Dr. Robert Gallo

"Paths to the Discoveries of Human Retroviruses and Some Challenges for the Future"
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Some prevailing views of the mid to late1970s were that serious epidemics in the industrial world were only past concerns, that viruses played no role in human cancer, and that human retroviruses did not exist. By the early 1980s, these "pious" presumptions were, of course, shattered by results indicating that 15-20% of all human cancers involve a virus; that human retroviruses exist and cause several forms of disease including cancer, neurological disease, and immunodeficiencies; and by the emergence of AIDS, one of the most threatening pandemics in medical history. The paths to finding human retroviruses were hilly with several peaks of advances and an equal number of valleys.

Lessons from veterinary studies, discoveries of retroviruses in non-human primates, evidence for multiple interspecies transmission of retroviruses (including a contemporary incidence), and the development of sensitive and specific assays for funding retroviruses (especially reverse transcriptase) and for culturing and growing human blood cells (especially by use of IL-2) were among the key factors that influenced us to persist in the search for human retroviruses and ultimately leading to success. Though progress in the science of human retrovirology (and in particular in AIDS) has been spectacular until recently, major practical advances were limited to the development of diagnostic assays ("the blood tests") that made the blood supply safe from both forms of human retroviruses. By the mid-1990s, chemical anti-HIV combination therapy, targeting HIV enzymes led to major clinical improvement, but unfortunately not to the promised eradication of the virus and cure of AIDS. By 2000 the epidemic had worsened, and the drugs are not quite so phenomenal as toxicity, resistance, cost, and compliance problems multiply with each year of lifelong therapy and with no applications to the Third world. New and more biological approaches are needed for therapy and, of course, a vaccine for prevention. This report will conclude with a presentation of some such approaches and of our vaccine strategy.