

## **HIV/AIDS Research: Challenges and Opportunities**

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Human immunodeficiency virus (HIV) is the causative agent of acquired immunodeficiency disease syndrome (AIDS). It spreads through unprotected sex (intercourse without a condom), transfusions of unscreened blood, contaminated needles (most frequently for injecting drug), and from an infected woman to her child during pregnancy, childbirth or breastfeeding.

By the end of 2007, there were 33.2 million (range 30-36 million) people living with HIV/AIDS worldwide. In 2007 alone, on average 6,850 people became infected with HIV while 5,753 died of AIDS in every single day. Notably, about 40% of new infections were found among youths with ages between 15 and 25. Although highly active antiretroviral therapy (HAART) helps to control disease progression and extend the life span of infected individuals in developed countries, HIV infected people in developing countries including China have not gained similar benefits.

Up to now, there is still no cure or an effective vaccine for AIDS and there are still many unanswered questions on HIV/AIDS. With the recent evidence that HIV-1 has been transmitted from high-risk groups into the general population, mainly through sexual transmission in China (Ministry of Health, China 2007), our nation faces a new challenge to fight HIV/AIDS.

This lecture will give an overview of the HIV biology, current HIV/AIDS pandemic, and the major challenges and opportunities in the world frontier of HIV/AIDS research.