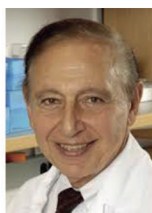




The winds of change in HIV studies



interview with HIV research pioneer Dr Bob Gallo

The work of Dr Bob Gallo is known to all scientists within the field of infectious disease. Instrumental in proving that HIV was the cause of AIDS and the development of the HIV blood test, Dr Gallo and his colleagues also discovered interleukin-2 (IL-2) in 1976. IL-2 was one of the first cytokines ("messenger" molecules that allow cells to communicate and alter one another's function) and proved to be a major tool not only for immunology but also for the discovery of all human retroviruses.

Dr Gallo and his colleagues then opened and pioneered the field of human retrovirology with the discovery of the first human retrovirus (HTLV-1) and along with Japanese investigators showed it was a cause of a particular form of human leukemia. A year later he and his group discovered the second known human retrovirus (HTLV-2).

In 1986 he and his co-workers discovered human herpes virus-6 (HHV-6), the first new herpes virus found in more than 25 years and the cause of Roseola. In 1995 he and his colleagues discovered the first endogenous inhibitors of HIV, namely some of the beta chemokines. This discovery helped in the later discovery of the HIV co-receptor, CCR5, and opened up entire new approaches to treatment of HIV disease.

We are delighted to feature him as a committee member of the HIV Persistence Workshop and his contribution to the program is invaluable.

One of the most cited scientists in the world, Dr Gallo recently shared his observations on HIV and future perspectives for the disease.

Clearly, among the urgent issues facing the HIV medical community is eradicating the disease. For Dr Gallo, the question is two-fold. "Ironically, I do believe we can eradicate the virus from the planet, but I do not think one can fully eradicate the virus from an already infected individual," he said.

Dr Gallo believes that the only true test of a fully cured person would be conducted a post-mortem examination, in view of the evidence that many monkey models who had no remaining virus while alive showed viral sequences in some lymph node tissues on the autopsy table.

"We can also question the logic of making this a monumental pursuit at the expense of some other areas that might be more pressing and more practical, like reaching out to communities at high risk by testing and earlier treatment," he said.

It is this kind of action that Dr Gallo thinks is key to wiping out the disease altogether. "I do believe the HIV epidemic can be ended and ultimately eradicated by lowering the virus substantially in the bulk of currently infected people so that the epidemic cannot be sustained," he said.

Notwithstanding, a functional cure is also a realistic goal, provided research pays close attention to long-acting, safe, non-toxic drugs. "Some of the new integrase inhibitors may fit that requirement," he said. "Perhaps these integrase inhibitors coupled with some of the more powerful broad neutralizing monoclonal antibodies might make a serious difference. My concern about the use of the monoclonal neutralizing antibodies is their longevity. They may not last very long and this may alter dynamics of the antibody virus interactions as the monoclonals are needed to be used again and again over a period of time."

Yet, he does believe that we could reach a situation where we would have safe, long-lasting therapies that allow people to withdraw from drug therapy.

A preventive vaccine may not be so far off in the future either, as Dr Gallo explained in his recently co-authored article (with George Lewis and Tony DeVico) in US Proceedings of the National Academy of Sciences. "Our thinking is that we must target the gp120 component of the HIV envelope, and since it is hyper-variable we have to target conserved regions which are hard to get at," he said.

Other research from Dr Morgane Bomsel, who targeted gp41 and Jean Marie Andrieu, who, with collaborators in China, tested inducing tolerance to the virus in macaques, is of interest in the search for a vaccine. Dr Gallo sees Dr Andrieu's research, in particular, as a unique pathway, hitherto viewed as controversial but now the subject of independent studies by Dr Guido Silvestri and colleagues at Emory.

"The answer as to whether this approach is confirmed should be available very shortly, within the next few months," he said. "If this is confirmed it will also change the direction of the field substantially. I cannot predict either way."