

Acute HIV Infection

David Spach, MD

Principal Investigator, Mountain West AETC

Professor of Medicine, Division of Infectious Diseases

University of Washington School of Medicine

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Acute (Primary) HIV Infection: Outline

- Transmission
- Clinical Manifestations
- Diagnosis of Acute
- Treatment

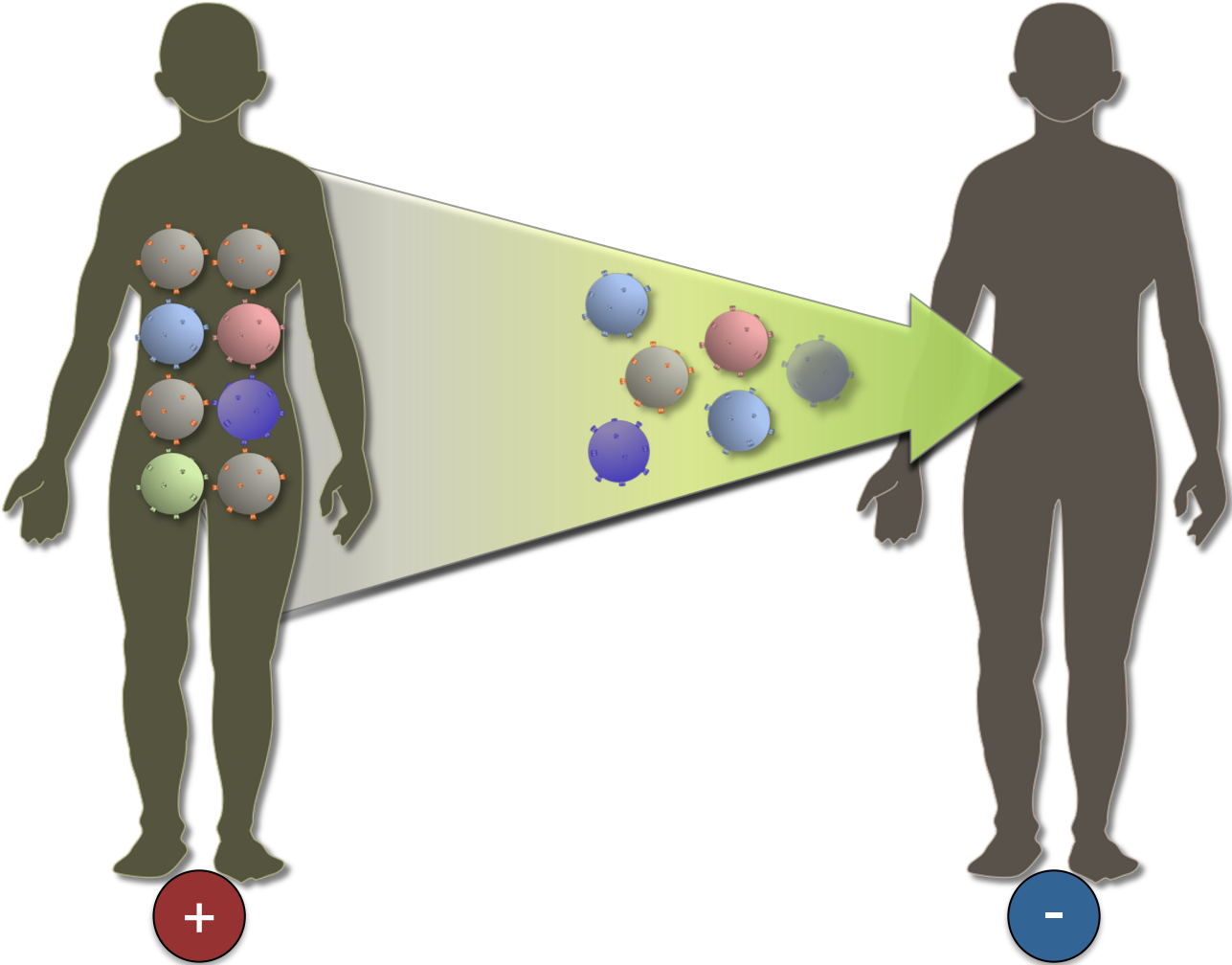
ACUTE (PRIMARY) HIV INFECTION

Basic Transmission Events

Transmission of HIV

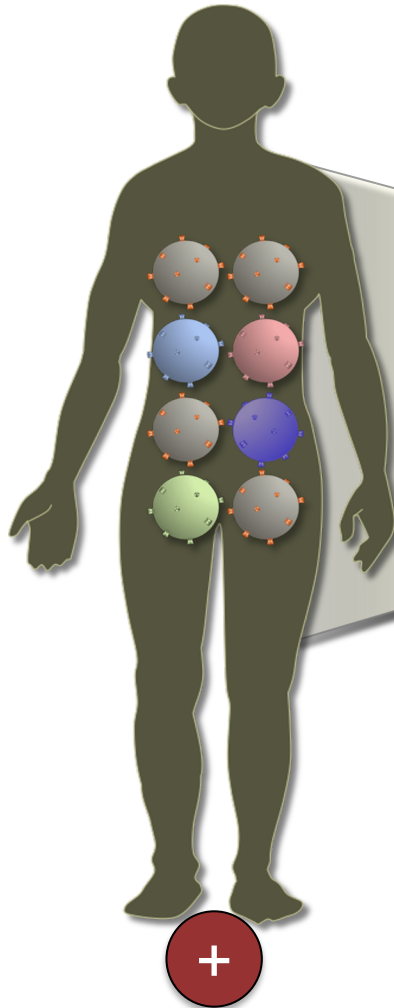
Chronic HIV infection
Quasispecies

HIV-Negative

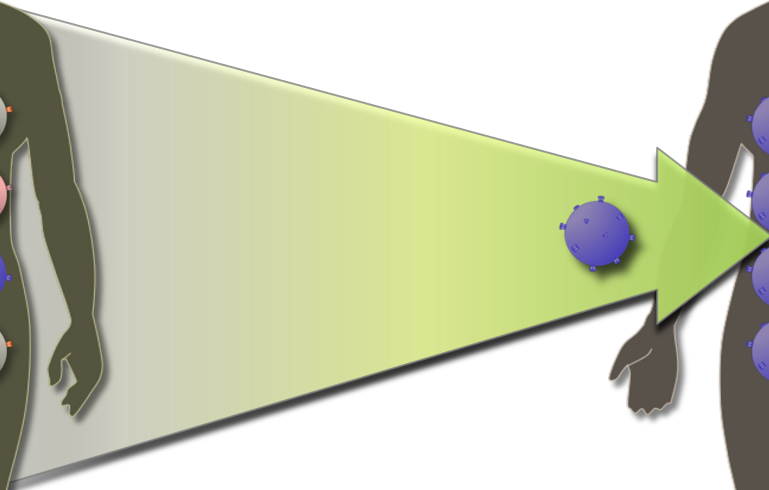
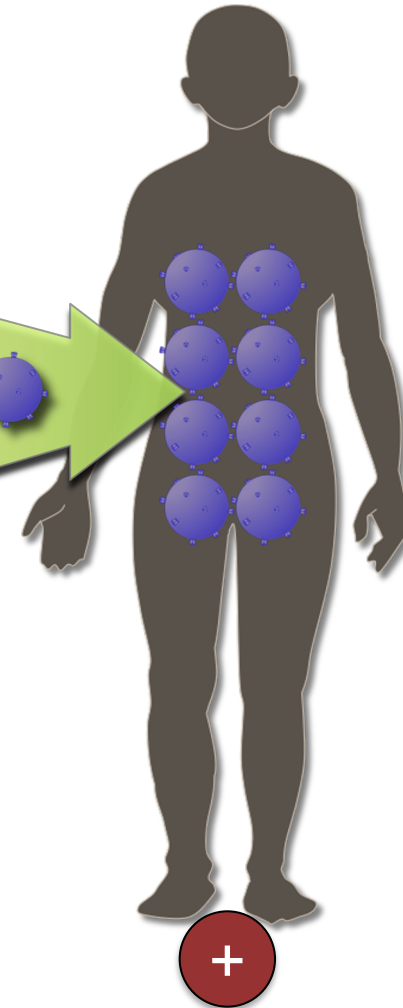


Transmission of HIV: Founder/Transmitter Virus

Chronic HIV infection
Quasispecies

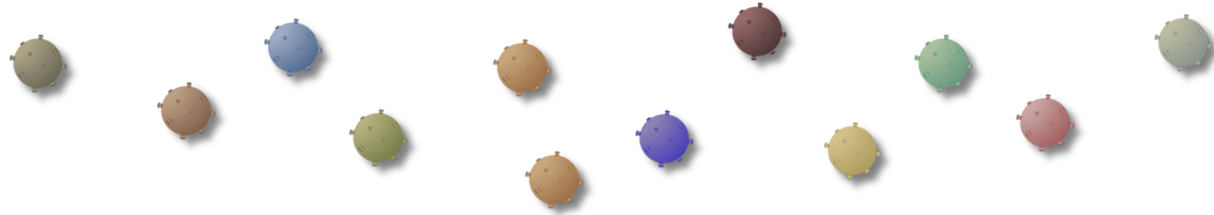


Newly Infected with HIV
Founder/Transmitter Virus



Sexual Transmission of HIV

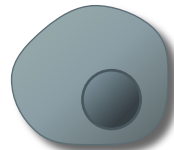
HIV



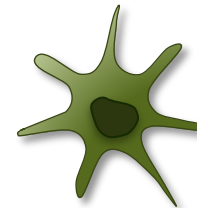
Mucous Layer



Dendritic Cell



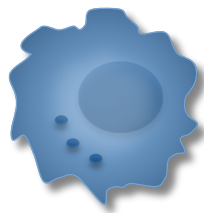
CD4 Cell



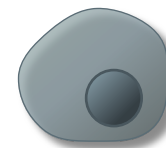
Dendritic Cell



CD4 Cell

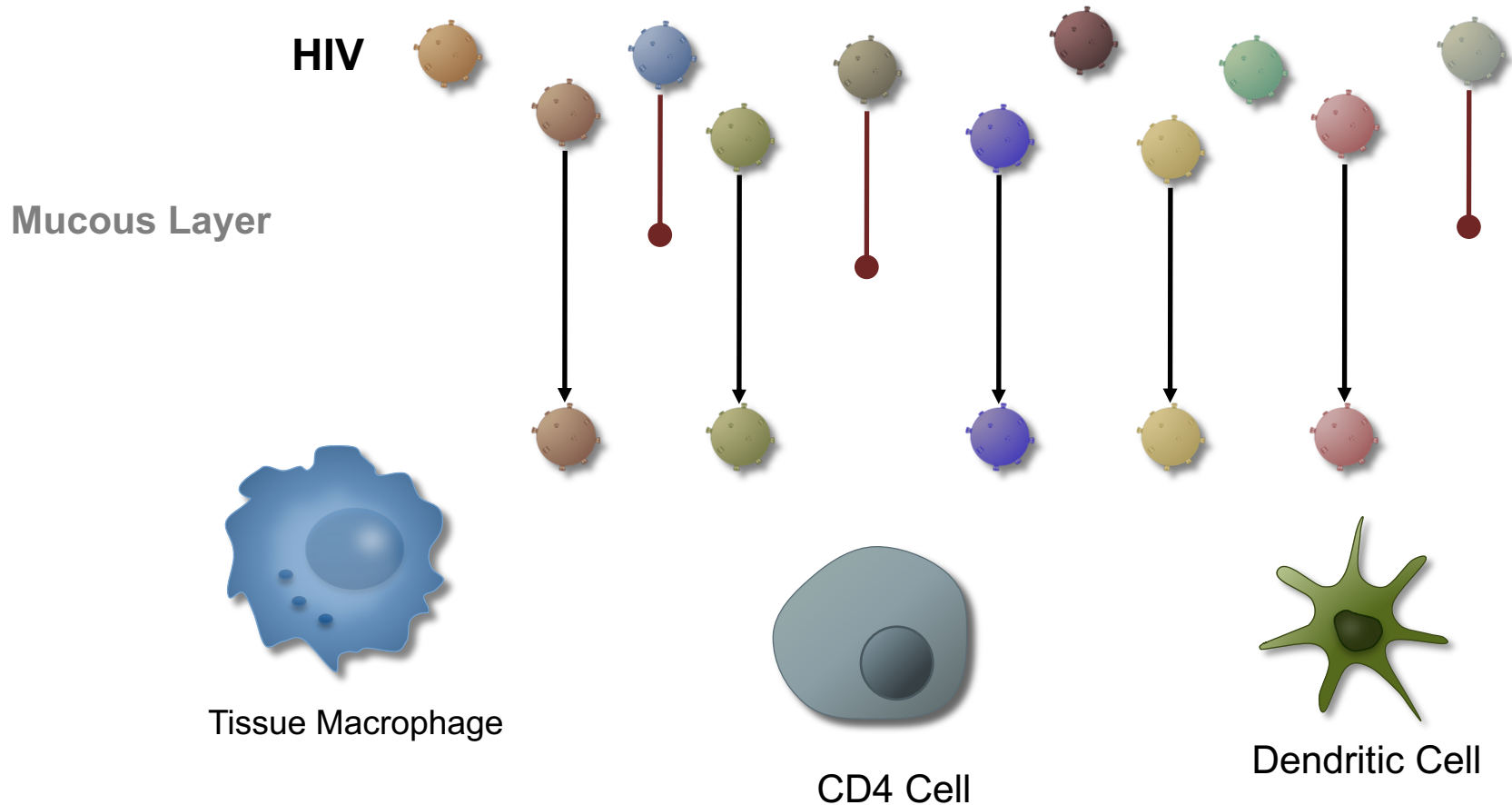


Macrophage

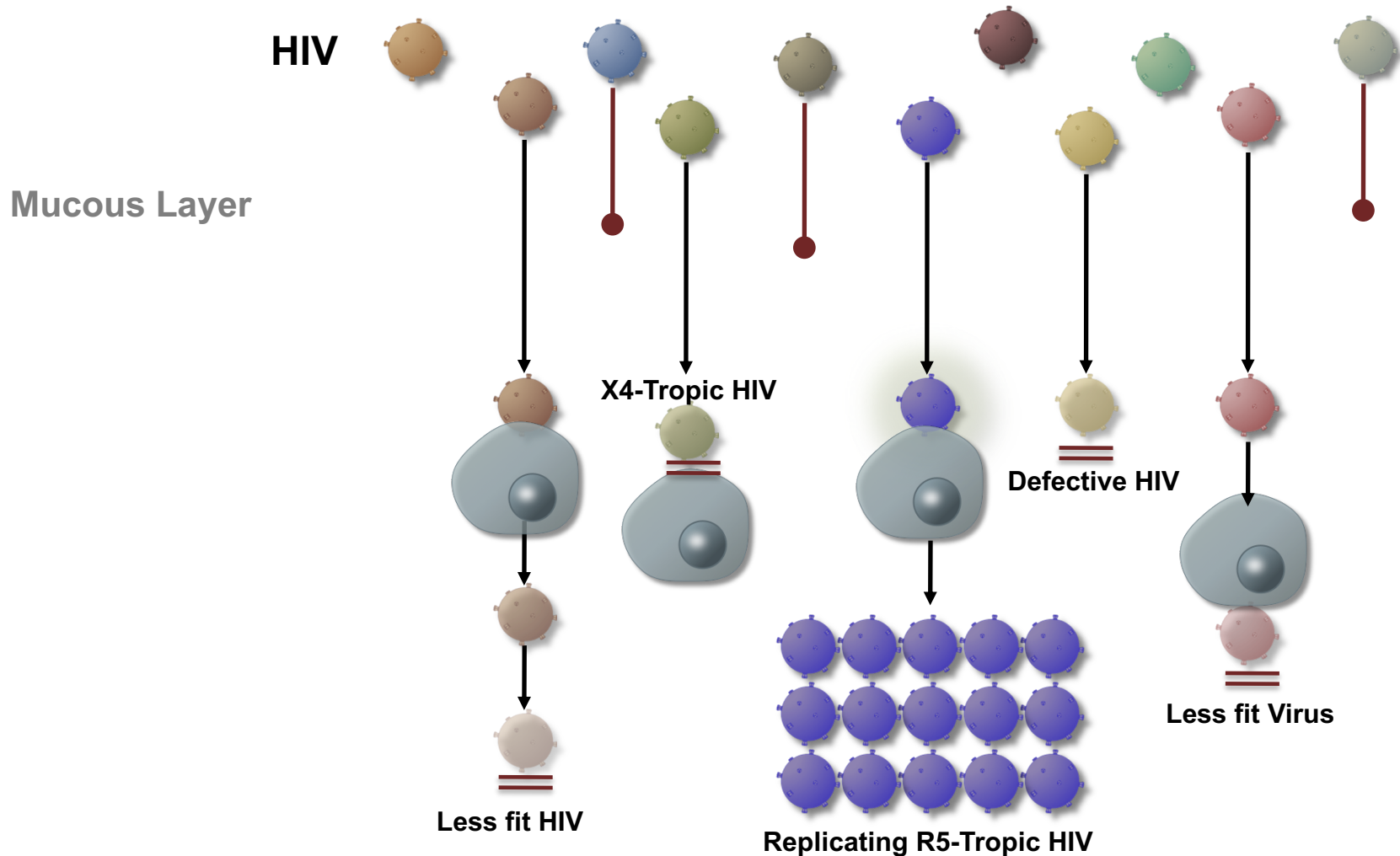


CD4 Cell

Sexual Transmission and Founder/Transmitter HIV

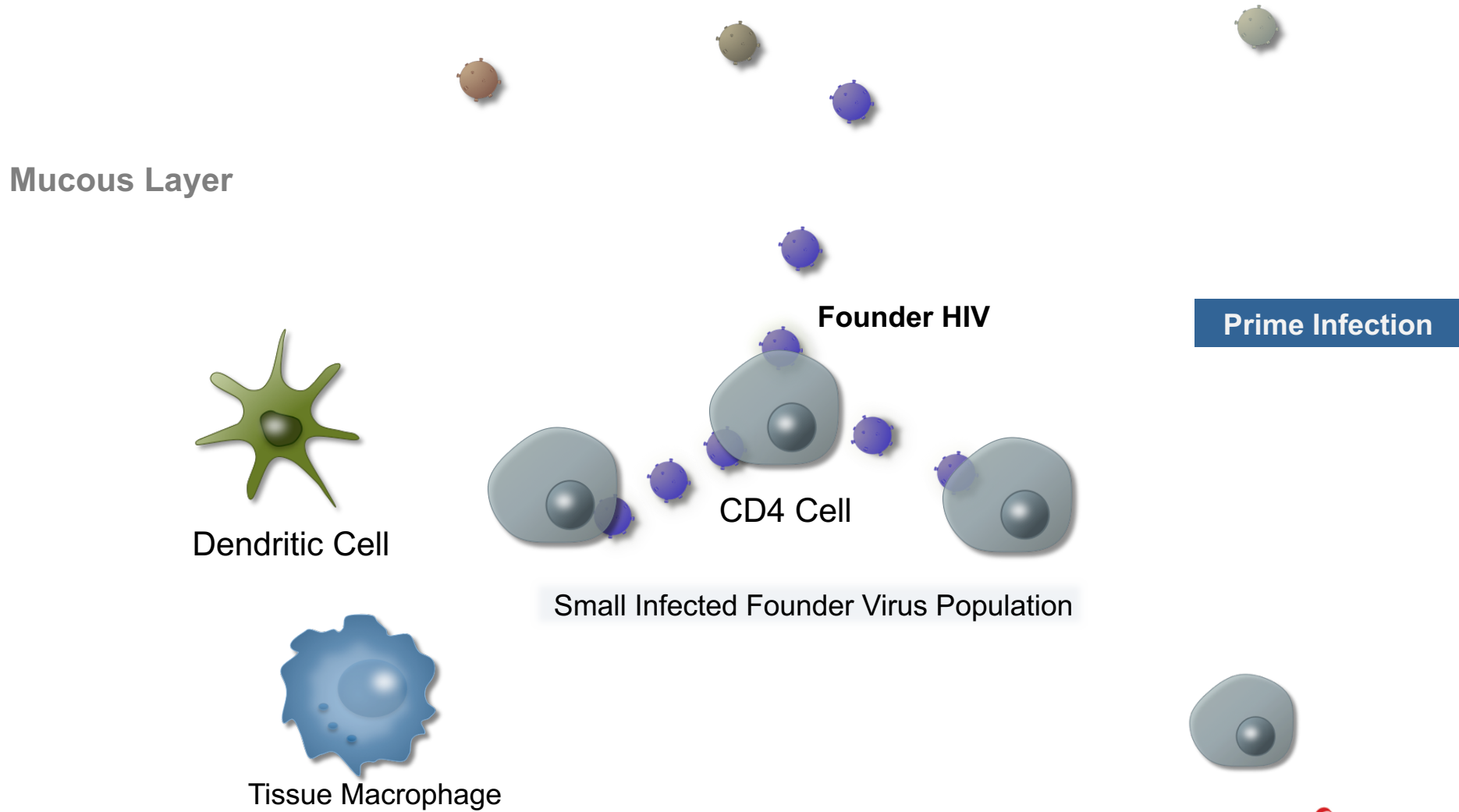


Sexual Transmission and Founder/Transmitter HIV



Sexual Transmission of HIV

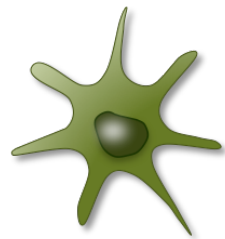
Prime Infection with Founder/Transmitter Virus



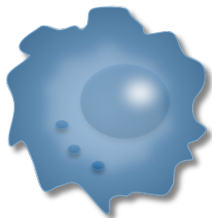
Sexual Transmission of HIV

Local Expansion of Founder/Transmitter Virus

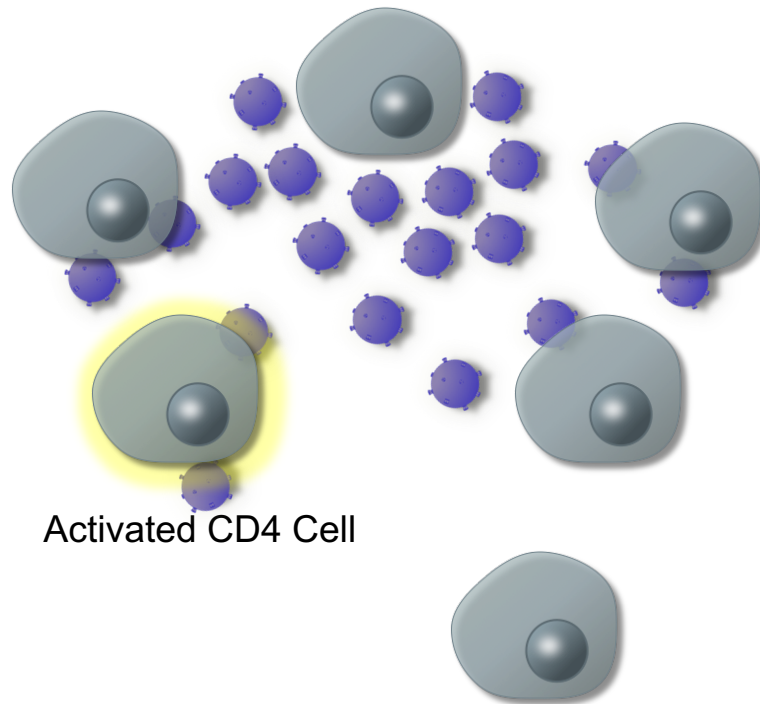
Mucous Layer



Dendritic Cell

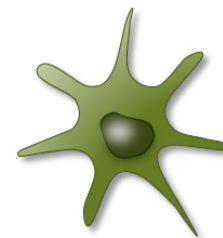


Tissue Macrophage



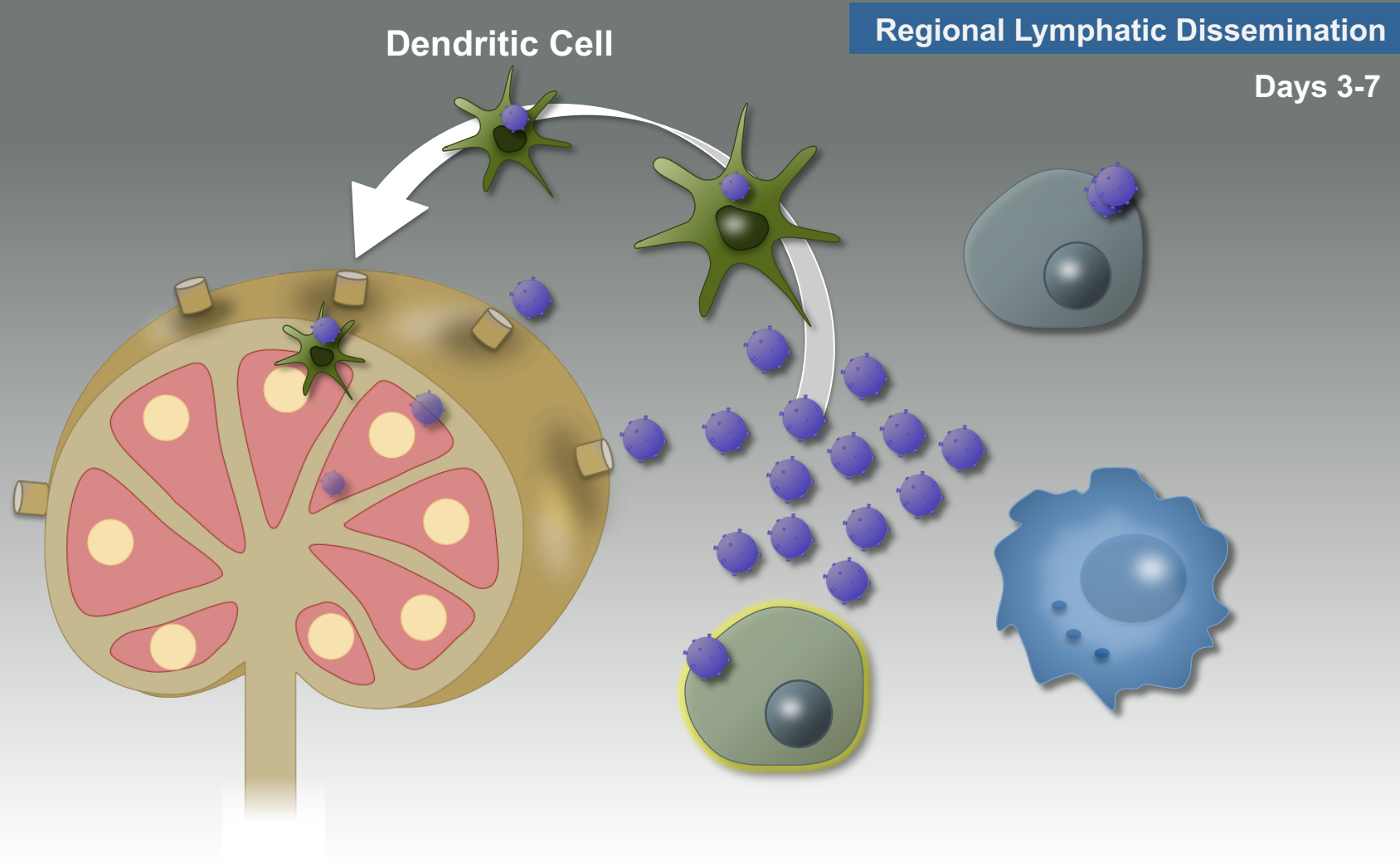
Activated CD4 Cell

Local Expansion



Sexual Transmission of HIV

Regional Lymphatic Dissemination of HIV

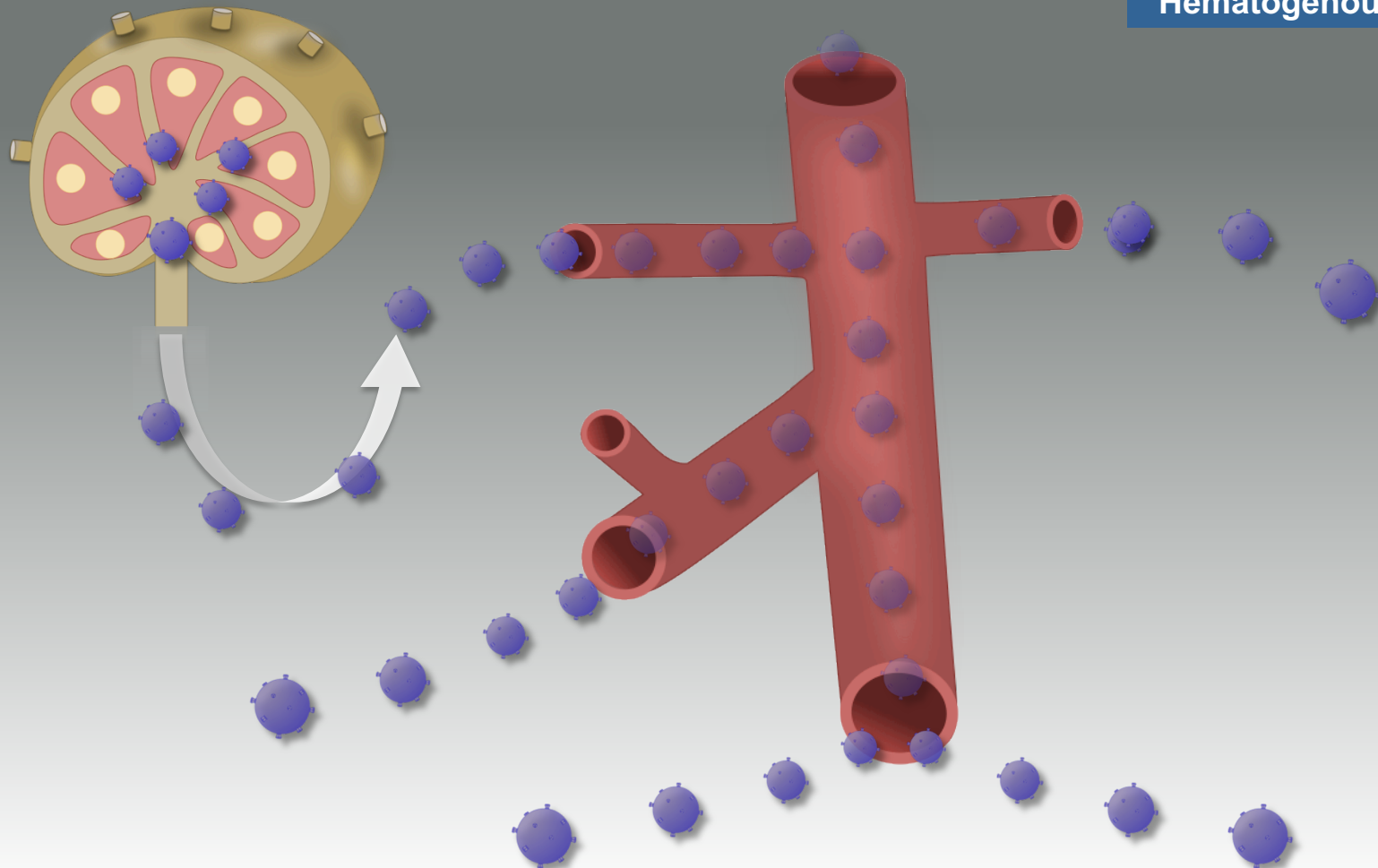


Sexual Transmission of HIV

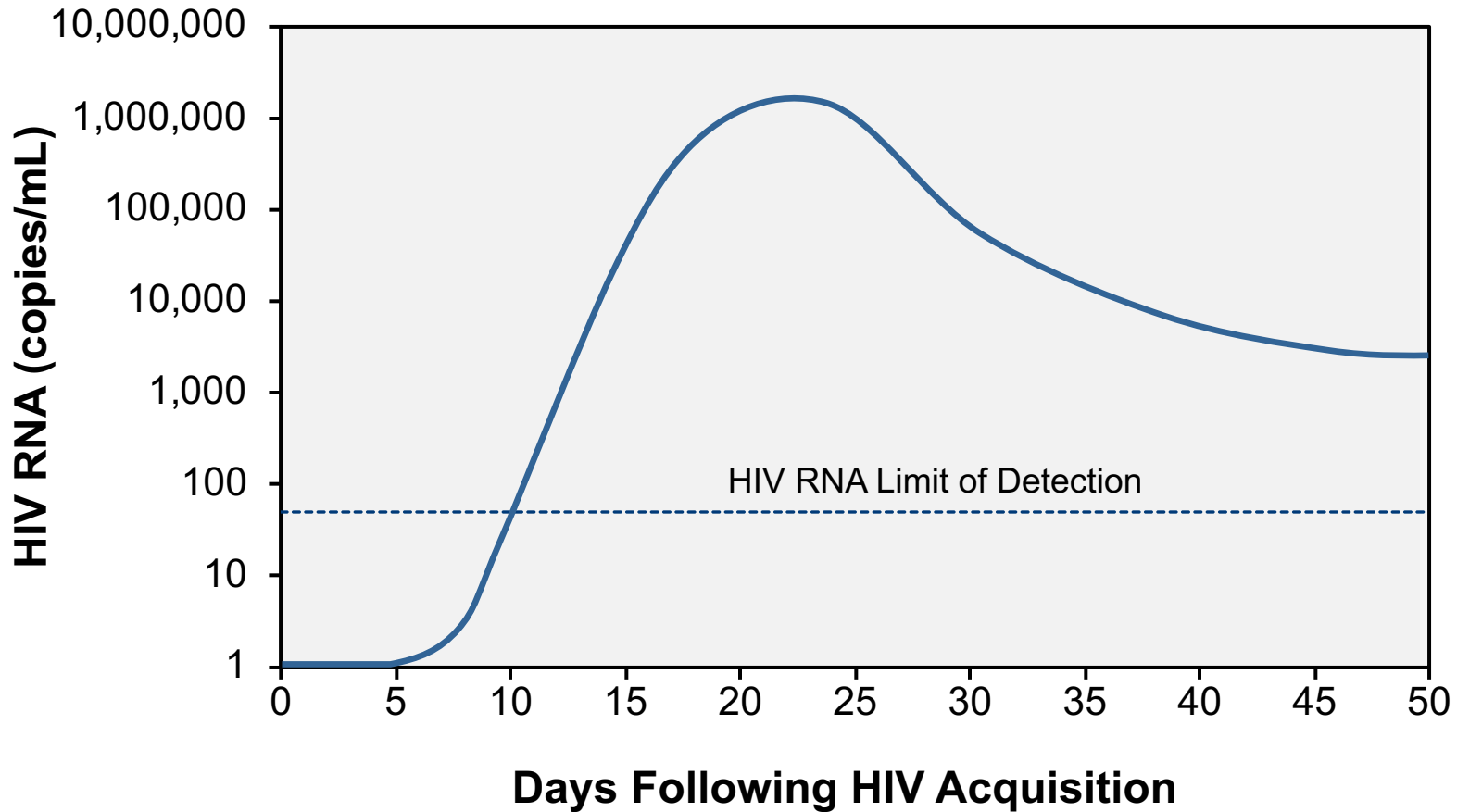
Hematogenous Dissemination of HIV

Hematogenous Spread

Day >7



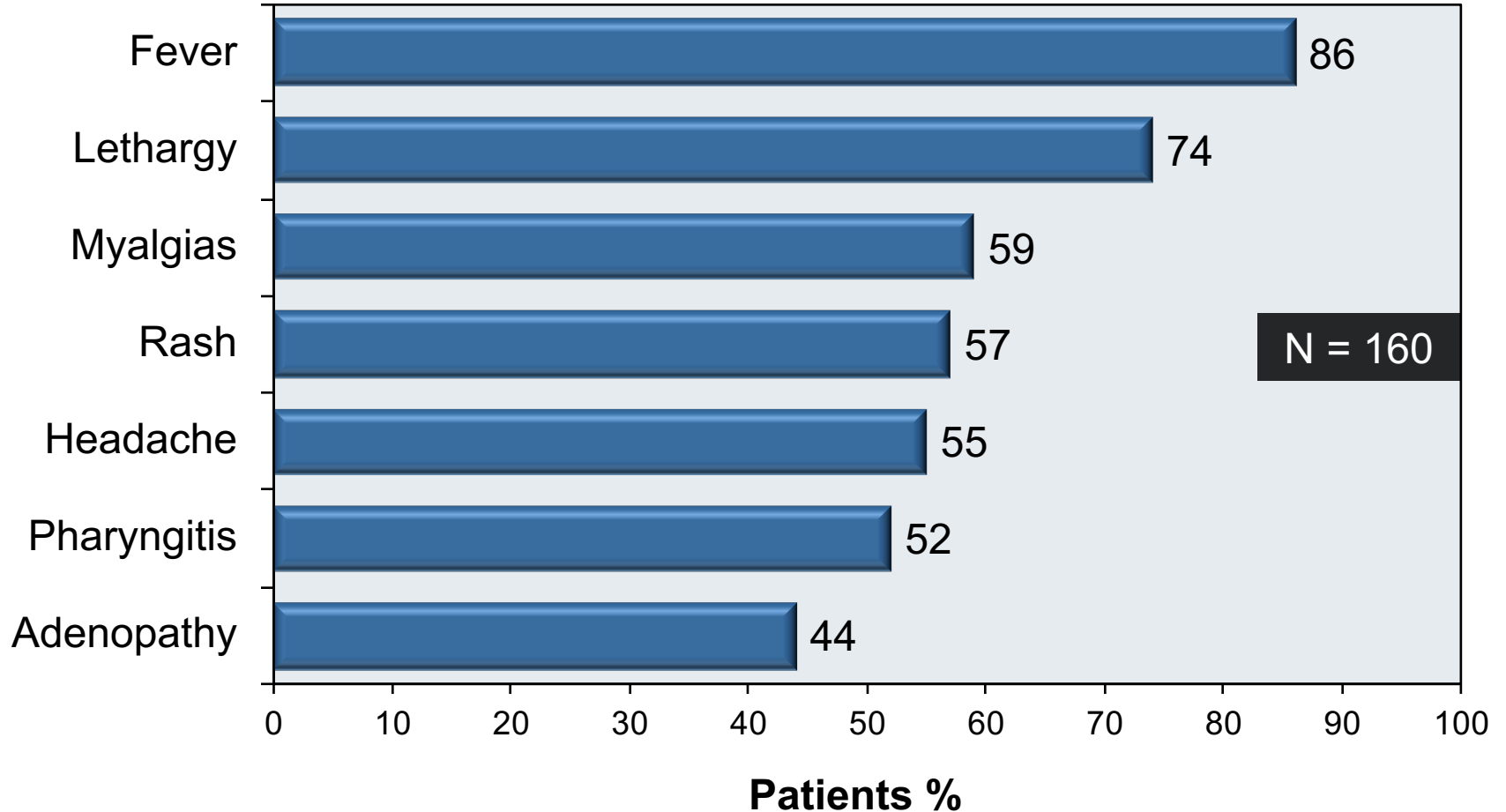
Early HIV RNA Levels after HIV Acquisition



ACUTE (PRIMARY) HIV INFECTION

Clinical Manifestations

Clinical Manifestations of Acute HIV Infection



Acute (Primary) HIV: Morbilliform Rash

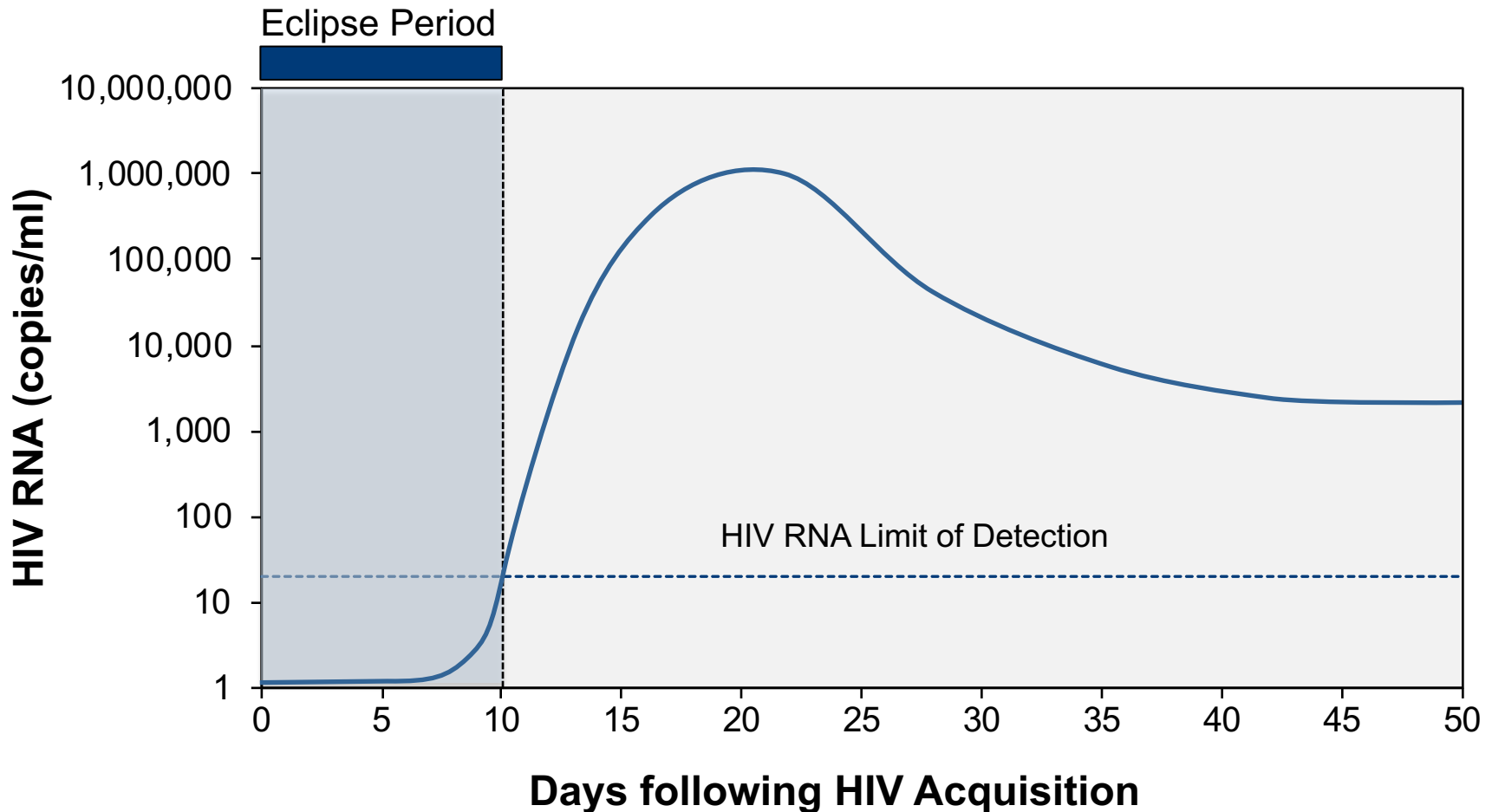


Photograph from David Spach, MD

ACUTE HIV INFECTION

Laboratory Diagnosis

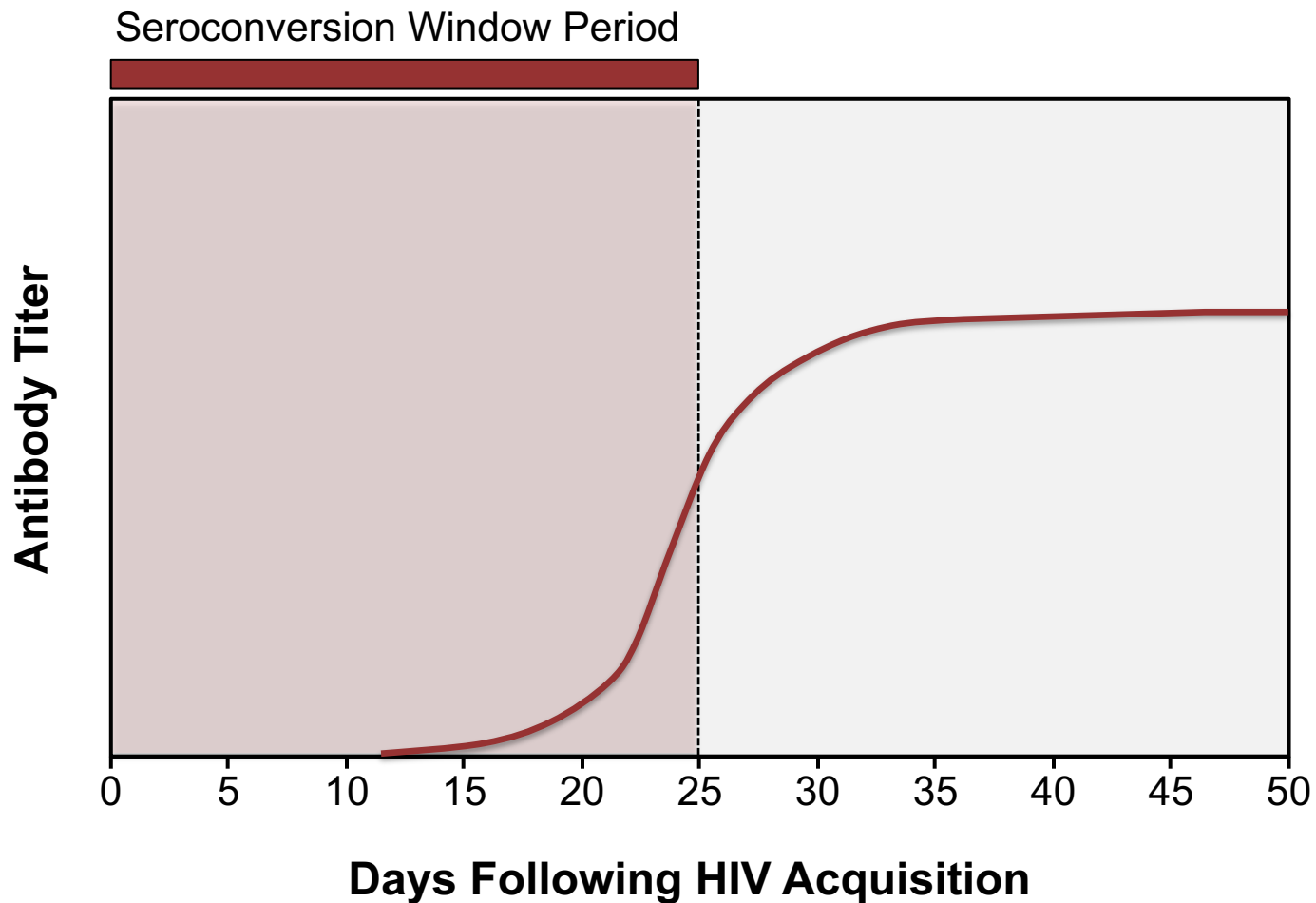
HIV Eclipse Period = Infection to Detection



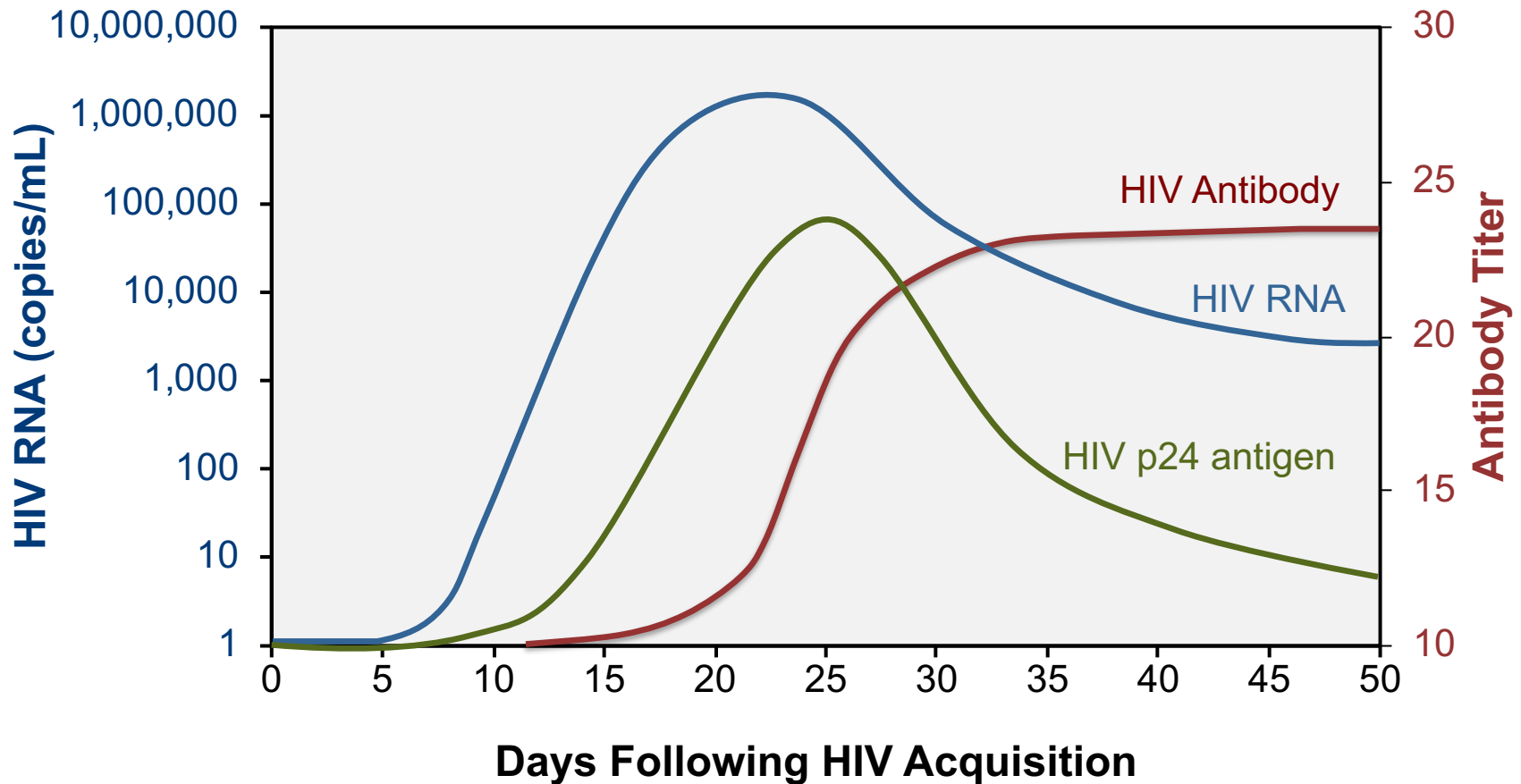
Eclipse Period = Time after infection when no existing diagnostic test is capable of detecting HIV

Acute HIV

Seroconversion Window Period

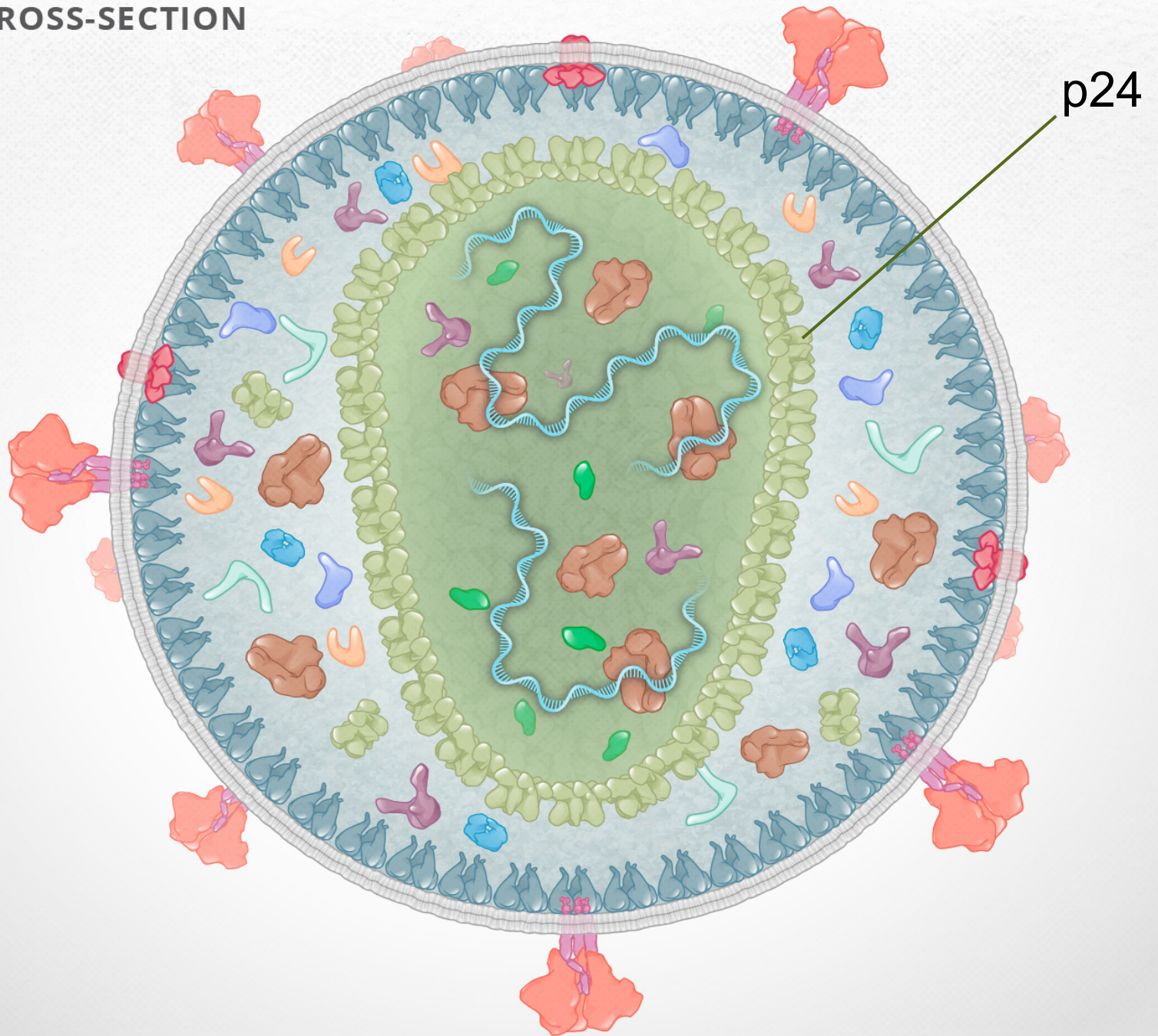


Laboratory Diagnosis of Acute (Primary) HIV

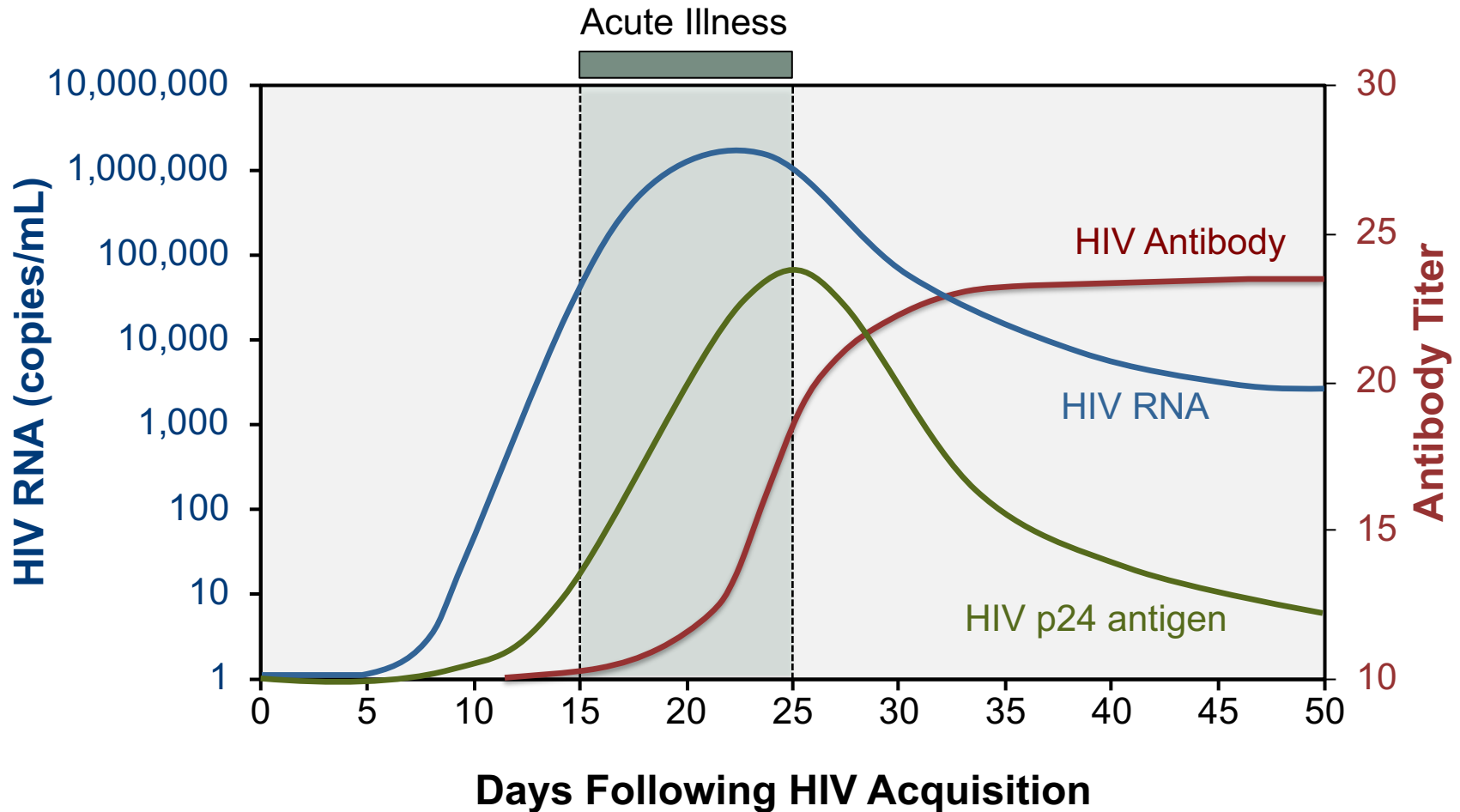


Timing of HIV RNA, HIV p24 antigen, and HIV Antibody

VIRUS CROSS-SECTION

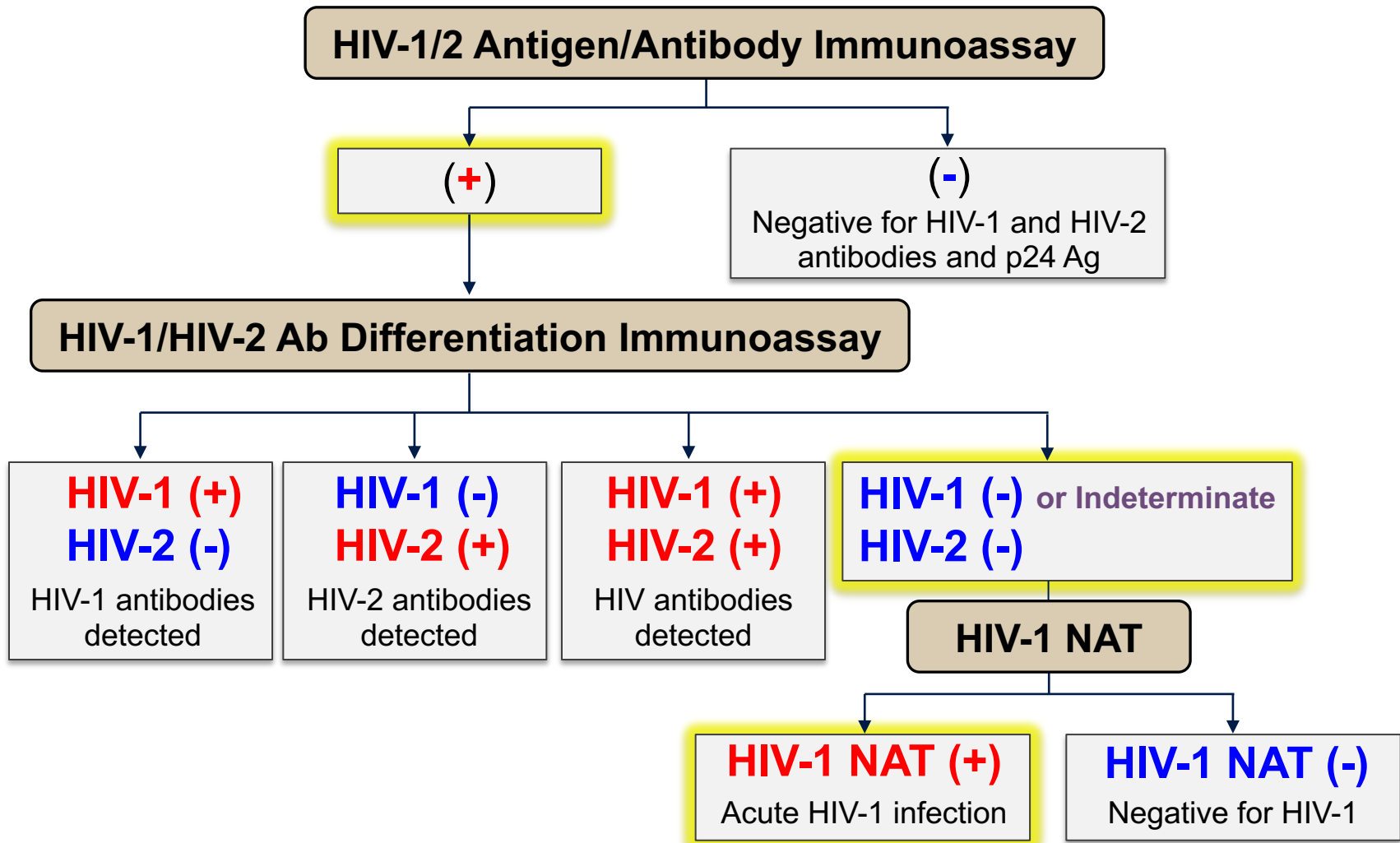


Laboratory Diagnosis of Acute (Primary) HIV

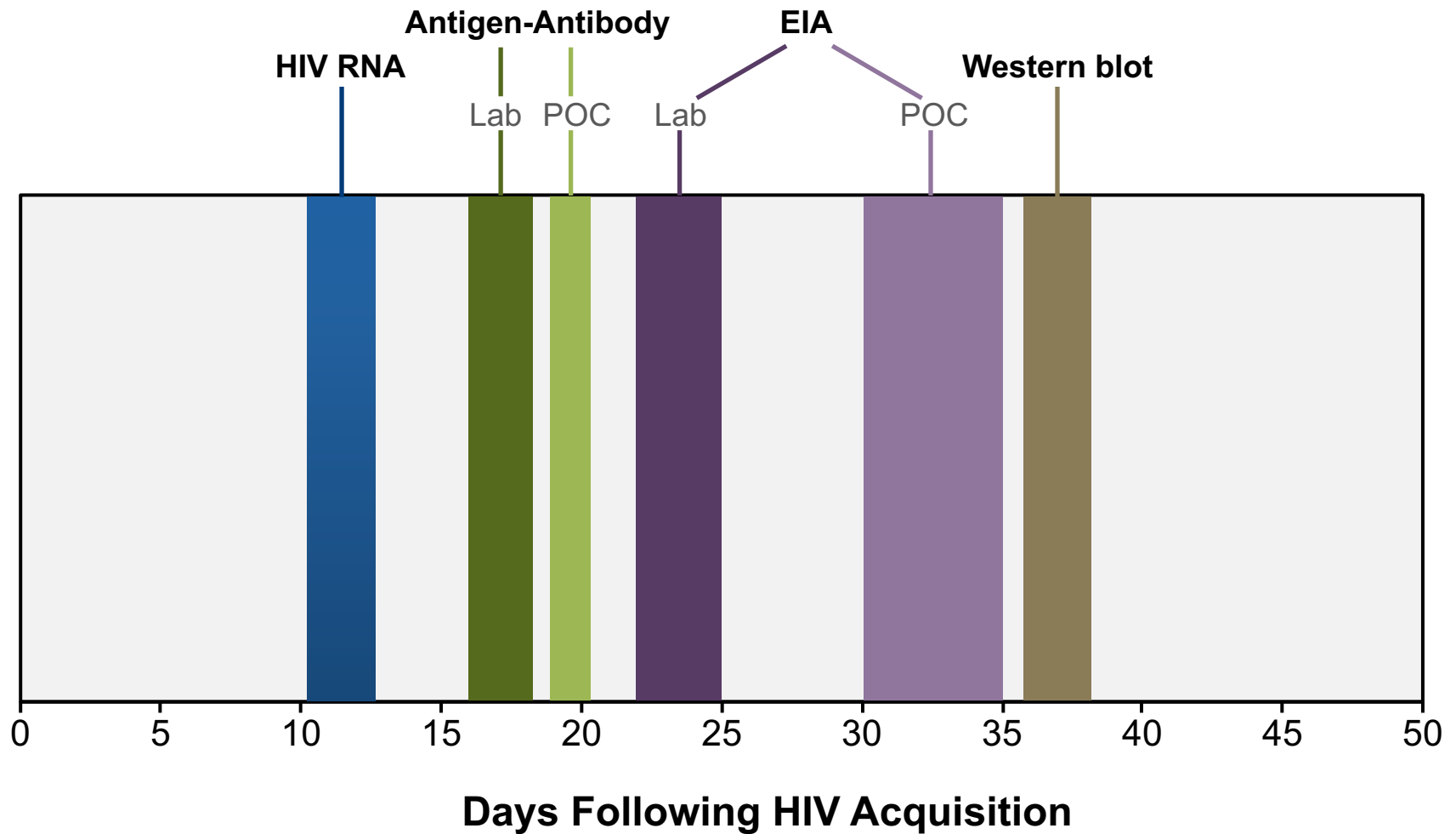


Timing of HIV RNA, HIV p24 antigen, and HIV Antibody

CDC and Association of Public Health Laboratories 2014 Laboratory Testing for the Diagnosis of HIV Infection

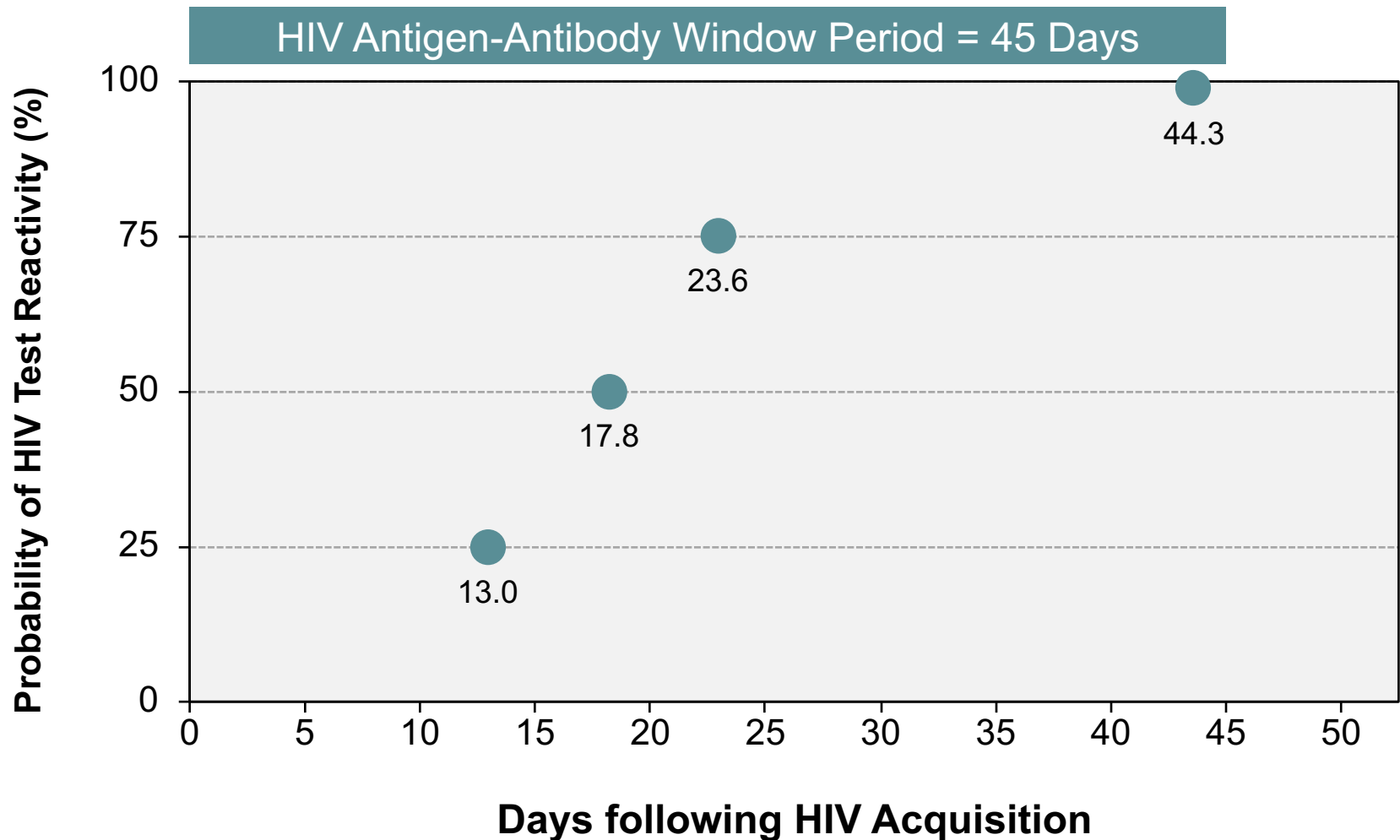


Early HIV Infection and Test Reactivity

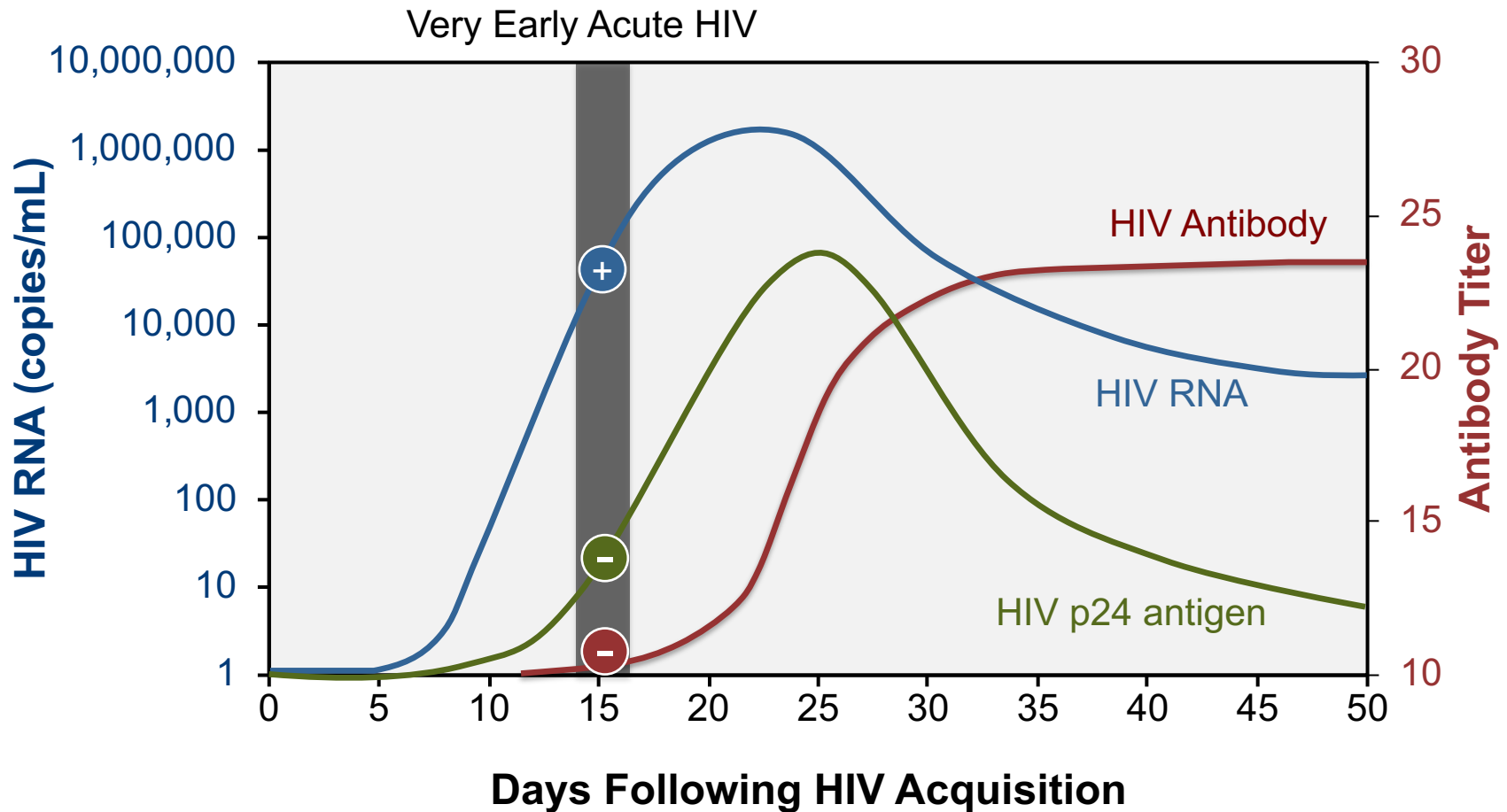


Diagnosis of Early HIV Infection

Laboratory HIV Antigen-Antibody

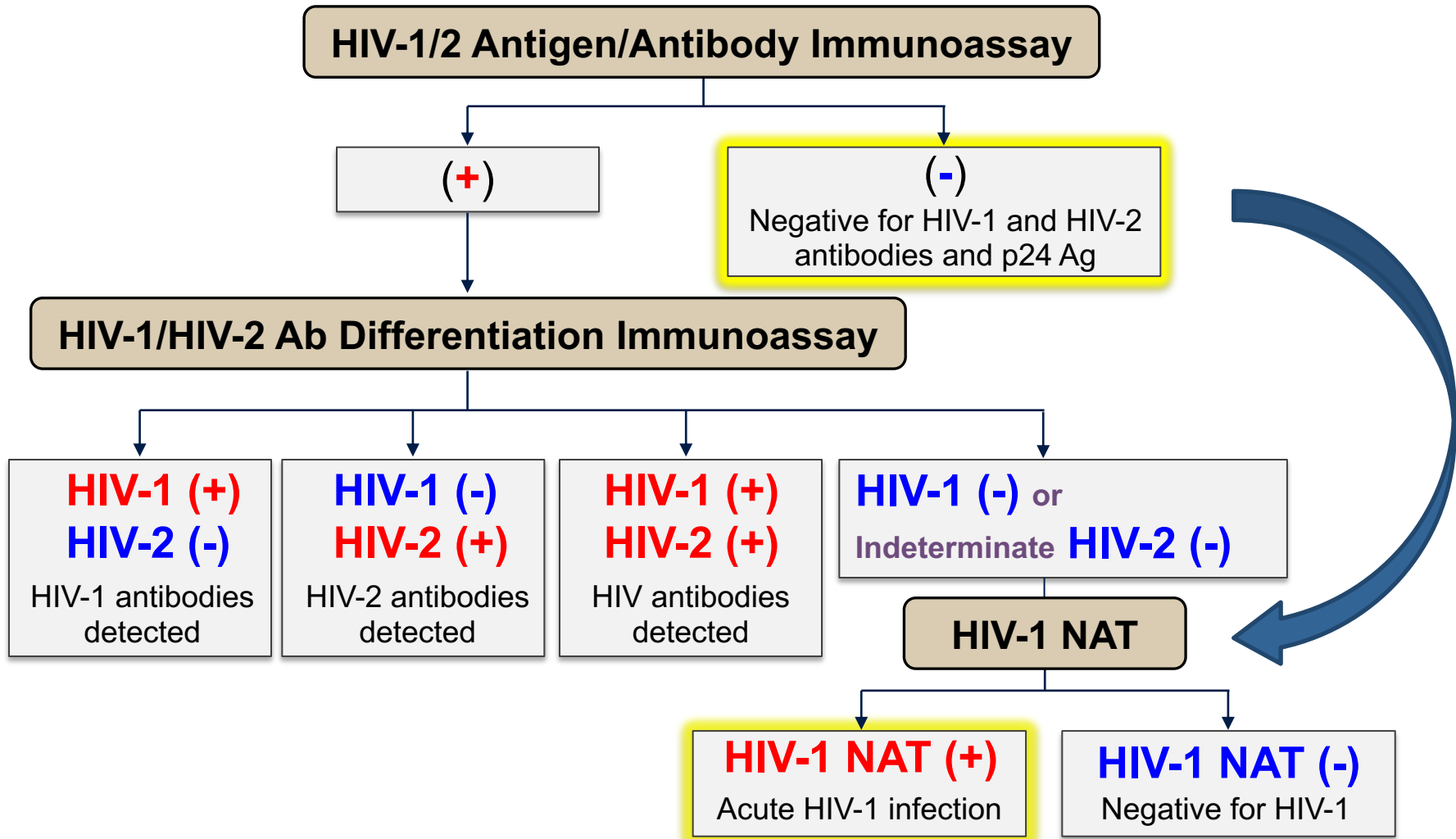


Laboratory Diagnosis of Acute (Primary) HIV



Timing of HIV RNA, HIV p24 antigen, and HIV Antibody

Approach with Strong Clinical Suggestion of Acute HIV



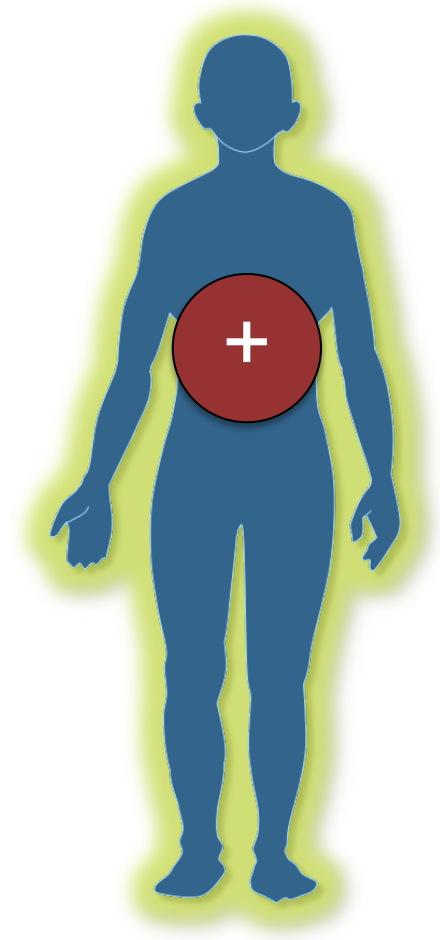
ACUTE (PRIMARY) HIV INFECTION

Treatment

Rationale for Treating All Persons with Acute HIV

- Prevent HIV disease progression
- Minimize seeding of sanctuary sites
- Prevent forward transmission of HIV

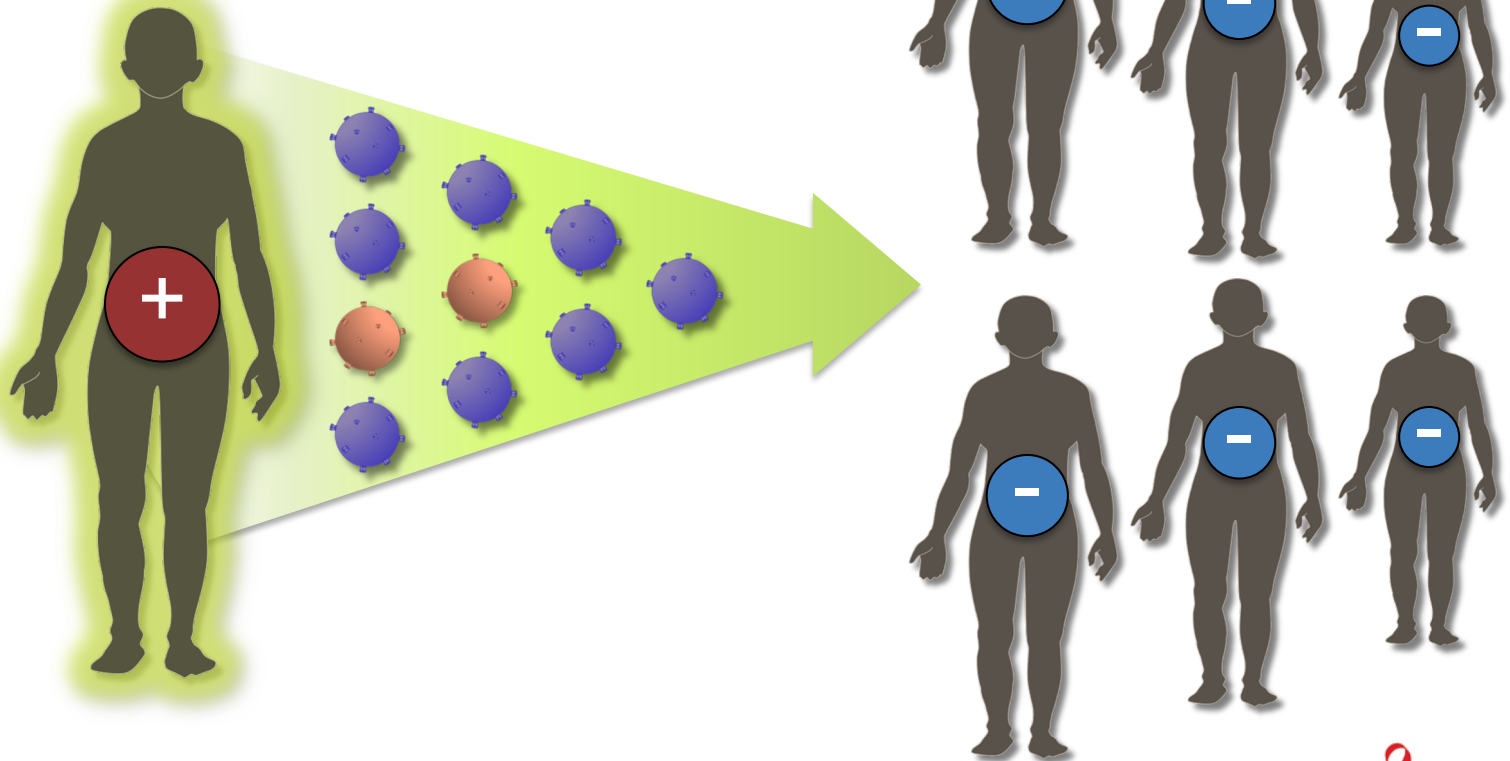
Acute (Primary) HIV High Transmission Risk



Acute (Primary) HIV

Factors Associated with High Transmission Risk

- Unaware of HIV status
- High “viral load”
- Homogeneity of transmission-capable viral variants
- Low titer of neutralizing antibodies



Acute HIV Treatment

Adult & Adolescent ARV Guidelines

- A 23-year old man is diagnosed with acute HIV, with an HIV RNA level of 324,000 copies/mL. An HIV genotypic drug resistance test is ordered.
- Can you start antiretroviral treatment before the genotype result returns?
- If you start antiretroviral therapy now, what regimen would you recommend?

Acute HIV Treatment

Adult & Adolescent ARV Guidelines

- Treatment recommended for all with acute HIV
- Order HIV genotypic drug resistance test prior to treatment
- Can initiate ART before results of resistance test available
- Recommended Regimens (**Rating AIII**)
 - Boosted-Darunavir + (TDF-FTC or TAF-FTC)
 - Dolutegravir + (TDF-FTC or TAF-FTC)
- Modify regimen if need with drug resistance test results

Questions

Acknowledgment

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