

Rabies IgG Antibody Detection by ELISA

FOR ASSESSMENT OF RABIES VACCINE EFFICACY

Test Highlights

Used to detect IgG antibodies against rabies virus glycoprotein and to evaluate vaccination/immunization status.

Clinical Background

- Rabies is a well-known viral infection that produces consistently fatal encephalitis in most mammals. Humans typically contract the disease when bitten by infected domestic or wild animals.
- The medical and economic impact of exposure to the rabies virus is significant, with approximately 4 million people receiving post-exposure treatment annually.
- Pre-exposure prophylaxis is limited to people at a reasonably high risk of exposure to rabies, such as veterinarians, laboratory workers who work with rabies virus, and people who plan to visit countries with a high prevalence of rabies and access to health care is limited. In addition, persons whose activities require frequent contact with bats, raccoons, skunks, cats, dogs, or other potentially infected species may also be justified in receiving prophylactic treatment.

Epidemiology

Rabies is currently found in 99 nations worldwide. Dogs account for 54 percent of animal rabies, terrestrial wildlife 42 percent, and bats 4 percent. Recently, bats have increasingly become a significant source of human rabies infection.

Indications for Ordering

- This test should be ordered to assess the degree of immunization following vaccination.
- Individuals who have continuous exposure to high-risk environments should have a serum sample tested for rabies antibodies every six months. Individuals who maintain frequent exposure to high-risk environments should have a serum sample tested every two years.

Interpretation

- A positive result represents protective levels of antibodies following vaccination.
- A sufficient antibody response to represent protection is generally considered to be complete neutralization at a titer of 1:5 by RFFIT (rapid fluorescent focus inhibition test) or 0.5 IU/mL concentration suggested by the WHO.

Limitations

- This test has been validated for serum samples only; no other sample types may be used.
- This assay is not used to determine current exposure to the rabies virus.

Methodology

- The rabies IgG antibody detection follows the standard ELISA format.
- Specificity and sensitivity were determined to be 97 percent and 88 percent, respectively.

References

1. Mandell G, Bennett J, Dolin R, eds. Principles and Practice of Infectious Diseases. Fifth ed. New York: Churchill Livingstone; 2000.
2. Centers for Disease Control and Prevention. Compendium of Animal Rabies Prevention and Control, 2006: National Association of State Public Health Veterinarians, Inc. MMWR 2006; 55(No. RR-5):[1-6].
3. Centers for Disease Control and Prevention. Human Rabies Prevention-United States, 1999 Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1999; 48(No. RR-1):1-21.
4. Package Insert for Platelia™ Rabies II Kit. Bio-Rad, 2006.

Test Information

0099132 Rabies Antibody, IgG (Vaccine Response)

For specific collection, transport, and testing information, refer to the ARUP Web site at www.aruplab.com.

For information on test selection, ordering, and interpretation, refer to ARUP Consult® at www.arupconsult.com.