



SMART-SPOT[®] Sentinel Panel Test
Catalog # SMART-SPT9M, 9-Analyte Basic Screen Panel
For the detection of antibodies to 9 antigens in Mouse Sera
For Use On Research Animals Only

ASSAY PRINCIPLE

The **SMART-SPOT** device consists of a membrane mounted to a hard carrier. The membrane is the reactive unit and should not be touched. The membrane has 10 invisible test “spots”. Each of the first 9 spots is a specific antigen, as indicated in the diagram below, and the 10th spot is a Test Control. The Test Control spot insures that a specimen was added and that all of the reagents worked properly.

During the first incubation with the diluted specimen, any antibody that is reactive with the specific antigen will bind to the spot. After washing to remove the rest of the sample, Enzyme Conjugate-1 is added. After another series of washes, Enzyme Conjugate-2 is added. If antibodies have been bound to the spots, the Enzyme Conjugates will then bind to these antibodies. After another series of washes, a Chromogen is added. If the Enzyme Conjugates have bound to a spot, the Chromogen will turn the spot from invisible to a shade of purple. The strip is rinsed to stop the reaction and any purple color in an antigen spot is indicative of antibody present to that specific antigen. The Test Control spot **MUST** be positive (a shade of purple) in order for the test to be valid.

The SMART-SPT9M assay tests for the following:

Position 1: EDIM (Epizootic Diarrhea of Infant Mice)

Position 2: MHV (Mouse Hepatitis Virus)

Position 3: MPUL (Mycoplasma pulmonis)

Position 4: MPV, r-VP2 (Mouse Parvovirus)

Position 5: MVM (Minute Virus of Mice)

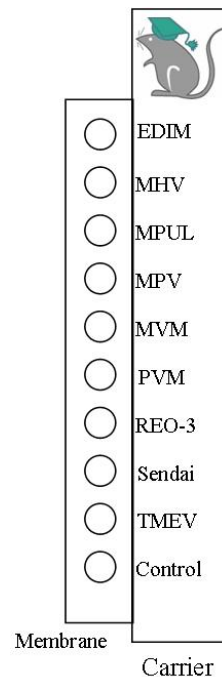
Position 6: PVM (Pneumonia Virus of Mice)

Position 7: REO-3 (Respiratory Enteric Orphan Virus)

Position 8: Sendai (Sendai Virus)

Position 9: TMEV(GD7) (Theiler’s Murine Encephalomyelitis Virus)

Position 10: Test Control



REAGENTS PROVIDED

Test Strips:	Eight (8)	SMART-SPOT devices
Enzyme Conjugate -1:	One (1)	20ml bottle of anti-mouse IgG conjugate-1
Enzyme Conjugate -2:	One (1)	20ml bottle of anti-mouse IgG conjugate-2
Chromogen:	One (1)	20ml bottle of substrate
Blocking Buffer:	Three (3)	Bottles of powdered blocking buffer
Specimen Diluent/Wash Buffer Concentrate:	Three (3)	25ml bottles of concentrated (20X) buffer
Incubation Tray:	One (1)	8-channel incubation tray
Test Tubes:	Eight (8)	Specimen dilution tubes
Transfer Pipettes:	Eight (8)	Diluted specimen transfer pipettes

MATERIALS REQUIRED BUT NOT PROVIDED

Pipettes capable of delivering 20µl and 2ml
Test tube rack to hold the diluted specimens
Squeeze bottle for washing strips
Distilled or reagent grade water

REAGENT STORAGE

Store the kit reagents and **SMART-SPOT** devices strips between 2 - 8° C.
Store the diluted Specimen Diluent/Wash Buffer between 2 - 8° C. This diluted buffer is good for up to 10 days. Do not add fresh buffer to old buffer.

SERUM COLLECTION AND HANDLING

This test utilizes the specimen's serum: coagulate the blood and remove the serum. The use of "bloody" sera is contraindicated. Serum samples should be refrigerated as soon as possible after collection and tested within 48 hours. If the specimen is not to be tested within 48 hours after collection, the serum sample should be stored at 0°C or lower.

Do not heat-inactivate serum and avoid repeated freezing and thawing of samples.

Vortex (mix well) all samples before using.

Do not use pooled specimens as this will adversely affect the performance of the assay.

Test samples are diluted 1:101 in the Specimen Diluent/Wash Buffer (20µl of sera + 2ml of Specimen Diluent/Wash Buffer)

All Reagents must be at room temperature before beginning the assay.

PROCEDURAL NOTES

Allow all reagents and samples to come to room temperature before testing. It is normal for the concentrated Diluent/Wash

Buffer to crystallize when cold. The crystals will re-dissolve once the solution returns to room temperature.

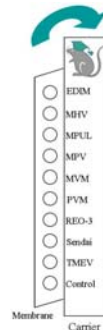
Do not use reagents beyond the expiration date printed on the label.

Do not reuse provided test tubes, transfer pipettes, or channels in the incubation tray or the **SMART-SPOT** device.

Do not touch the membrane portion of the **SMART-SPOT** device

Do not inter-mix conjugates between different kits or different lot numbers of the same kit: these components are balanced to work together as a unit. The chromogen, blocking buffer, and Specimen Diluent/Wash Buffer are universal reagents and can be inter-changed between all **SMART-SPOT** kits.

The **SMART-SPOT** devices are shipped flat and must be "bent" into the working configuration at the time of use. Place the device on a dry flat surface and gently bend the carrier up so that the mouse is on the top left side. The membrane will sit flat against the incubation tray floor and the carrier will be straight up in the incubation channel to hold the device in place.



PROCEDURE

See attached procedure guide. All procedures and reagents are at room temperature (15 – 25° C).

TROUBLESHOOTING

If the Test Control spot is not visible the test is not valid. Recheck your procedure and insure that all reagents are at room temperature before starting the assay.

If all the spots have visible color or there is a high degree of background staining usually indicates incomplete washing. Washing is extremely important in all assays, and incomplete washing leaves behind excess reagents that may give false positive results. Also check the three “T’s”: Time, Temperature and Technique. Time: insure that the timing on the incubation stages is adhered to. Temperature: temperatures above 25°C may adversely affect the assay; Technique: check all pipettes to insure that they are properly delivering the correct volume to produce a 1:101 dilution of the specimens.

READING RESULTS

Allow the test membrane to dry for at least 30 minutes before reading and should be read within 48 hours after the start of the drying period. Drying time is dependent upon lab conditions (temperature and humidity). The Test Control spot must be visible for the test to be valid. Any purple color in a specific antigen spot is indicative of antibody present to that specific antigen and further testing is required by an alternate method.

EXPECTED VALUES

The normal value is Negative. Studies have shown that antibodies may take up to 21 days to appear after exposure; therefore, negative specimen results should be reviewed in relation to a possible exposure date. SMART-SPOT is designed as a screening assay and positive specimen results should be confirmed by an alternate method. Although uncommon, false positive results may occur from non-specific antibodies binding to the media in which the antigen is derived.

This product is warranted to perform as described in the labeling provided that: the product is stored and used as directed; used before the expiration dating; and adequate quality control is performed. No other warranty is implied, nor are we liable for any consequential damages arising out of the aforesaid warranty.

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A graduate of the SMART program

SMART-SPOT®

Sentinel Panel Test

SMART-SPOT[®] PROCEDURE GUIDE

9-Analyte Panel (Mouse Sera), Catalog #SMART-SPT9M

INITIAL SETUP

1. Make the working dilution of the Specimen Diluent/Wash Buffer by bringing one bottle of the 20X Specimen Diluent/Wash Buffer Concentrate to 500ml with distilled water. Add the entire contents of one bottle of the Blocking Buffer. **MIX WELL**
2. Prepare 1:101 dilution of the specimens as follows:
Add 2ml of diluted Specimen Diluent/Wash Buffer made in step one to a provided test tube
Add 20µl of each specimen to the appropriate tube. **MIX WELL**

SERUM INCUBATION STAGE

3. Without touching the membrane, remove the required number of SMART-SPOT devices and reseal the pouch. (Unused devices must be kept sealed in a dry environment) The working configuration of the device is that the membrane is at a 90° angle to the carrier. The membrane sits flat on the floor of the incubation channel and the carrier sits up straight in the channel and holds the device in place. Using a sharpie, label the carrier portion with your specimen ID number.
4. Insert the SMART-SPOT device into the appropriate channel in the incubation tray insuring that the membrane is against the floor of the channel and that the carrier is securely wedged into the channel.
5. Using the provided transfer pipettes, transfer the all of the diluted specimen from step 1 into the appropriate channel in the incubation tray. Rock the tray several times to mix and insure that the membrane is fully covered by the diluted specimen.
6. Incubate at room temperature for **30 MINUTES.**

WASH STAGE

7. After 30 minutes, pick up the tray and rest it against the palm of your hand with your thumb gently crossing over the top of the device carriers. Invert the tray and dump (the carrier will hold the device in place). Wash the strip by directing the stream of the working dilution of the Specimen Diluent/Wash Buffer directly along the strip and completely fill each channel to the top. Dump again.
8. Repeat the above step four more times for a total of **5 WASHES.**
9. After the last wash, shake the tray 5-6 times to remove excess liquid.

CONJUGATE-1 INCUBATION STAGE

10. Add 2ml of CONJUGATE-1 to each channel with a device and rock the tray several times to mix and insure that the membrane is fully covered.
11. Incubate at room temperature for **20 MINUTES.**

WASH STAGE

12. After 20 minutes, pick up the tray and rest it against the palm of your hand with your thumb gently crossing over the top of the device carriers. Invert the tray and dump (the carrier will hold the device in place). Wash the strip by directing the stream of the working dilution of the Specimen Diluent/Wash Buffer directly along the strip and completely fill each channel to the top. Dump again.
13. Repeat the above step four more times for a total of **5 WASHES.**
14. After the last wash, shake the tray 5-6 times to remove excess liquid.

CONJUGATE-2 INCUBATION STAGE

15. Add 2ml of CONJUGATE-2 to each channel with a device and rock the tray several times to mix and insure that the membrane is fully covered.
16. Incubate at room temperature for **10 MINUTES.**

WASH STAGE

17. After 10 minutes, pick up the tray and rest it against the palm of your hand with your thumb gently crossing over the top of the device carriers. Invert the tray and dump (the carrier will hold the device in place). Wash the strip by directing the stream of the working dilution of the Specimen Diluent/Wash Buffer directly along the strip and completely fill each channel to the top. Dump again.
18. Repeat the above step four more times for a total of **5 WASHES.**
19. After the last wash, shake the tray 5-6 times to remove excess liquid.

CHROMOGEN STAGE

20. Add 2ml of CHROMOGEN to each channel with a device and rock the tray several times to mix and insure that the membrane is fully covered.
21. Incubate at room temperature for **5 MINUTES.**

STOP STAGE / DRYING STAGE

22. After 5 minutes, pick up the tray and rest it against the palm of your hand with your thumb gently crossing over the top of the device carriers. Invert the tray and dump (the carrier will hold the device in place). Wash the strip by directing the stream of the working dilution of the Specimen Diluent/Wash Buffer directly along the strip and completely fill each channel to the top. Repeat one more time for a total of 2 washes.
23. Remove the device from the tray and place on a paper towel to dry for at least 30 minutes. The strips should read within 48 hours after the start of the drying period. Any purple color present on the specific spot is indicative of antibody present to that antigen and further testing is suggested.



Multi-Species EIA Serology Assays

BTP-96200 QnE Hyaluronic Acid (HA) Quantitative ELISA assay

Mouse ELISA Serology Assays

SMART-M10	MVM, Minute Virus of Mice
SMART-M11	Sendai Virus
SMART-M12	PVM, Pneumonia Virus of Mice
SMART-M13	REO-3, REO Virus Type 3
SMART-M14	TMEV (GDVII), Theiler's Murine Encephalomyelitis Virus
SMART-M15	LCM, Lymphocytic Choriomeningitis Virus
SMART-M16	Ectromelia Virus
SMART-M17	MHV, Mouse Hepatitis Virus
SMART-M18	Polyoma Virus
SMART-M19	EDIM, Epizootic Diarrhea of Infant Mice, (Mouse Rotavirus)
SMART-M23	K, Mouse Pneumonitis Virus
SMART-M24	MCMV, Mouse Cytomegalovirus
SMART-M25	MAD 1, Murine Adenovirus FL
SMART-M26	MAD 2, Murine Adenovirus K87
SMART-M27	MPUL, Mycoplasma pulmonis
SMART-M28	MPV (rVP2), Mouse Parvovirus
SMART-M30	CARB, Cilia-Associated Respiratory Bacillus
SMART-M31	ECUN, <i>Encephalitozoon cuniculi</i>
SMART-M32	CPIL, Tyzzer's Disease (<i>Clostridium piliforme</i>)
SMART-M33	Hantaan Virus
SMART-M35	Murine Norovirus



Rat ELISA Serology Assays

SMART-R11	Sendai Virus
SMART-R12	PVM, Pneumonia Virus of Mice
SMART-R13	REO-3, REO Virus Type 3
SMART-R14	TMEV (GDVII), Theiler's Murine Encephalomyelitis Virus
SMART-R15	LCM, Lymphocytic Choriomeningitis Virus
SMART-R20	SDAV/RCV, Rat Coronavirus/Sialodacroadenitis Virus
SMART-R21	KRV, Kilham Rat Virus
SMART-R22	HI, Toolan's Virus
SMART-R25	MAD-1,2, Murine Adenovirus FL/K87
SMART-R27	MPUL, Mycoplasma pulmonis
SMART-R29	RPV (rVP2) Rat Parvovirus
SMART-R30	CARB, Cilia-Associated Respiratory Bacillus
SMART-R31	ECUN, <i>Encephalitozoon cuniculi</i>
SMART-R32	CPIL, Tyzzer's Disease (<i>Clostridium piliforme</i>)
SMART-R33	Hantaan Virus



Non-Human Primate ELISA Serology Assays

4810	Herpes B-Virus
4811	Simian Immunodeficiency Virus (SIV)
4812	Simian Retrovirus (SRV)
4813	Simian T-Lymphotropic Virus (STLV)
4814	Simian Measles Virus

Multiple Analyte SPOT Serology Assays

MOUSE: SMART-SPT9M

Simultaneous & discrete detection of antibodies to EDIM; Mouse Hepatitis Virus; Mycoplasma pulmonis; Mouse Parvovirus, Minute Virus of Mouse; Pneumonia Virus of Mice; REO-3; Sendai, and TMEV (GD7) in mouse serum

MOUSE: SMART-SPT6EM

Simultaneous & discrete detection of antibodies to *Clostridium piliforme*; Ectromelia Virus; LCM; Hantaan Virus; Mouse Adenovirus FL/K87; Mouse Cytomegalovirus in mouse serum

RAT: SMART-SPT8R

Simultaneous & discrete detection of antibodies to KRV; Mycoplasma pulmonis; Pneumonia Virus of Mice; SDAV/RCV; REO-3; Rat Parvovirus; Sendai, and TMEV (GD7) in rat serum.

NON-HUMAN PRIMATE SIMIAN-SPT5S

Simultaneous & discrete detection of antibodies to Herpes B-Virus; SIV; STLV; SRV; and Measles in non-human primate serum.