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Abstract (paper available with 61 citations)

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Objective: To assess whether the culture technique recently developed to isolate *Borrelia burgdorferi* from patients with chronic lyme disease would improve the sensitivity of the diagnosis of syphilis, especially in HIV infected individuals at high risk for re-exposure to *Treponema pallidum*.

Methods: A review of the historical literature on cell-wall deficient forms of various spirochetes, especially *T. pallidum*, was undertaken in an attempt to trace parallels between the apparent insensitivity of serologic and gene amplification techniques used in lyme and what may be a similar insensitivity in syphilis diagnosis.

Results: The sensitivity of non-treponemal tests in the diagnosis of syphilis has historically been questioned. Many pre-1970 authors repeatedly stated that latent syphilis was most likely maintained in part by a spirochetal life cycle distinct from the easily demonstrated binary fission of *T. pallidum*. This research was abandoned in light of the efficacy of penicillin. The culture of *B. burgdorferi* from treated lyme patients, however, suggests the existence of sero-negative chronic lyme disease, and re-opens the old question of a life cycle for *T. pallidum*.

Conclusion: Syphilis and HIV may interact at levels that cannot be presently measured with standard syphilis serology, especially non-treponemal tests. If serology and direct detection by gene amplification are as insensitive for latent syphilis as they seem to be for late lyme, then it may be useful for syphilis researchers to attempt to parallel the *B. burgdorferi* culture technique with the venereal treponematoses (keeping in mind that *T. pallidum* loses virulence quickly in culture), in order to establish a new gold standard in this field as well.