Rubella & Variclla-Zoster Antibodies in Serum- These EIA tests have been developed by the staff of the Immunoserology Unit of the California State Department of Health Services (CSDHS) Viral and Rickettsial Disease Laboratory (VRDL). The procedures described below are the standardized protocols of the VRDL's in-house EIA tests for serodiagnosis of rubella and varicella-zoster viral infections (1-4).

In the indirect EIA, a suitable antigen material (i.e., solubilized varicella-zoster virus) is coated on the wells of a 96-well microtiter plate which is subsequently incubated with a diluted test specimen. If the specimen contains antibody to the antigen, the antibody will form complexes with the antigen on the coated plate. After unreacted serum components are washed from the plate, an antibody-enzyme conjugate is added to the wells and incubated. The conjugate consists of antihuman IgG covalently coupled to the enzyme alkaline phosphatase. The conjugate will react with the antigen-antibody complex on the surface of the well resulting in a sandwich of well-antigen-antibody-antibody-enzyme. If the test specimen does not contain IgG antibody to the antigen, the conjugate will not bind to the well surface and will be removed by washing. The presence of enzyme in the complex is determined by adding an enzyme substrate (indicator system) to the well and incubating the sample while a color reaction occurs. The enzyme substrate reaction will result in a yellow-colored product, which is measured in a spectrophotometer adjusted to a wavelength of 405 nm with a side band adjusted to 630 nm.

The level of antibody providing resistance to infection with the rubella virus has been established using hemagglutination inhibition (HAI or HI) procedures. A publication from the Centers for Disease Control and Prevention states that "any level of detectable antibody should be considered presumptive evidence of immunity" (5). Field evaluations have shown that the results from the VRDL EIA test for rubella are equivalent to HAI results in determinations of immune status.

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