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Seronegative yet Infected Individuals: the Scope of the Phenomenon in Different Populations is a Key Factor in Epidemiology and Vaccine Trials

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The phenomenon of HIV seronegative yet infected individuals affects many aspects of the HIV epidemics, from diagnosis to epidemiology, from vaccine development and testing to prevention programs. There are different methods attempting to quantify this phenomenon, such as detection of the virus itself before the antibodies appear in the blood, and detection of HIV specific lymphocytes which have been primed in-vivo.

We have conducted experiments detecting the HIV specific primed immune cells by activating them in-vitro towards antibody production. The antibodies produced were detected by the regular HIV antibody kits. Blood samples, unlinked, which were sent for HIV antibody test had 1ml of blood taken for incubation, in stimulating culture conditions, prior to re-testing on the same diagnostic kits as the plasma. Pre-treating the samples from several different high risk populations revealed that the populations differ in the proportion of seronegative yet infected individuals, ranging from 0.5%-35% of the total HIV positive samples. The ELISA positive samples were confirmed on second ELISA and on Western-Blot. Virus was detected in varying proportions of the antibody positive samples, using very sensitive PCR.

The ratio of HIV seropositive among those infected could be an important factor for both clinical trials and for epidemiological data. When choosing a cohort for a vaccine trial or for an evaluation of a prevention program, those earlier infections are critical. Epidemiologically, since this ratio is a factor of both the incidence rate and the length of the window period, it could offer important additional information on the current, true, state of the infection and its spread.