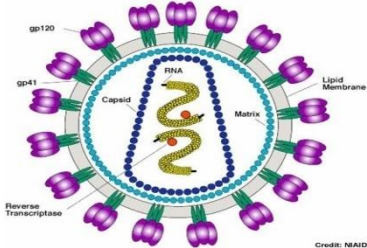
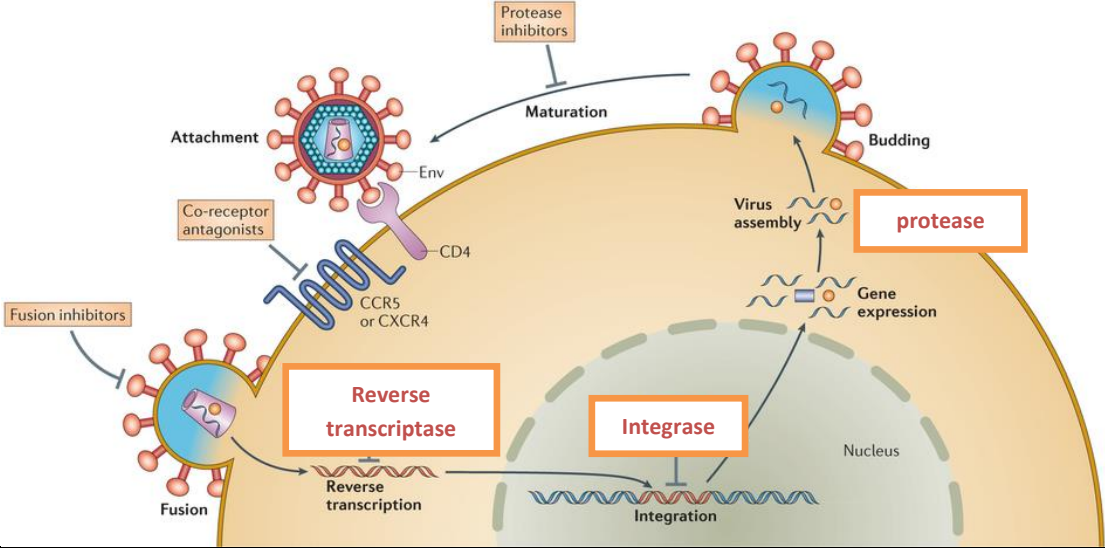


HIV & AIDS

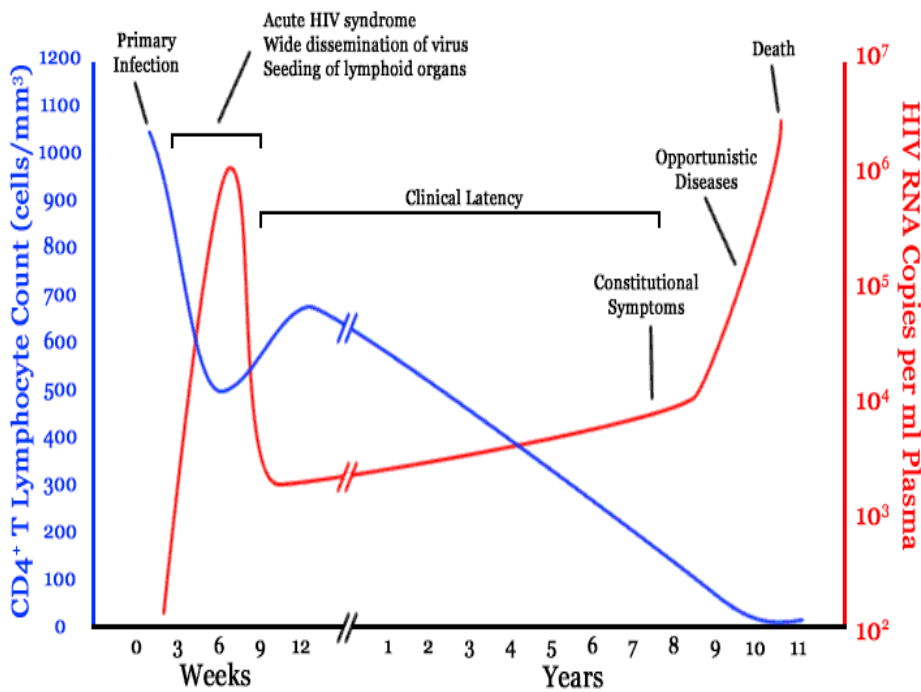
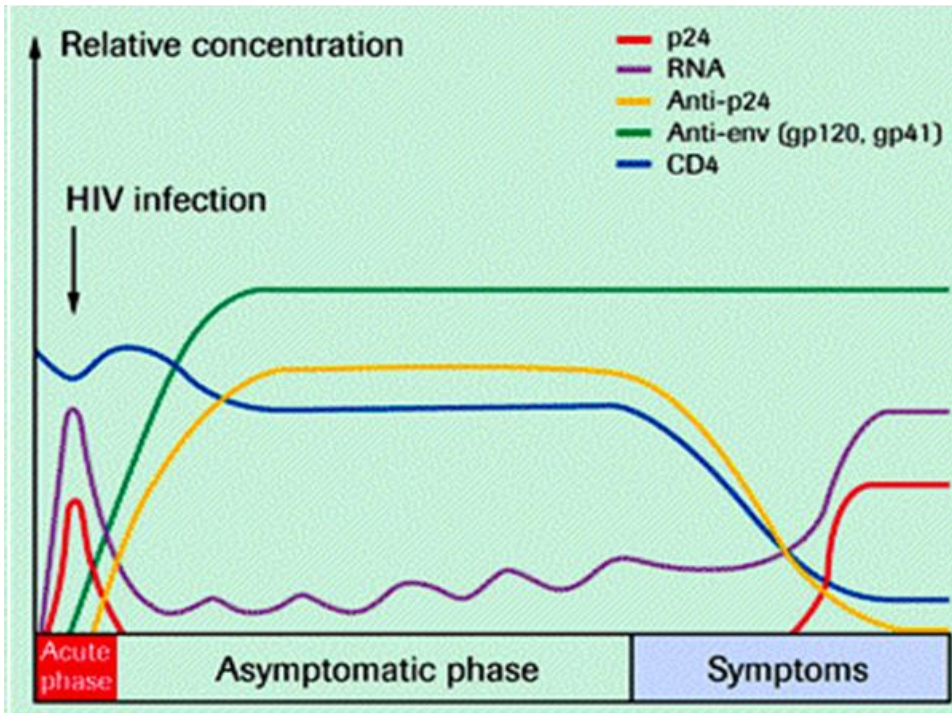
- infect **T-Helper cells [CD4]** , macrophages & monocytes
- Destroy CD4 --> cell mediated immunity loss --> severe immunologic impairment --> **multiple opportunistic infections , unusal cancers and death** [features of AIDS]

HIV [Retroviridae]	
Characteristics	<ul style="list-style-type: none"> • Glycoprotein envelope (gp120 - gp41). • Matrix layer. • Capsid. • Two copies of ssRNA. • Enzymes (reverse transcriptase - integrase - protease). 
Types	<ul style="list-style-type: none"> • HIV-1: <ul style="list-style-type: none"> ○ Causes HIV infection worldwide. ○ Highly virulent. ○ Highly susceptible to mutations. • HIV-2: <ul style="list-style-type: none"> ○ Causes the infection in specific regions e.g. West Africa ○ Relatively less virulent. ○ Relatively less susceptible to mutations.
Life cycle [watch a video]	
Transmission	<p>Sexually:</p> <ul style="list-style-type: none"> • The most common mode is sexual transmission at the genital mucosa through direct contact with infected blood, semen and vaginal secretion. <p>Parenterally:</p> <ul style="list-style-type: none"> • Direct exposure to infected blood and blood products. • Use contaminated needles and syringes as in (drug abuser) and Tattooing. • Through contaminated surgical and dental instruments. • Sharing contaminated razors , tooth brushes, and nail cutters. <p>From mother to child</p> <ul style="list-style-type: none"> • transplacentally (vertical 25%) ,but Treatment of the mother with antiretroviral Anti-reverse transcriptase (Zidovudine) during pregnancy can reduce transmission in most cases. • mainly (50%)during delivery (perinatally) given Anti-reverse transcriptase (Nevirapine) as single dose during delivery can reduce the transmission . • breast feeding transmission (25%) .Antiretroviral treatment of the mother and infant after birth can also significantly decrease the risk of HIV infection in the

Course	<p>1- Acute phase:</p> <ul style="list-style-type: none"> • Incubation period (2-4 weeks) ,this phase Lasts for about 12 weeks. • Rapid viral replication (high viral load RNA in the serum). • Gradual decrease in CD4 cell count. • 25-65% of patients develop symptoms resemble infectious mononucleosis or Flu like syndrome (fever, headache, anorexia, fatigue, lymphadenopathy, & skin rash). • Some of patients may develop aseptic meningitis. • About 13% of the patients will be asymptomatic. <p>2- Chronic phase:</p> <ul style="list-style-type: none"> • Lasts for about 10 yrs in adults,5 years in children. • Low viral load. • CD4 count > 500/ml • Totally asymptomatic but the patients still contagious ,at the end of this stage patients start to develop PGL and ARC: <ul style="list-style-type: none"> • Persistent generalized lymphadenopathy [PGL] : L.N enlargement at least 1cm: <ul style="list-style-type: none"> • In two or more extra inguinal area. • Persists for at least 3 months. • In the absence of any illness or medication known to cause PGL • AIDS - related compls [ARC]: group of symptoms before AIDS: <ul style="list-style-type: none"> • Fever of unknown origin that persists > 1 month. • Chronic diarrhea, persisting > 1 month. • Weight loss(Slim disease) > 10% of the original weight. • Fatigue. • Neurological disease as myelopathies and peripheral neuropathy. <p>3- AIDS:</p> <ul style="list-style-type: none"> • The end stage of the disease. • Continuous viral replication (high viral load viral RNA in the serum). • Marked decrease in CD4 cell count < 200 • Persistent or frequent multiple opportunistic infections e.g Pneumocystis pneumonia and development of unusual cancer (Kaposi sarcoma)
Dx	<ul style="list-style-type: none"> • Patient's history with or without clinical symptoms may give hints for a physician whether the patient has ever exposed to HIV or not. • Screening patient's serum by: <ul style="list-style-type: none"> • ELISA for both (HIV Ag & HIV Ab) if +ve --> repeated twice in duplicate --> if still +ve will do confirmatory tests (Western Blot). • Westere blot:To confirm the presence of Anti -HIV to the structural proteins of the virus by ELECTROPHORESIS • Blood viral load by PCR is also used as <u>confirmatory</u> test and to follow up patients response to treatment + Dx of infants of an HIV mother
Tx	<ul style="list-style-type: none"> • High Active Antiretroviral Therapy (HAART) <ul style="list-style-type: none"> • combined therapy - doesn't clear virus *taken all life* • 2 reverse transcriptase inhibitprs & 1 prtease inhinitor • pts w/ Tx are still contageous even if blood viral load in <50 <p>Goals:</p> <ul style="list-style-type: none"> • To inhibit viral replication. • To control chronic immune activation and keep the immune system close to the normal state. • To prevent the development of opportunistic infection. • To minimize the chance of viral transmission especially from mother to neonate. • Treatment will never eradicate the HIV virus.

Prevention & Control

- **There is no vaccine available yet for HIV**
- Practice safer sex .
- Do not share razors, tooth brushes, etc
- Do not share needles and syringes
- Avoid direct exposure to body fluids
- Educate the public about HIV-infection.



Hanan Mohamed Abdulmonem

Good luck