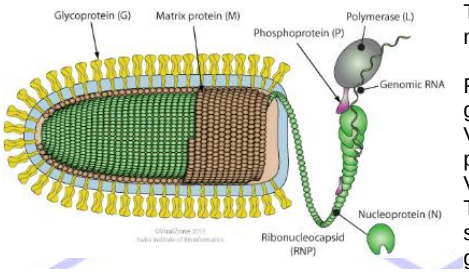
Vesicular Stomatitis Virus (VSV) Vaccine ELISA Kits, Recombinant Proteins, and Antibodies

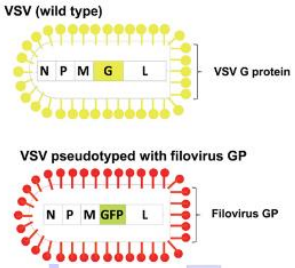
Vesicular stomatitis is a viral disease caused by two distinct serotypes of **vesicular stomatitis virus (VSV) —New Jersey (VSNJV) and Indiana (VSIV)**. Vesiculation, ulceration, and erosion of the oral and nasal mucosa and epithelial surface of the tongue, coronary bands, and teats are typically seen in clinical cases, along with crusting lesions of the muzzle, ventral abdomen, and sheath. **Clinical disease has been seen in cattle, horses, and pigs and very rarely in sheep, goats, and llamas. Serologic evidence of exposure has been found in many species, including cervids, nonhuman primates, rodents, birds, dogs, antelope, and bats**. The clinical symptoms are similar to the very important foot and mouth disease virus (FMDV).



The viruses are members of the family Rhabdoviridae and genus Vesiculovirus. VSV are the prototypes of the Vesiculovirus genus. They are bullet shaped and generally 180 nm long and 75 nm wide. The genomic structure is a single strand of negative-sense RNA (11.1 kb) composed of five genes (**N, P, M, G, and L, representing the nucleocapsid protein, phosphoprotein, matrix protein, glycoprotein, and the large protein**, which is a component of the viral RNA polymerase). The G protein mediates both viral binding and host cell fusion with the endosomal membrane following endocytosis. The L and P proteins are subunits of the viral RNA-dependent RNA polymerase. Although there are many members of the Vesiculovirus genus, the New Jersey and Indiana serotypes are of particular interest in the Western hemisphere. These two viruses are similar in size and morphology but generate distinct neutralizing antibodies in infected animals. They have both been isolated in recent outbreaks in the USA. The virus can be transmitted through direct contact with infected animals with clinical disease (those with lesions) or by blood-feeding insects. In the southwestern USA, black flies (Simulidae) are the most likely biologic insect vector. In endemic areas, sand flies (Lutzomyia) are proven biologic vectors. The prevalence of clinical cases in a herd is generally low (10%–20%), but seroprevalence within the herd may approach 100%.

VSV diagnosis is based on the presence of typical signs and either antibody detection through serologic tests, viral detection through isolation, or detection of viral genetic material by molecular techniques. Three commonly used serologic tests are competitive ELISA, virus neutralization, and complement fixation. PCR tests may also be used to identify the virus. There is no treatment for vesicular stomatitis as animals will typically recover on their own. Control of outbreaks is dependent upon rapid recognition of initial cases, quarantine and restriction of movement of infected and in-contact animals, and insect control. The New Jersey serotype (VSNJV) is responsible for the majority of US cases in animals, and outbreaks caused by Indiana virus (VSIV) have been reported in the USA on only two occasions in the past 40 years, 1966 and 1997–1998. There are no commercially available **VSV vaccines** in the U.S., but an autologous vaccine was made in 1995 to help control that outbreak. Several inactivated vaccines containing both the Indiana and New Jersey serotypes are used in Central and South America.

VSV-Ebola Vaccine Connection



The simple structure and rapid high-titer growth of VSV in mammalian and many other cells has made it a useful tool in the fields of cellular, molecular biology, virology, and a shuttle vector for many vaccines. VSV-GP (Indiana, 511-aa) is 53% conserved VSV-GP (New Jersey strain 517-aa). The VSIV matrix protein M (Indiana, 229-aa) also is 61% conserved in New Jersey strain (229-aa). The VSV-GP and M antibodies are not cross-reactive within the Indiana and New Jersey strains. VSV-Ebola vaccine is constructed by swapping the wild type VSV-GP (Indiana strain) with the Ebola-GP. It is also referred as **VSVΔG/ZEBOVGP** (for Zaire Ebola strain GP). The modified virus is called a "**Trojan horse**" virus. VSV-based vaccines induce strong protective T cell and antibody responses after a single dose. Vesicular stomatitis viruses are easily propagated in cell culture. Recombinant VSVs expressing foreign proteins have been studied as vaccine vectors for a number of pathogens, including HIV, influenza virus, hepatitis C virus, hepatitis B virus (HBV), measles virus, respiratory syncytial virus, severe acute respiratory syndrome virus, Yersinia pestis, papillomavirus, Ebola virus, and Marburg virus. VSIV has low prevalence of preexisting antibodies so it makes VISV a suitable vector for the Ebola vaccine.

About ADI's VSV Antibody ELISA Kits -VSIV-Ebola GP vaccines will produce antibodies to VSIV proteins (N, P, M, and L) and also to the Ebola GP protein. Therefore, it is necessary to the establish basal level of antibodies as well as vaccine-induced levels VSIV proteins such as Matrix M protein and G Protein. The efficacy to VSV-Ebola vaccine or other vaccine can then be correlated with the VSIV vector antibodies in subjects receiving the vaccines. High level of preexisting VSIV antibodies could potentially neutralize the VISV-Ebola vaccine. ADI has made ELISA kits to measure antibodies to VSIV M and G antibodies. ELISA kits for ZEBOV GP are also available.

Ebola-VSV Vaccine/Vector ELISA kits

Product details, data sheets, and pricing available (http://4adi.com/commerce/catalog/spcategory.jsp?category_id=2817)

ELISA **Type**	Ab type	Mouse	Human	Monkey
VSV Indiana **Matrix (**VSV-I **M)** Antibody ELISA Kits, **Quantitative**	IgG	AE-327200-1	AE-327210-1	AE-327220-1
VSV Indiana Glycoprotein **(**VSV-I G**)** Antibody ELISA Kits, **Quantitative**	IgG	AE-327300-1	AE-327310-1	AE-327320-1
AD5 (Adenovirus hexon 5 vectors based) Vaccines, Quantitative	IgA		950-100-AHA	
	IgG	950-130-AMG	950-110-AHG	950-150-AMG
	IgM	950-140-AMM	950-120-AHM	950-155-AMM
New: Custom ELISA testing of Anti-VSV IgG or IgM in human or animal samples (vaccinated or normal)	AE-327210-CUX (Please call for a quote)			

****Notes:** The above ELISA kits contain recombinant protein made and purified from E. coli or sf9 host cells. There is no Ebola virus or antibodies in the kit. All of the above kits are for in vitro research use only (RUO), not for diagnostic or therapeutic use.

Vesicular Stomatitis Virus (VSV) Vaccine-Recombinant Proteins, and Antibodies

Product details, data sheets, and pricing available (http://4adi.com/commerce/catalog/spcategory.jsp?category_id=2817)

Catalog#	Product Description	Product Type
AE-327210-01N	Human Anti-Vesicular Stomatitis Virus Matrix Protein, Indiana, (VSV-I M) IgG Negative Serum	Disease Sera, VSV
AE-327210-02P	Human Anti-Vesicular Stomatitis Virus Matrix Protein, Indiana, (VSV-I M) IgG positive Serum	Disease Sera
AE-327220-01N	Monkey Anti-Vesicular Stomatitis Virus Glycoprotein, Indiana (VSV-I G) IgG Negative Serum	Disease Sera, VSV
AE-327220-02N	Monkey Anti-Vesicular Stomatitis Virus Matrix Protein, Indiana, (VSV-I M) IgG Negative Serum	Disease Sera, VSV
AE-327220-02P	Monkey Anti-Vesicular Stomatitis Virus Glycoprotein, Indiana (VSV-I G) IgG positive Serum	Disease Sera
AE-327220-03N	Monkey Anti-Vesicular Stomatitis Virus Glycoprotein, New Jersey (VSV-NG) IgG Negative Serum	Disease Sera, VSV
AE-327220-03P	Monkey Anti-Vesicular Stomatitis Virus Matrix Protein, Indiana, (VSV-I M) IgG positive Serum	Disease Sera
AE-327220-04P	Monkey Anti-Vesicular Stomatitis Virus Glycoprotein, New Jersey (VSV-NG) IgG positive Serum	Disease Sera
AE-327310-01N	Human Anti-Vesicular Stomatitis Virus Glycoprotein, Indiana (VSV-I G) IgG Negative Serum	Disease Sera, VSV
AE-327310-02P	Human Anti-Vesicular Stomatitis Virus Glycoprotein, Indiana (VSV-I G) IgG positive Serum	Disease Sera
AE-327310-03N	Human Anti-Vesicular Stomatitis Virus Glycoprotein, New Jersey (VSV-NG) IgG Negative Serum	Disease Sera, VSV
AE-327310-04P	Human Anti-Vesicular Stomatitis Virus Glycoprotein, New Jersey (VSV-NG) IgG positive Serum	Disease Sera
MFPM20-C	Multi Fusion-Tagged Protein Marker containing 5 tags (His, T7, Myc, HA, VSV-G tags) Protein (Pure ~20 Kda) for ELISA/Western	WB Control
MFPM52-C	Multi Fusion-Tagged recombinant Protein 52-Kda containing 16-tags (T-7, HSV, C-myc, VSV-G, Glu-Glu, V5, e-tag, Flag, S-tag, HA, KT3, E2, Au1, Au5, 6xHis tags) for ELISA/Western	WB Control
MFPM52-R-40	Multi Fusion-Tagged recombinant Protein 52-Kda containing 16-tags (T-7, HSV, C-myc, VSV-G, Glu-Glu, V5, e-tag, Flag, S-tag, HA, KT3, E2, Au1, Au5, 6xHis tags) for ELISA	Pure protein
SP-101337-5	VSV-G Peptide (AA: Tyr-Thr-Asp-Ile-Glu-Met-Asn-Arg-Leu-Gly-Lys) (MW: 1339.5)	Pure Peptide
VSIG11-C	Recombinant (E. Coli) Vesicular Stomatitis Virus GlycoProtein, Indiana (VSV-I M) Protein Control for Western Blot	Western Control
VSIG11-S	Anti-Vesicular Stomatitis Indiana Virus Glycoprotein, Indiana, (VSV-I G) Antiserum	antiserum
VSIG15-R-10	Recombinant (E. Coli) Vesicular Stomatitis Virus GlycoProtein, Indiana (VSV-I G), his-tag, ~54 kDa; >95% Pure	Rec. protein
VSIM12-C	Recombinant (E. Coli) Vesicular Stomatitis Virus Matrix Protein, Indiana (VSV-I M) Protein Control for Western Blot	Western Control
VSIM12-S	Anti-Vesicular Stomatitis Indiana Virus Matrix Protein, Indiana (VSV-I M) Antiserum	antiserum
VSIM16-R-10	Recombinant (E. Coli) Vesicular Stomatitis Virus Matrix Protein, Indiana, (VSV-I M) his-tag, ~29.5 kDa; >95% Pure	Rec. protein
VSNG13-C	Recombinant (E. Coli) Vesicular Stomatitis Virus Glycoprotein, New Jersey (VSV-NG) Control for Western Blot	Western Control
VSNG13-S	Anti-Vesicular Stomatitis Virus Glycoprotein, New Jersey (VSV-NG) Antiserum	antiserum
VSNG17-R-10	Recombinant (E. Coli) Vesicular Stomatitis Virus Glycoprotein, New Jersey (VSV-NG), his-tag, ~55.1 kDa; >95% Pure	Rec. protein
VSV11-Cy	Monoclonal Anti-Vesicular Stomatitis Virus Glycoprotein (VSV-G)-Cy conjugate for Immunofluorescence	Antibodies
VSV11-HRP	Monoclonal Anti-Vesicular Stomatitis Virus Glycoprotein (VSV)-IgG-HRP conjugate	Antibodies
VSV11-M	Monoclonal Vesicular Stomatitis Virus Glycoprotein (VSV) Glycoprotein (fusion-tag) antibody, ascites	Antibodies
VSV11-P	Vesicular Stomatitis Virus Glycoprotein (VSV) Glycoprotein (fusion-tag) Control/blocking peptide #1	Peptide
VSV12-A	Anti-Vesicular Stomatitis Virus Glycoprotein (VSV-tag)-IgG, aff pure	Antibodies

VSV-Vaccines-ELISA-Flr 160610A

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