

as chancres or condylomata lata, but these tests are rarely available outside of research laboratories. Sensitive and specific PCR tests have been developed but are not commercially available, although a number of laboratories perform in-house validated PCR testing. The recent advances in cultivation of *T. pallidum* in a tissue culture system have not yet been implemented in clinical laboratories.

T. pallidum can be found in tissue by immunofluorescence or immunohistochemical methods using specific monoclonal or polyclonal antibodies to *T. pallidum*. Silver stains should be interpreted with caution because artifacts resembling *T. pallidum* are often seen. *T. pallidum* DNA has been detected by PCR in lesion swabs, tissue samples, blood, CSF, ocular fluid, urine, and oropharyngeal swabs.

■ SEROLOGIC TESTS FOR SYPHILIS

Treponemal and Lipoidal Tests There are two types of serologic tests for syphilis: lipoidal (so-called nontreponemal) and treponemal. Both are reactive in persons with any treponemal infection, including syphilis, yaws, pinta, and endemic syphilis.

The most widely used lipoidal antibody tests are the RPR and VDRL tests, which measure IgG and IgM directed against a cardiolipin-lecithin-cholesterol antigen complex. The RPR test is easier to perform and uses unheated serum or plasma; it is the test of choice for rapid serologic diagnosis in a clinical setting. The VDRL test remains the standard for examining CSF and is superior to the RPR for this purpose. Either test is recommended for screening and for quantitation of serum antibody. The titer reflects disease activity, rising during early syphilis, often exceeding 1:32 in secondary syphilis, and declining slowly thereafter without therapy. After treatment for early syphilis, a persistent fall by fourfold or more (e.g., a decline from 1:32 to 1:8) is considered an adequate response. VDRL titers do not correspond directly to RPR titers, and sequential quantitative testing (as for response to therapy) must employ a single test. A reactive VDRL/RPR screening test must be confirmed by a treponemal test to rule out a biological false-positive reaction.

Treponemal tests measure antibodies to native or recombinant *T. pallidum* antigens and include the fluorescent treponemal antibody–