

KSVDL RABIES LABORATORY

RABIES SEROLOGY FOR VACCINE TITER RESPONSE

- Specimen Requirements:** *Collect serum in a red top tube or gel separator tube.*
***Cerebral Spinal Fluid (CSF) testing is also available. Please call for details.
- Reference Range:** In humans, a titer of 1:5 or greater is considered acceptable. ¹ (MMWR, 48:1-22, 1999)
Please note there is not an established "protective" titer in animals. Individual interpretation is the responsibility of the submitting veterinarian.
- Volume of sample:** 2 mls of serum, minimum amount 500 microliters of serum
- Which Test to request:**
- Screen (Humans Only):** Qualitative results. For those who want to know if they need a booster of rabies vaccine.
Cost: \$30.00 (1-9 samples); \$25.00 (10+ samples).
- Endpoint (Humans or Animals):** Quantitative results. For those who want to know their exact titer.
Cost: Humans and animals not for export: \$35.00 (1-9 samples), \$30.00 (10+samples);
- Laboratory Schedule:** Tests are initiated at 8:00 am on Mondays (must receive sample by 5:00 pm Friday) and Thursdays (must receive sample by 5:00 pm Wednesday).
- Routine turnaround:** Results will be mailed within 7-10 days of the set up date. Results will be faxed or phoned upon request. Any additional faxes will incur an additional \$5.00 charge.
- Shipping Information:** Serum should be removed from the clot and packed in a leak proof container with absorbent material. This package should be placed inside of a second container with gel packs or dry ice. Overnight service is recommended. Shipping charges are the responsibility of the shipper.
- Payment:** Individuals responsible for payment; should include a check, money order, or credit card form.
- Send Samples to:** Kansas State Veterinary Diagnostic Laboratory
Mosier Hall O-245
1800 Denison Avenue
Manhattan KS 66506-5601
- Rejection Criteria:** Gross hemolysis (serum is dark red in color)
Gross lipemia (serum is milky in appearance)
Not a serum sample (i.e., plasma)
QNS (quantity not sufficient)
Bacterial contamination
Tube unlabeled
- Specimen Labeling Instructions:** ALL specimen tubes must be labeled with the Patient's Name/identification number. Specimens not properly labeled are not accepted by the laboratory. All samples must have an accompanying KSVDL Rabies Serology for Vaccine Titer Response submission form. If these requirements are not met the test may be cancelled or delayed.

Laboratories Licenses:

CLIA	17D0648239	Florida	L800005564
New York	817020A0	California	17D0648239
Pennsylvania	028519	AAVLD	

Quality Assurance Letter is available upon request.

CPT code: 86382

If you have additional questions, please call the Rabies Lab at (785) 532-4483 or email rabies@vet.k-state.edu
Forms and information are also available on the web at <http://www.vet.k-state.edu/rabies>.



RABIES SEROLOGY FOR VACCINE TITER RESPONSE
FOR HUMAN SPECIMENS ONLY
KANSAS STATE VETERINARY DIAGNOSTIC LABORATORY
 Mosier O-245, 1800 Denison Avenue, Manhattan, KS 66506-5601
 Phone (785) 532-4483; Fax (785) 532-4474; Web www.vet.k-state.edu/rabies



Acct # _____ Internal Ref # _____
Doctor or Contact Person _____
 Clinic Name _____
 Address _____
 City _____ State _____ Zip _____ Country _____
 Phone Number _____ Fax Number _____
 Email _____

For KSVDL Rabies Lab Use Only

Lab Number _____

Please provide all requested information. Blanks may delay processing. Please TYPE or complete online and then print. Handwritten information is open to interpretation by this laboratory.

Patient(s) Information

Name / ID#	Test Type (Check One)	Sex	Age	Rabies Vaccination History	Date of Draw	Sample Type (Check One)
	<input type="checkbox"/> Endpoint <input type="checkbox"/> Screen					<input type="checkbox"/> Serum <input type="checkbox"/> CSF
	<input type="checkbox"/> Endpoint <input type="checkbox"/> Screen					<input type="checkbox"/> Serum <input type="checkbox"/> CSF
	<input type="checkbox"/> Endpoint <input type="checkbox"/> Screen					<input type="checkbox"/> Serum <input type="checkbox"/> CSF
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	<input type="checkbox"/> Endpoint <input type="checkbox"/> Screen					<input type="checkbox"/> Serum <input type="checkbox"/> CSF

Signature of Submitter: _____ Date: _____

Results and invoice will be sent to submitter unless otherwise specified.

This form, when filled in, contains patient information that must be protected in accordance with the Health Insurance Portability & Accountability Act

Opened by: _____ **Processed by:** _____ **Computer Entry:** _____ **Reviewed by:** _____

This submission form is a legal binding contract between KSVDL and the submitter. All fees incurred are the responsibility of the submitter.

A 1.5% finance charge will be accessed on all charges over 30 days.

Revised 7/23/2007



Veterinary Diagnostic Laboratory
2005 Research Park Circle
Manhattan, KS 66502
Ph. 785-532-3294 Fax: 785-532-3502
Rabies Payments Fax: 785-532-4474

Credit Card Authorization Form

Securely Attach This Completed Form to Submission Form or Fax to the Business Office
*NOTE - Your card will be processed AFTER the testing is complete UNLESS special handling is required.
Please allow up to 4 weeks*

Today's Date: _____

Clinic Name: _____

Name on card: _____

Address: _____

City: _____ State: _____ Zip: _____

Country: _____

Phone: _____ Fax: _____

Email Address: _____

Please complete as much of the following information as possible.

Account #: _____ Invoice #: _____ Accession #: _____

Animal ID/Microchip #: _____

Description of Charge: _____

CARD TYPE: VISA MC DISC AMEX Amount: \$ _____

Card #: _____

Exp. (MM/YYYY) _____ / _____ CVV Code _____

By signing this form, you authorize this transaction. If your payment is declined, the submitting clinic will be held responsible for the charges.

Cardholder Signature (Required) _____

Receipt? YES NO If yes: FAX MAIL EMAIL

If this is an international charge, please contact your credit card company to preauthorize this charge.

Veterinary Diagnostic Laboratories is an operating division of KDA5, INC.

Rabies Serology – RFFIT testing

What is “the RFFIT”?

RFFIT stands for Rapid Fluorescent Foci Inhibition Test. It is a serum neutralization (inhibition) test, which means it measures the ability of rabies specific antibodies to neutralize rabies virus and prevent the virus from infecting cells. These antibodies are called rabies virus neutralizing antibodies (RVNA). The RFFIT does not measure the amount of rabies specific antibodies but the neutralizing activity of the antibodies present in the serum. In the test, your serum (the non-cellular portion of your blood) is first diluted fivefold (1 part serum in 4 parts diluent). Further dilutions are performed, each of which contain less and less of your serum. These serum dilutions are mixed with a standard amount of live rabies virus and incubated. Whatever RVNA is present will neutralize the virus. Next, some tissue culture cells are added and the serum/virus/cells are incubated together. Whatever rabies virus is left (i.e., that which has not been neutralized by the antibody in your serum), will infect the cells and this can be seen under the microscope through the use of specific staining. Calculation of the endpoint titer is made from the percent of virus infected cells observed on the slide.

What does your titer tell you?

The RFFIT test can be used in two ways: to determine a RVNA titer (e.g., 1:5) or to determine a value for RVNA concentration (e.g., 0.5 IU). The IU stands for international unit and is calculated from the titer by comparing it against a standard reference serum. If you do not have RVNA present in your serum it will not neutralize the virus and the titer will be LESS THAN 1:5 (the 1:5 diluted serum did not prevent the virus from infecting the cells). RVNA antibody will neutralize rabies virus to an “endpoint titer” – to a specific dilution where the virus is neutralized. For example, if you have a little RVNA in your serum low dilutions (e.g. 1:5 or 1:25) will neutralize the virus, but higher dilutions will not. In contrast, if you have a lot of antibody in your serum the virus will be neutralized by high dilutions of your serum (e.g. 1:1000 or 1:7000) and not infect the cells. Therefore the further your serum can be diluted and still neutralize virus, the more RVNA you have in your serum. Current ACIP regulations recommend evidence of complete neutralization at serum dilution of 1:5 is considered an adequate response to rabies vaccination (1). If your serum diluted to 1:5 cannot neutralize virus a booster dose may be recommended (for people determined to be at risk of rabies virus exposure - see ACIP recommendations). In summary, the bigger the denominator in the reported titer, the more antibody in your blood (e.g., a titer of 1:125 has more antibody than a titer of 1:5 because it still neutralized at a much higher dilution) and a reported RVNA titer of greater than 1:5 is considered adequate.

REFERENCES

1. Centers for Disease Control and Prevention: Recommendations of the Advisory Committee on Immunization Practices (ACIP). 57: 1-36. 2008. United States. Morbidity and Mortality Weekly Report.