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Hepatitis B Immune Globulin and Vaccine Eliminate Perinatal HBV Infection: A Paradigm for Preventing Perinatal Transmission of HIV-1

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Worldwide 400 million people are apparently healthy chronic carriers of HBV; they serve as the reservoir for transmission of HBV infection through placental, sexual, and parenteral routes. Babies born to HBV-infected mothers become chronic carriers and perpetuate the high incidence of HBV infection in Asia and Africa. Hepatitis B immune globulins (HBIg) and HBsAg vaccine when administered within 24 hours after birth, followed by two HBsAg booster vaccinations given within six months, protect more than 90% of the babies born to HBV-infected mothers. They remain protected for more than 25 years against the risk hepatitis and chronic liver disease. WHO recommends universal HBV vaccination. HIV-1 was discovered in 1984 as the cause of fatal AIDS. Earliest in HIV infection the gut-associated lymphoid tissue is destroyed, enabling the virus to invariably establish persistent infection for life. Thirty years of R&D has failed to produce an effective HIV vaccine. Recently, HIV prevention research has shifted to developing HIV-neutralizing antibodies that appear to co-evolve with the virus in a process of affinity maturation. Such antibodies may help reverse-engineer a candidate vaccine for active immunization. TheraBiol is developing a non-infectious immunogen comprising Trimeric Envelope Glycoprotein Subunits (TEGS) of HIV that produces a strong immune response in rabbits. The rabbit antisera neutralize HIV-R5 and HIV-X4 *in vitro* in the PBMC infectivity assay. Eventually, TheraBiol's TEGS immunogen could be a prototype for an HIV vaccine. The success of passive-active immunization against HBV has set a practical paradigm for perinatal prevention of HIV-1 infection.

Biography

Ramani A Aiyer is Executive Vice-President at TheraBiol, Inc., a start-up focused on developing monoclonal antibody therapies for HIV/AIDS. Ramani has a PhD in Biochemistry from Harvard, and MBA from University of California, Berkeley. He has over 20 years' biopharmaceutical industry experience, with major roles in R&D strategic planning, mentoring scientists and leading project teams. Earlier, Ramani was Chief Scientific Officer at Actis Biologics (INDIA), and prior to that Senior Vice President, R&D Strategic Planning at Piramal Life Sciences (INDIA). Ramani's other roles have included management consulting, and senior positions at Genentech, TransMed Biotech, LifeScan/Johnson & Johnson, and Sugen/ Pfizer).

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