Type
AE-400200-1 AE-400200-5	Recombivirus™ **Mouse** Anti-Porcine Classical Swine Fever Virus (CSFV) CSFV E2 IgG ELISA kit, Quantitative	ELISA Kit
AE-400210-1 AE-400210-5	Recombivirus™ **Mouse** Anti- Porcine Classical Swine Fever Virus (CSFV) Erns IgG ELISA kit (DIVA test), Quantitative	ELISA Kit
AE-400250-1	Recombivirus™ Classical Swine Fever Virus (CSFV) E2 antigen coated plate for antibody ELISA (5x96 wells)	Antigen Plates
AE-400255-1	Recombivirus™ Classical Swine Fever Virus (CSFV) Erns antigen coated plate for antibody ELISA (5x96 wells)	Antigen Plates
AE-400200-01N	Porcine/Swine/Pig Classical Swine Fever Virus (CSFV) E2 IgG negative control serum	Antibody Controls
AE-400200-02P	Porcine/Swine/Pig Classical Swine Fever Virus (CSFV) E2 IgG positive control serum	Antibody Controls
AE-400210-03N	Porcine/Swine/Pig Classical Swine Fever Virus (CSFV) Erns IgG negative control serum	Antibody Controls
AE-400210-04P	Porcine/Swine/Pig Classical Swine Fever Virus (CSFV) Erns IgG positive control serum	Antibody Controls
CSFE21-C	Recombinant Classical Swine Fever Virus E2 protein (CSFV-E2) control for western blot	Western control
CSFE21-S	Rabbit anti-Classical Swine Fever Virus E2 protein (CSFV-E2) antiserum	Antiserum
CSFE25-R-10	Recombinant (E. coli) Classical Swine Fever Virus E2 protein (CSFV-E2) (his tag, >95%) purified	Rec. Protein
CSFR11-C	Recombinant Classical Swine Fever Virus Erns protein (CSFV-Erns) control for western blot	Western control
CSFR11-S	Rabbit anti-Classical Swine Fever Virus Erns protein (CSFV-Erns) antiserum	Antiserum
CSFR15-R-10	Recombinant (E. coli) Classical Swine Fever Virus Erns protein (CSFV-Erns) (his tag, >95%) purified	Rec. Protein

Classical Swine Fever Virus (CSFV) – General Information

Classical swine fever (CSF) or hog cholera virus (HCV) is a highly contagious disease of pigs and wild boars. CSF causes fever, skin lesions, convulsions and usually (particularly in young animals) death within 15 days. The disease is endemic in much of Asia, Central and South America, and parts of Europe and Africa. United States, UK, Australia, Canada, Ireland, New Zealand and Scandinavia are believed to largely free from CSF disease but the virus can periodically be reintroduced via wild boars which may constitute a reservoir. **CSFV** leads to important economic losses worldwide. Despite the fact that preventive vaccination is prohibited, EU regulations allow the use of emergency vaccinations with MLV or marker vaccines. The severity of clinical signs is dependent on the virulence of the viral strains. Highly virulent (HV) strains cause an acute hemorrhagic form of the disease that induces marked immune suppression and high mortality, whereas moderately virulent (MV) strains induce either a sub-acute or a chronic form of the disease from which pigs may recover.

The infectious agent responsible is a virus CSFV of the genus Pestivirus in the family Flaviviridae. CSFV is closely related to the ruminant pestiviruses which cause Bovine Viral Diarrhea (BVDV) and Border Disease (BDV). There is only one serotype of CSF virus (CSFV). Detection of virus or viral nucleic acid in whole blood and of antibodies in serum are the methods of choice for diagnosing CSF in live pigs, whereas detection of virus, viral nucleic acid or antigen in organ samples is most suitable when the pig is dead. Vaccines against CSF are based on modified live virus (MLV) that has been attenuated by passage through cell cultures. CSF MLV vaccines (C-strain or Chinese strain) provide clinical protection against both HV and MV strain within a week of vaccination. Additionally, there exist vaccines based on Japanese viral strain “guinea pig exultation-negative (GPE−)”, the “Thiverval” strain and the “Mexican PAV” strain, all of which have been used. However, vaccinated animals cannot be distinguished from infected animals by serological diagnostic tests. Recombinant protein based CSFV E2 vaccine have also been introduced but they are less effective than MLV vaccines. In cases of recombinant E2 vaccine, CSFV glycoprotein Ern antibodies ELISA are used for DIVA test. A new generation of marker vaccine candidates based on chimeric pestiviruses has been developed in order to combine the DIVA strategy with good efficacy. Chimeric pestiviruses constructed over recent years consist of CSFV or border disease virus (BDV) E2-encoding sequences inserted into a bovine viral diarrhea virus (BVDV) backbone; alternatively, BVDV or BDV sequences may be inserted into a CSFV backbone. CSFV E2 antibody ELISA is used for conventional screening tests for the detection of CSFV infection on a herd basis. CSF Erns antibody ELISA is used as DIVA test for CSFV E2 subunit vaccines. Depending on the construction of the DIVA vaccines, E2, Erns, and NS3 ELISAs can all potentially be used as marker ELISAs (DIVA).



The CSFV genome (~12.5 kb) contains a single large open reading frame coding for a polyprotein (~4,000 aa) that is cleaved co- and post-transnationally by cellular and viral proteases into structural proteins (SP) Capsid C (p14), Envelop glycoprotein **Erns** (gp44-48), **E1** (gp33), and **E2** (gp55) and nonstructural proteins (NSP) NS2 (cysteine protease), **NS3** (serine protease), **NS4A, NS4B, NS5A, and NS5B**. The E2 glycoprotein is the most immunogenic CSFV protein. The modified vaccine **CP7_E2alf** is a chimera of the bovine viral diarrhea virus 1 (BVDV-1) expressing the CSFV E2 protein (envelope protein E2 of BVDV-1 strain CP7 are replaced by E2 of the CSFV strain Alfort187). **DIVA tests** based upon antibody to CSF Erns or NS3 can be used for DIVA tests. CP7_E2alf displays promising potency.

CSFV_Classical Swine Fever Virus_Vaccine_ELISA_flr 150519A