

HIV & AIDS

Dr. A. Saumtally
AIDS Secretariat
MOH & QL

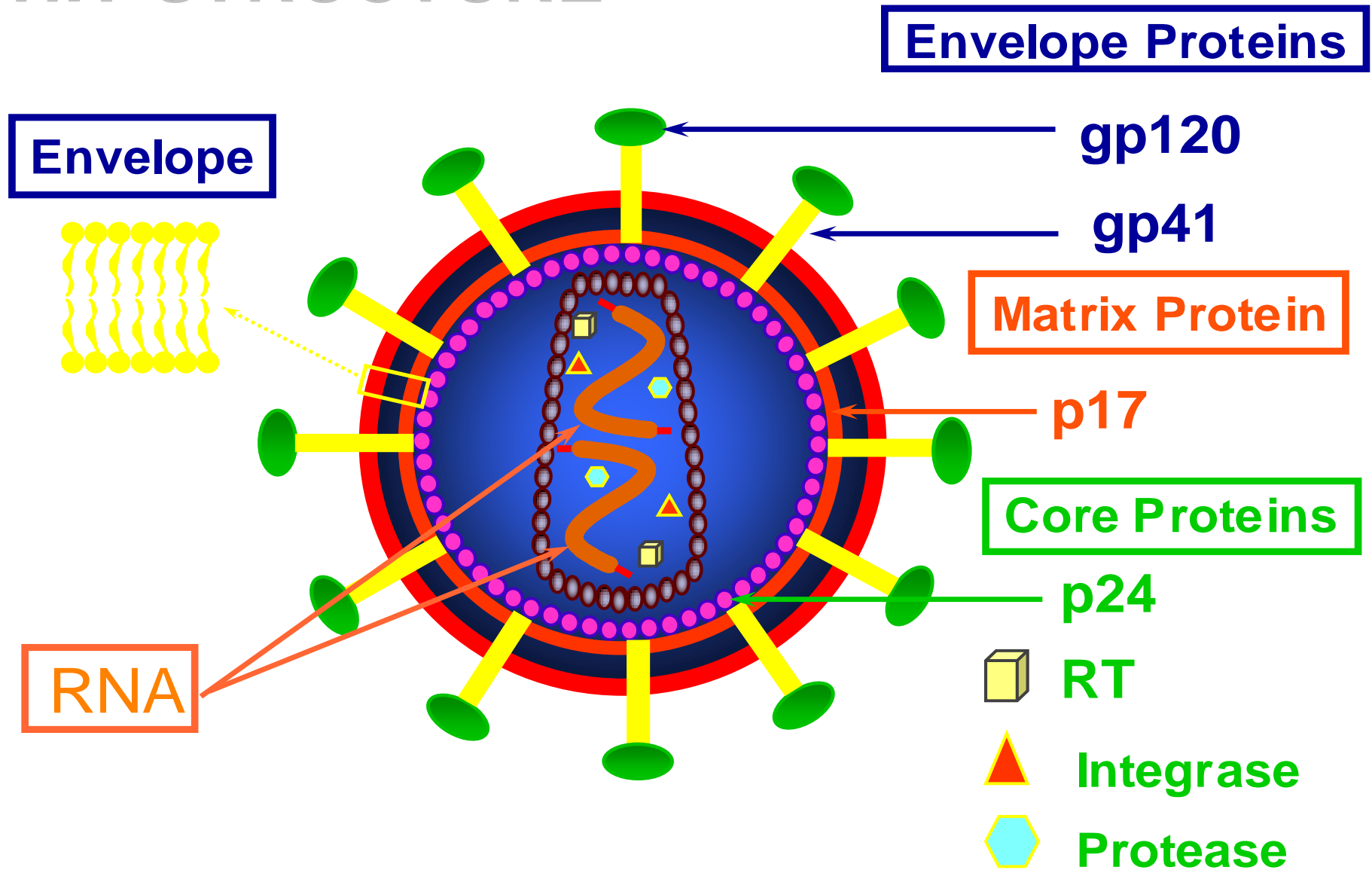
HIV and AIDS

- **A** = Acquired
- **I** = Immune
- **D** = Deficiency
- **S** = Syndrome
- **H** = Human
- **I** = Immuno-
deficiency
- **V** = Virus

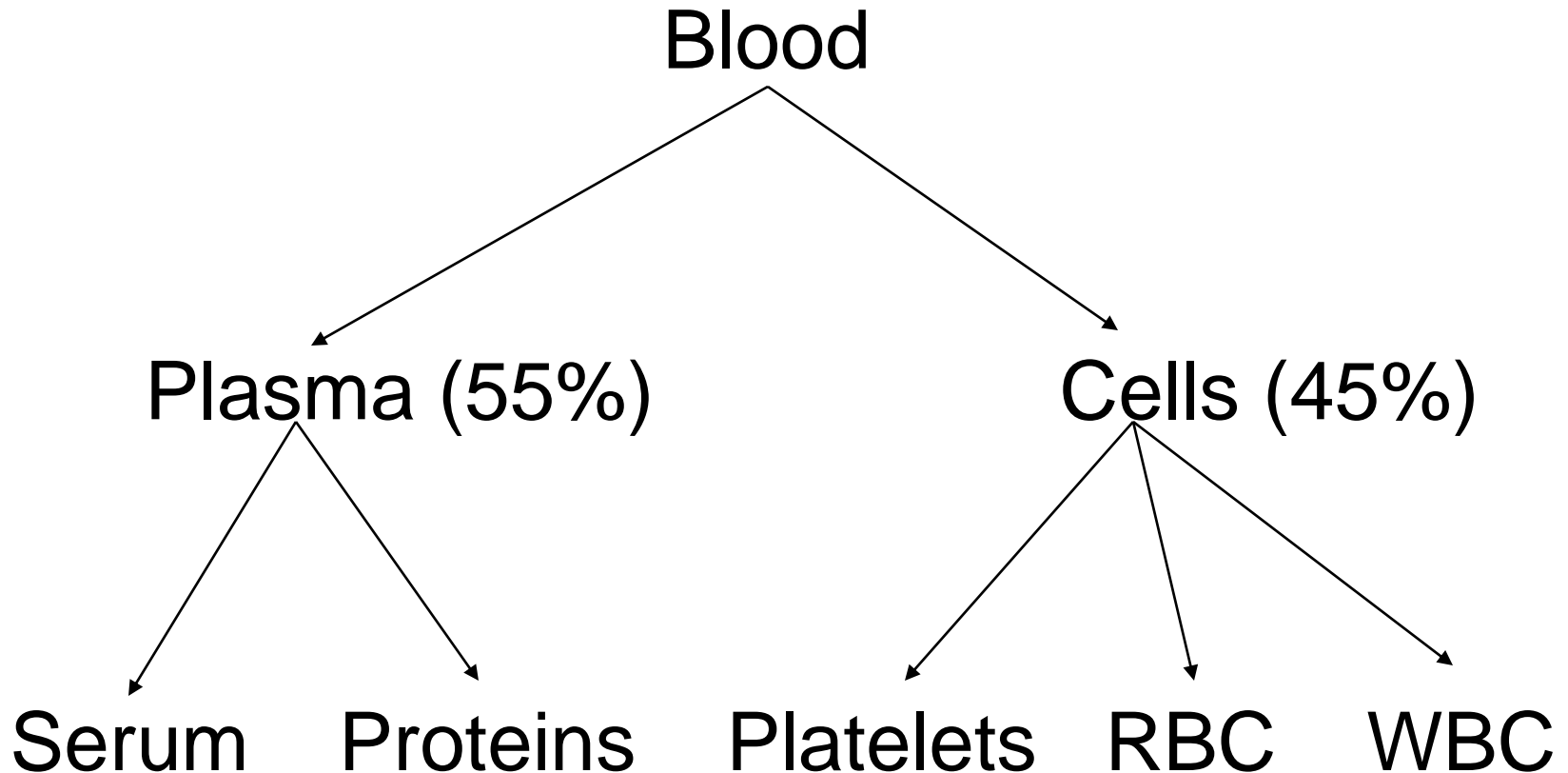
BACKGROUND

- **1981**: First case seen in USA
- **1983**: Isolation of the Virus
- **1985**: Serology test
- **1987**: First case seen in Mauritius
- **1996**: Real effective treatment started

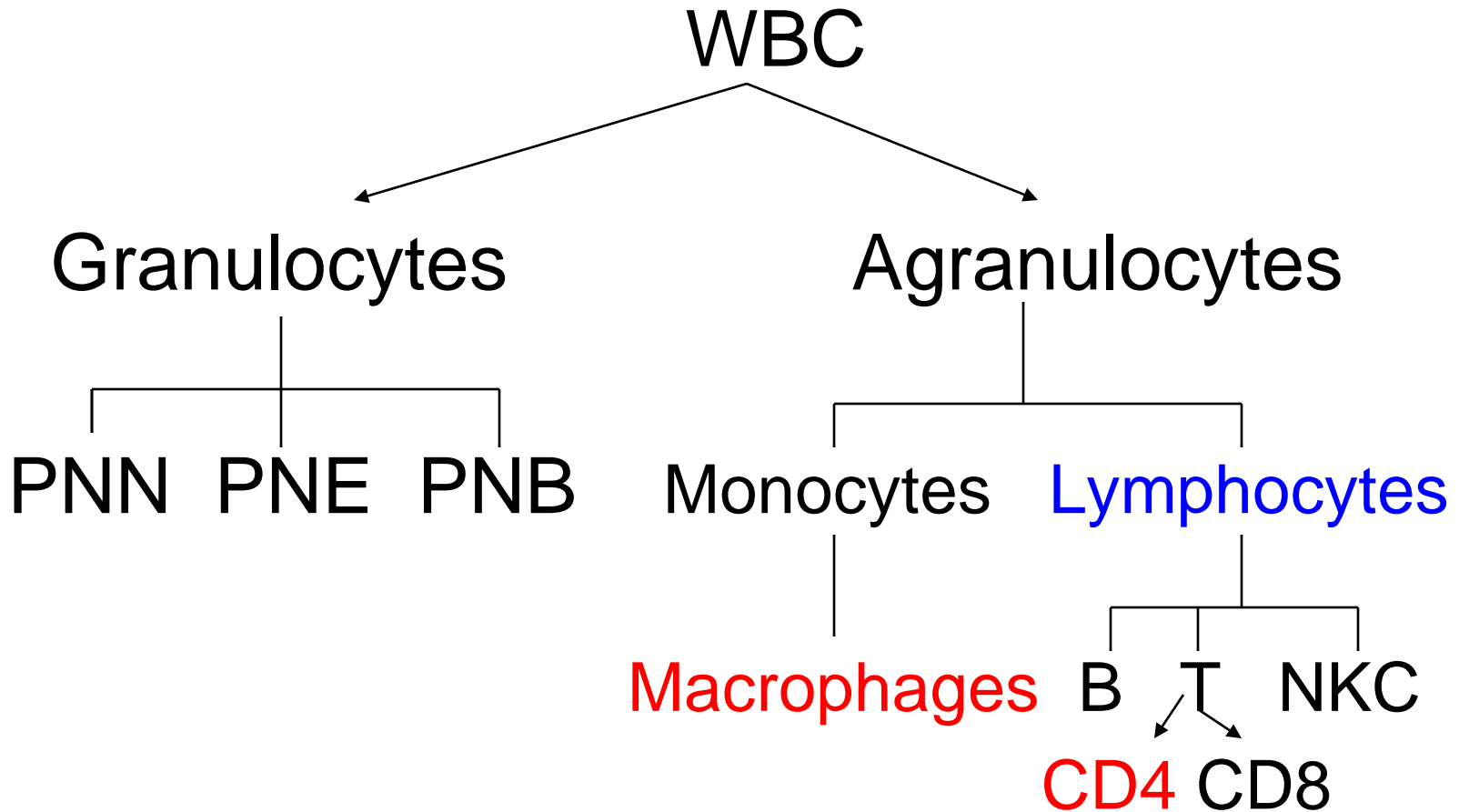
HIV STRUCTURE



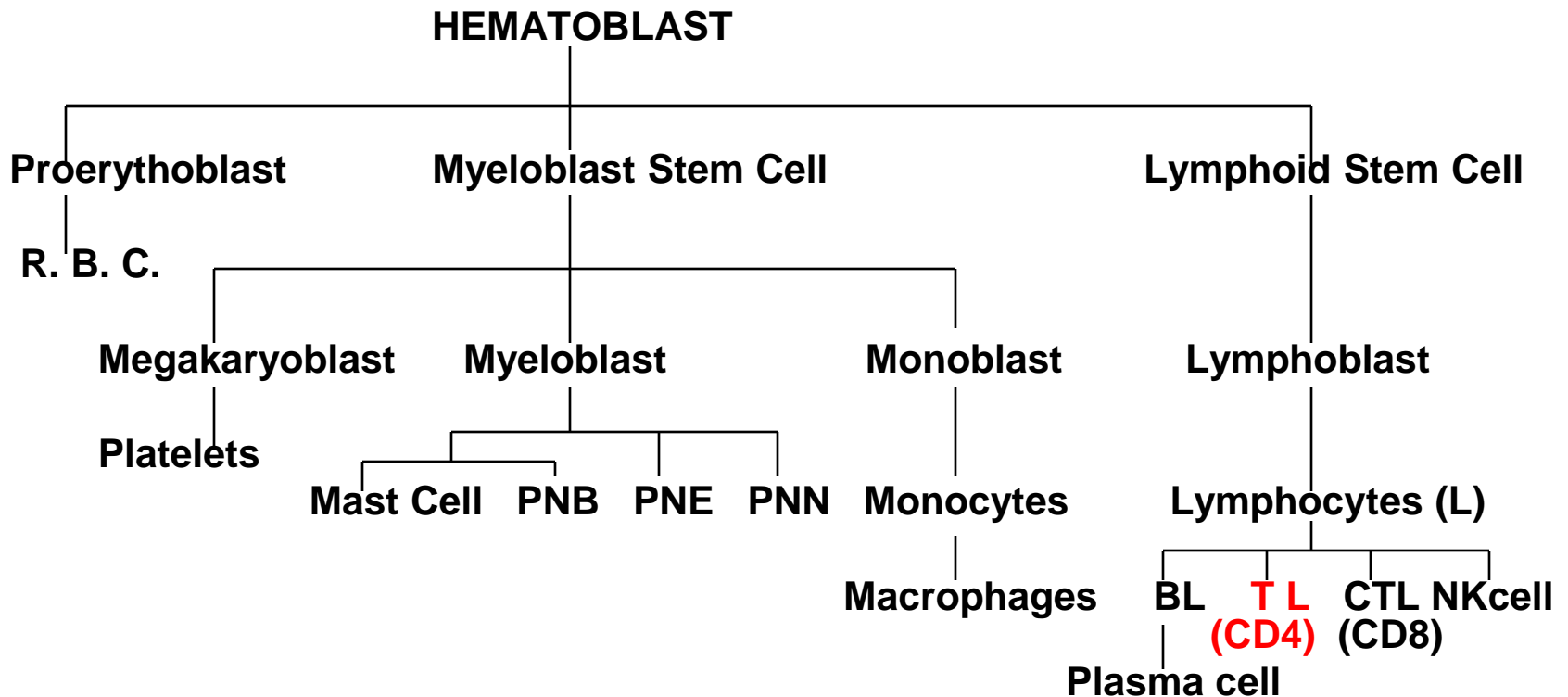
Composition of Blood



Types of WBC



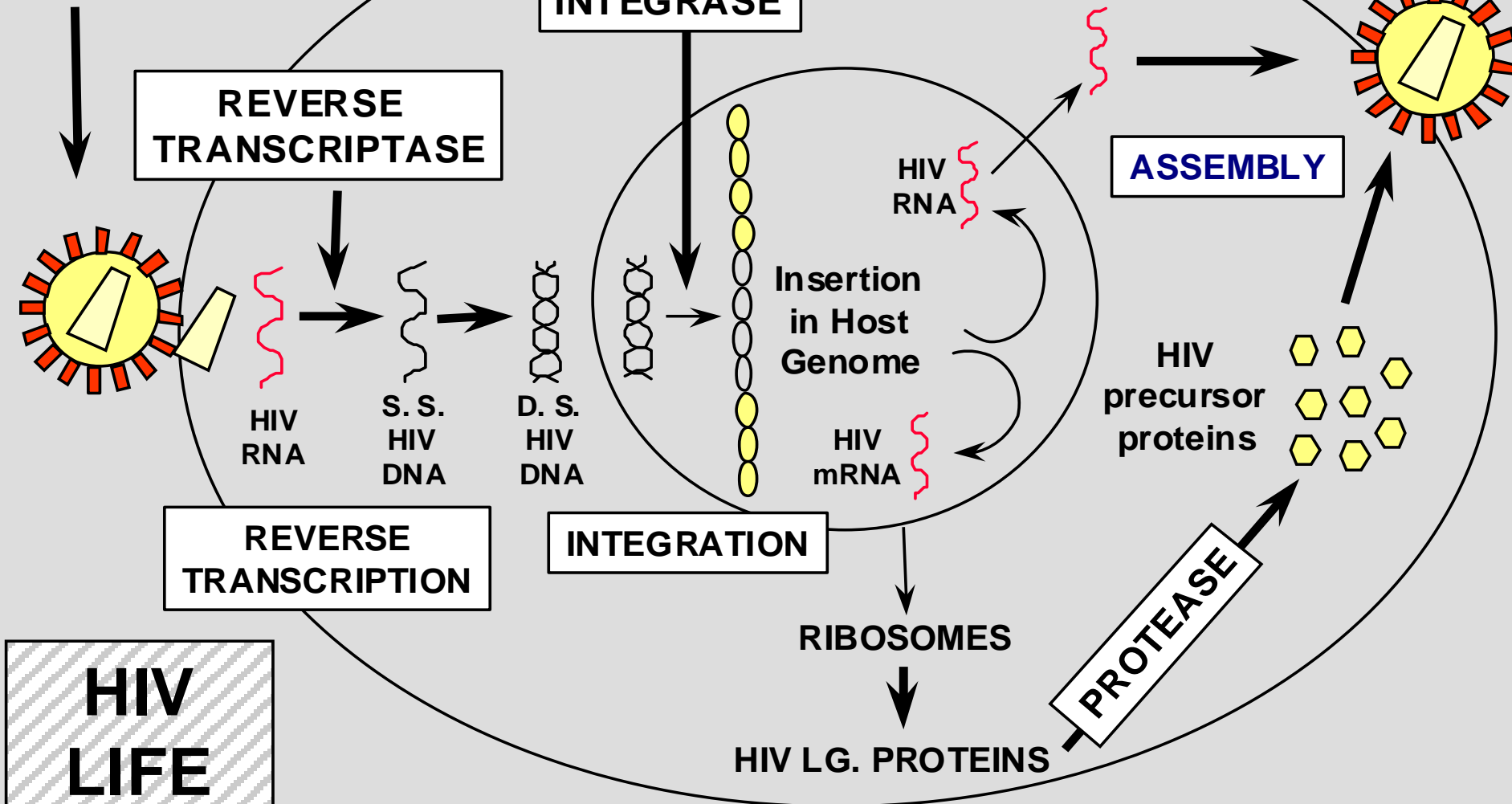
Formation of blood cells



**NKCell = Police of the body ; it lyses cancer cells and infective virus cells.
 It is a large granular lymphocyte and acts spontaneously against ANY target.
 (≠ from TL of Immune System which acts on SPECIFIC cell)**

INFECTING VIRUS

NEW VIRUS

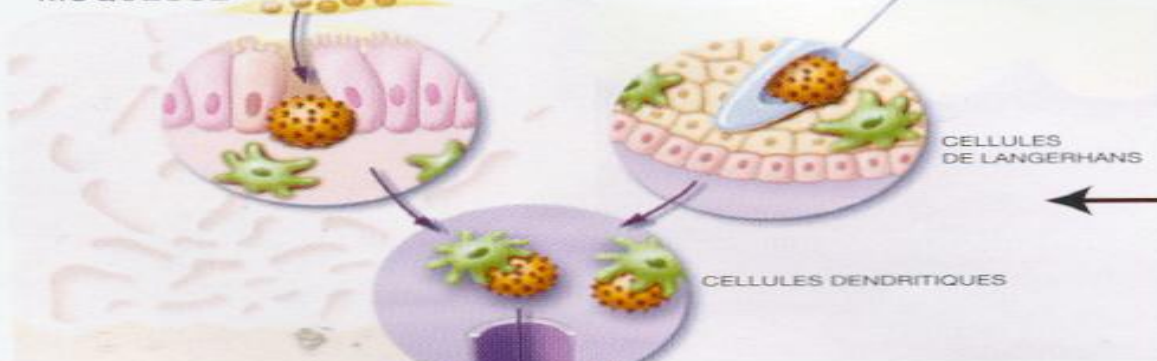


HIV LIFE CYCLE

Dans l'idéal, les inhibiteurs nucléosidiques doivent agir avant la multiplication ganglionnaire du virus



MUQUEUSE



LYMPHATIQUE AFFÉRENT

GANGLION LYMPHATIQUE

Présentation de l'antigène au lymphocyte CD4 déclenchant la réponse immunitaire

CD4



LYMPHATIQUE EFFÉRENT

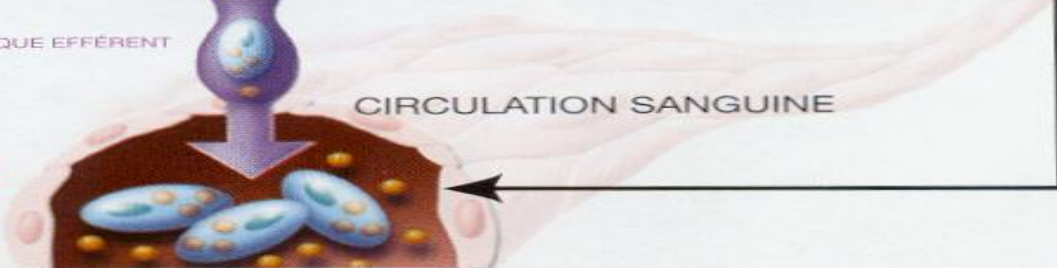
CIRCULATION SANGUINE

Passage du virus dans la circulation générale

Action des antirétroviraux

Acheminement de l'antigène VIH dans la peau environ
4 heures

Acheminement de l'antigène VIH jusqu'au ganglion lymphatique
2 jours



Dissemination

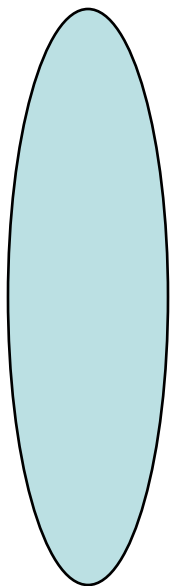
- **CONCENTRATED:**
 - **Blood and Derivatives**
 - **Sexual Secretions:**
Sperm > vaginal sec.
 - **Milk**
- **LESS CONCENTRATED**
 - **CSF**
 - **Nasal secretion**
 - **Saliva**
 - **Sputum**
 - **Tears**
 - **Urine**
 - **Faeces**
 - **Vomit**

Modes of Transmission

Conditions for Transmission

VIH +

VIH -

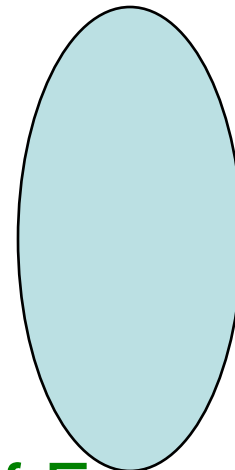


Blood
Sexual Secretion



Breast milk

Concentrated



Route of Entry
Skin & Mucosa

MODES OF TRANSMISSION

(Transmission is different from contagion)

- BLOOD TRANSMISSION
- SEXUAL TRANSMISSION
- MOTHER TO CHILD TRANSMISSION

ROUTES OF ENTRY

Percutaneous:(blood)

1. Blood Transfusion
2. IVDUs
3. Health Care Personnel :- Accidental prick
 - bleeding eczemas

Mucosa: (Sexual)

- 1.Vaginal
- 2.Recto-anal
- 3.Oral

- wounds

BLOOD TRANSMISSION

1. Injecting Drug / Substance:

(contaminated syringe, needle, spoon, cotton)

2. Blood Transfusion:

(Mandatory test - Window period of 2 weeks: 1/800 000)

3. Percutaneous Inoculation:

(Accidental injuries – HCW)

FACTORS INCREASING RISK OF BLOOD TRANSMISSION

1. Primary – Infection
2. Low CD4 Cell count (AIDS stage)
3. High Viral Load (P-I & AIDS stage)

Sexual Transmission

- **Most common** in the world:
- 75% - 85% of the HIV infections due to **unprotected Sex**
 - **70% Heterosexual transmission (HTS)**
 - **5 to 10% Homosexual transmission (HMS)**
- **Sexual Practices:**
vaginal, anal & oral.

FACTORS INCREASING RISK OF SEXUAL TRANSMISSION

1. Number of Partners
2. Type of Sexual Practices:
 - High Risk: Anal > Vaginal**
 - Low Risk: Oral**
3. Degree of infectiosity of infected person:
 - HIV/AIDS Stage** **Viral Load**
 - Menses** **Traumatic - rape**
 - Other associated STIs**

Sexual Transmission

Evaluation du risque des Pratiques Sexuelles

- Anal réceptif (HMS & HTS x 5)
0.5% à 3% dans le sens I + vers R -
- Vaginal réceptif
0.05% à 0.15% dans le sens H+ vers F-
- Vaginal insertif 0.03% à 0.09% F + vers H -
- Anal insertif 0.03% (0.01% à 0.18%) R+ vers I-
- Oral réceptif 0.03% (0.01% à 0.18%) R+ vers I-

MOTHER TO CHILD TRANSMISSION

Risk of infection in the newborn to HIV+ mothers without prophylaxis: 30%

1. Antenatal, 3rd Trimester – 5%
2. Delivery – 15%
3. Postnatal – Breastfeeding – 10%

HIV cannot be transmitted

- Shaking hands, Kisses
- Sharing meals and drinks
- Using same toilet
- Swimming pool
- Mosquito bite

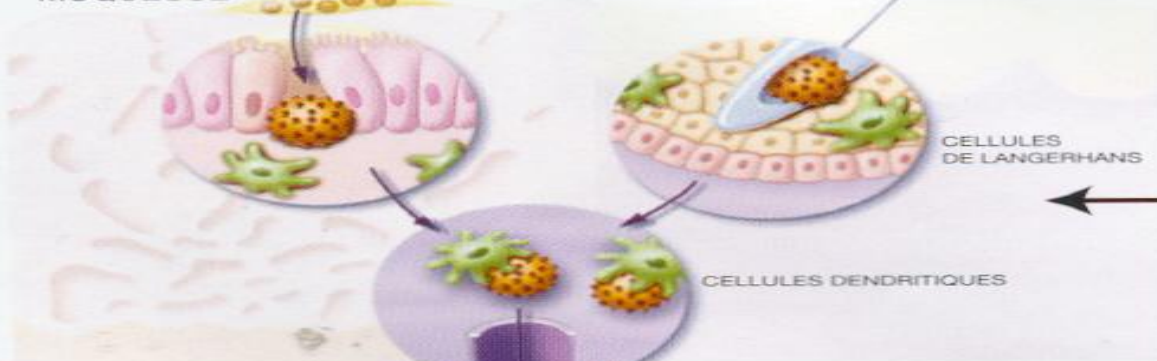
Evolution of the Infection

**A person infected with HIV
remains an infected and
infectious person for LIFE.**

Dans l'idéal, les inhibiteurs nucléosidiques doivent agir avant la multiplication ganglionnaire du virus



MUQUEUSE



LYMPHATIQUE AFFÉRENT

GANGLION LYMPHATIQUE

Présentation de l'antigène au lymphocyte CD4 déclenchant la réponse immunitaire

CD4



LYMPHATIQUE EFFÉRENT

CIRCULATION SANGUINE

Passage du virus dans la circulation générale

Action des antirétroviraux

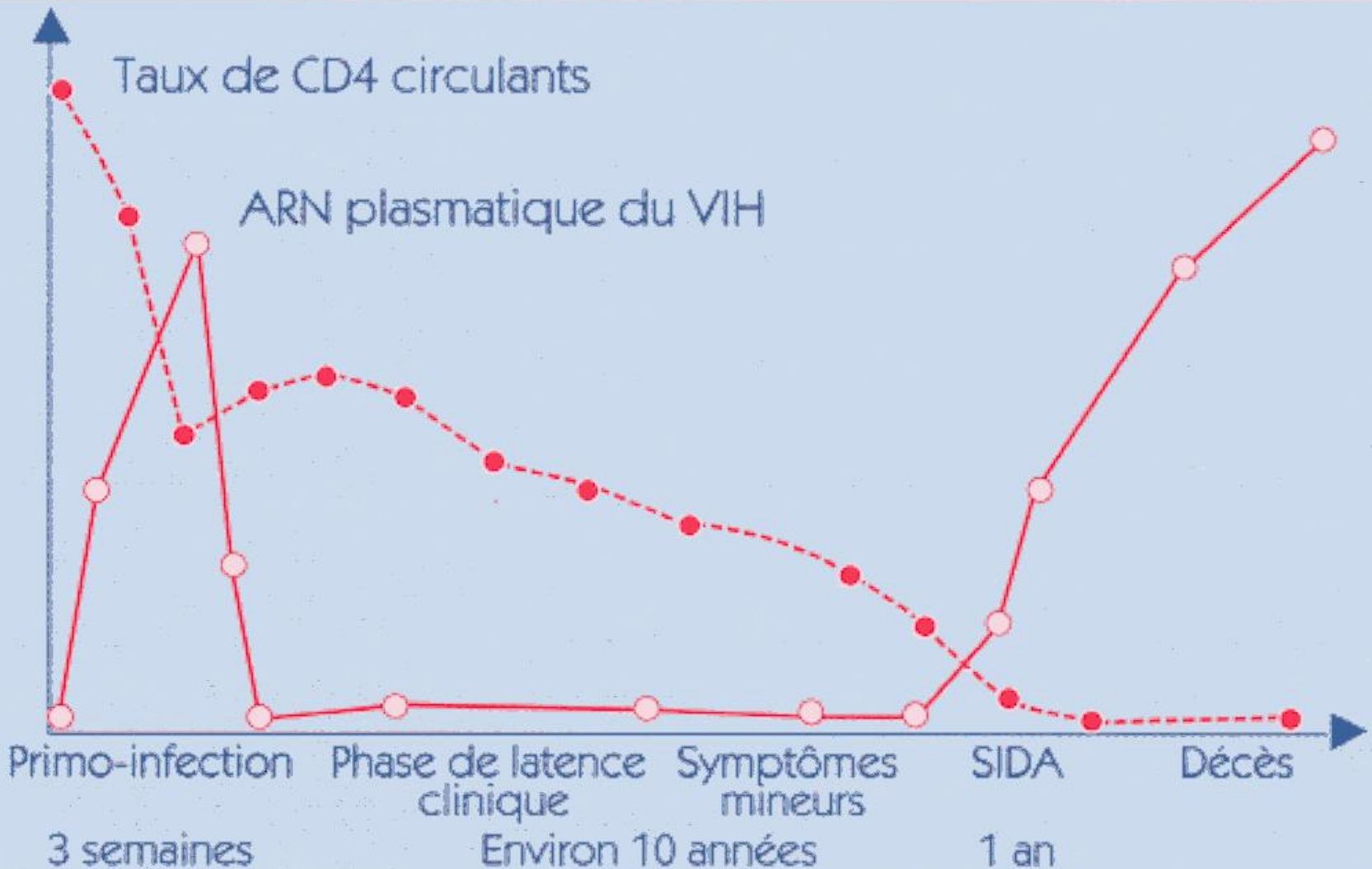
Acheminement de l'antigène VIH dans la peau environ
4 heures

Acheminement de l'antigène VIH jusqu'au ganglion lymphatique
2 jours

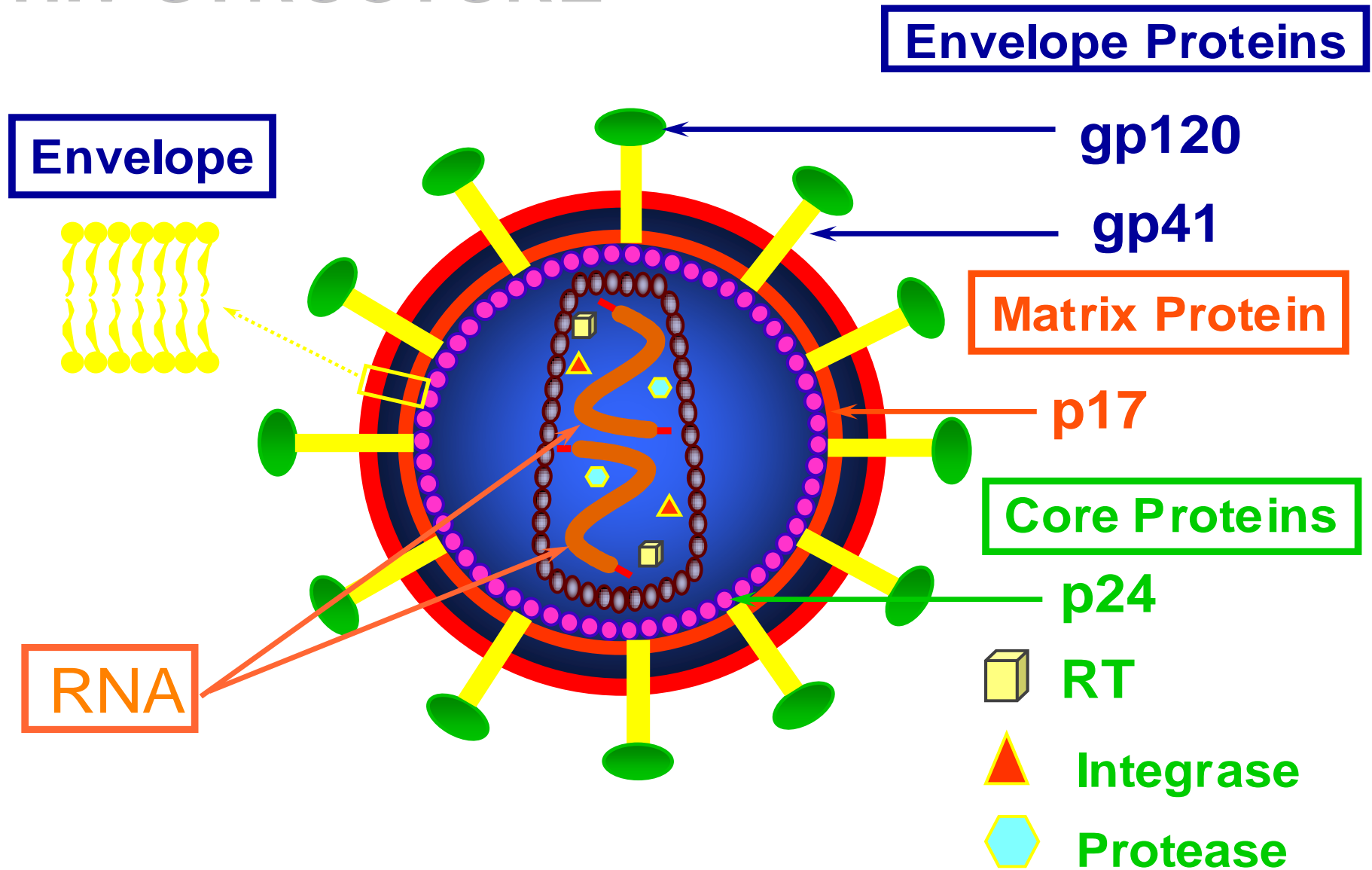


Evolution de l'infection VIH dans le temps

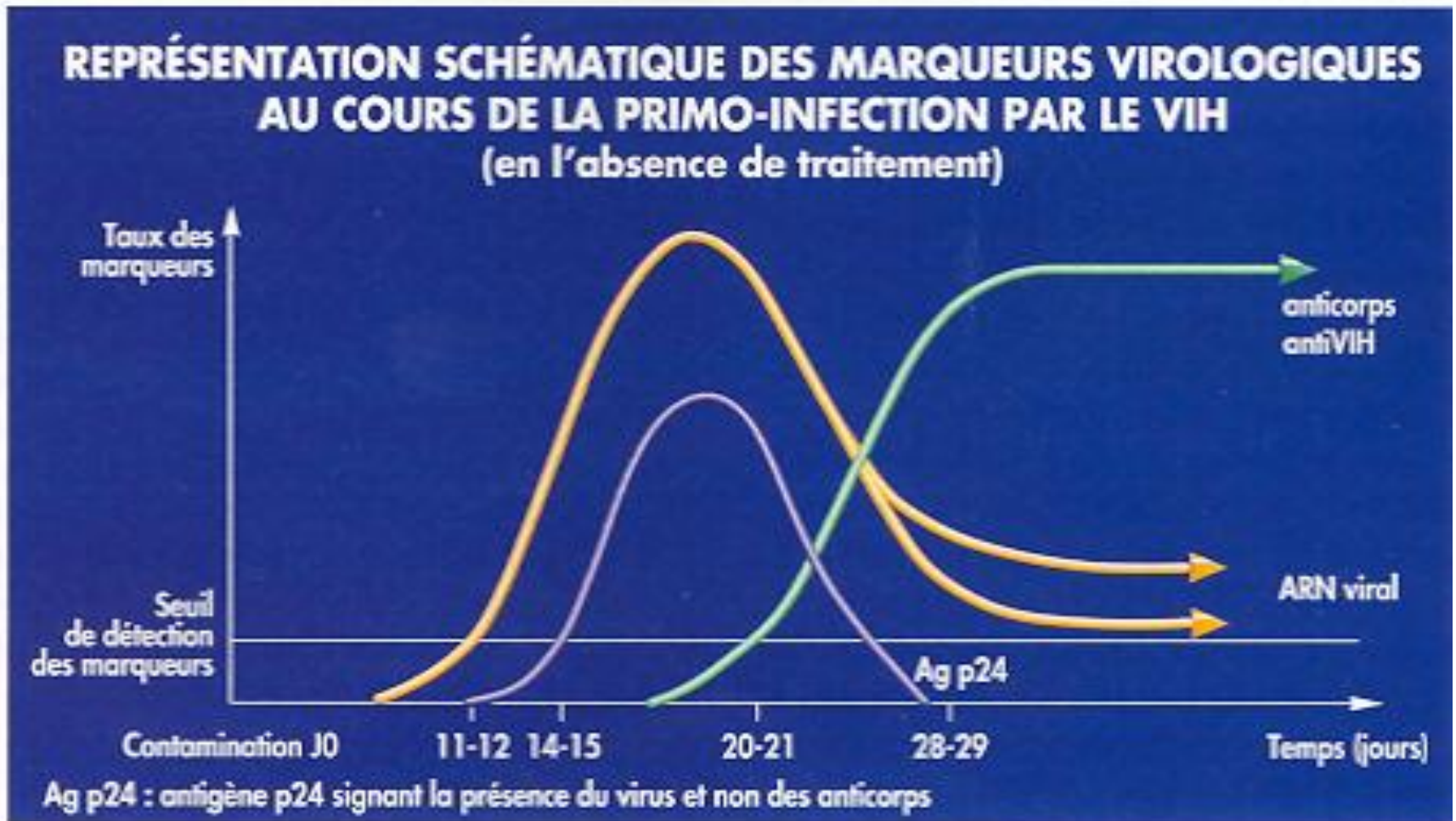
Séropositif asymptomatique et SIDA



HIV STRUCTURE



Diagnostic Techniques



Diagnostic Techniques

- 3 Curves:
- amount required to be able to be detected in blood
- Orange (Viral RNA) → 11 - 12 days
- Violet (Ag p24 envelope) → 14 - 15days
- Green (Antibodies) → 20–21 days

Primary-Infection

- Occurs within 3 weeks after contamination
- Signs & Symptoms:

Fever

Skin Rash

Pharyngitis

GI disturbances

Adenopathy

Meningism

Fatigue

Oral & oesophageal

Loss of weight

candidiasis

The HIV test is **NEGATIVE** : window period

Asymptomatic HIV positive Stage

- No signs and symptoms
- The infected person is a **carrier** and leads a normal life
- It is important for a person who has **exposed** himself to the virus to know his HIV status
- **HIV Test is positive**
- The **CD4 count** decreases with time at the rate of 50 – 80/ml of blood (**N = 1000, AIDS <200**)

AIDS STAGE

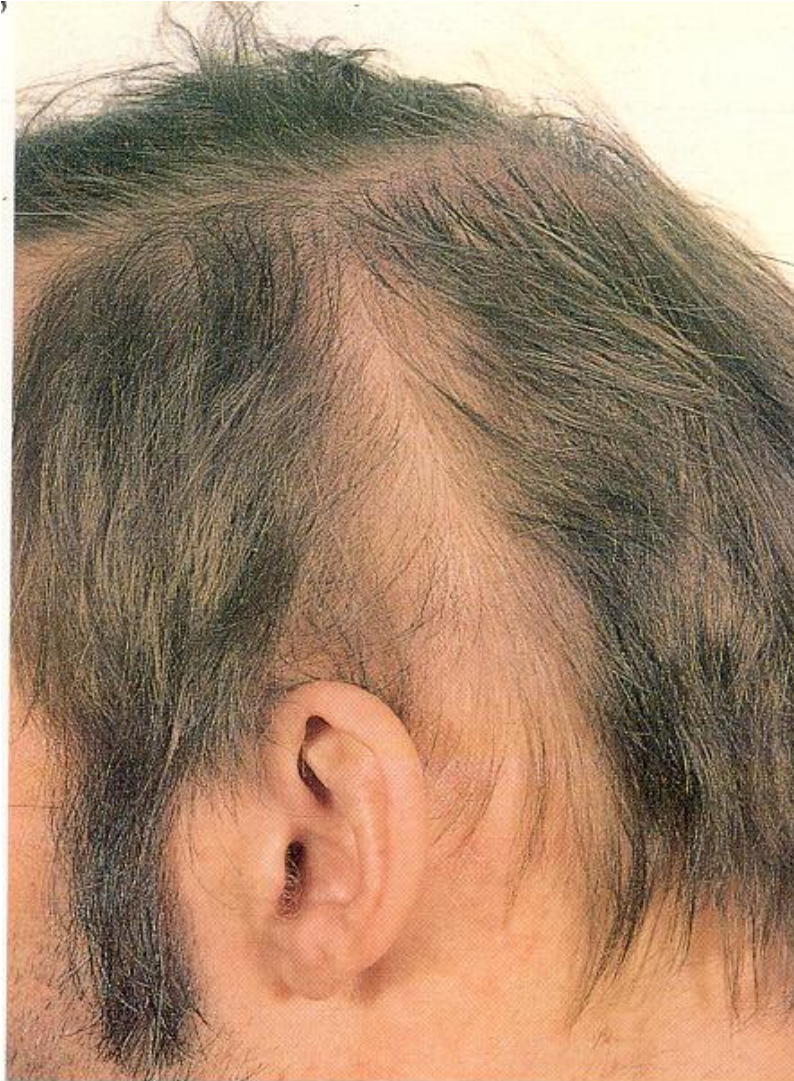
- **Decreased Immunity:**
Opportunistic Infections.
- **Oncogenic process:**
Kaposi Sarcoma (virus HHV8),
Lymphomas (EBVirus)
- **Complications due to the Virus:**
Encephalitis, Neuropathy,
General Wasting
Damage to endothelium of blood
vessels (IHD, CVA, CRF)

Clinical Signs of AIDS

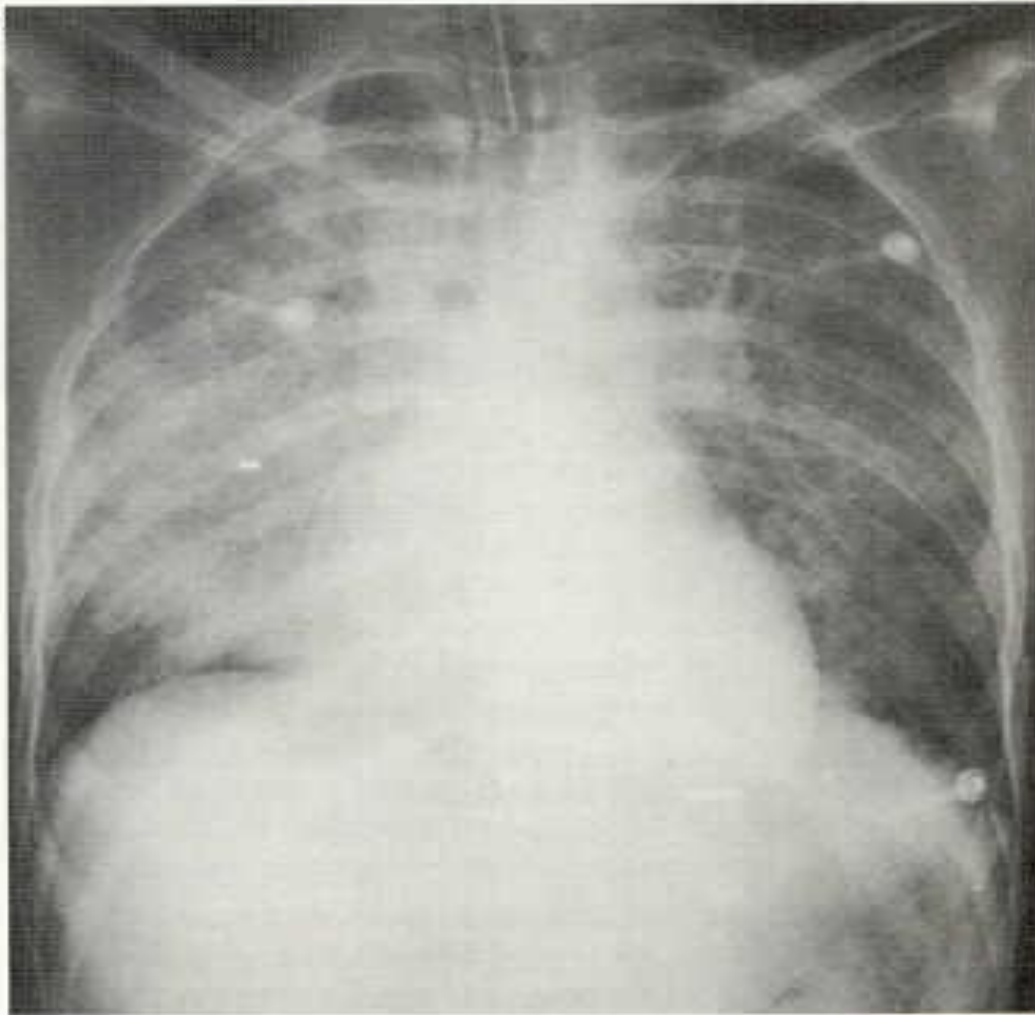
Perte de poids



Perte de cheveux



Pneumonie



Atteinte des Yeux



101



Cancer de la peau (Kaposi)



Aphtes

143

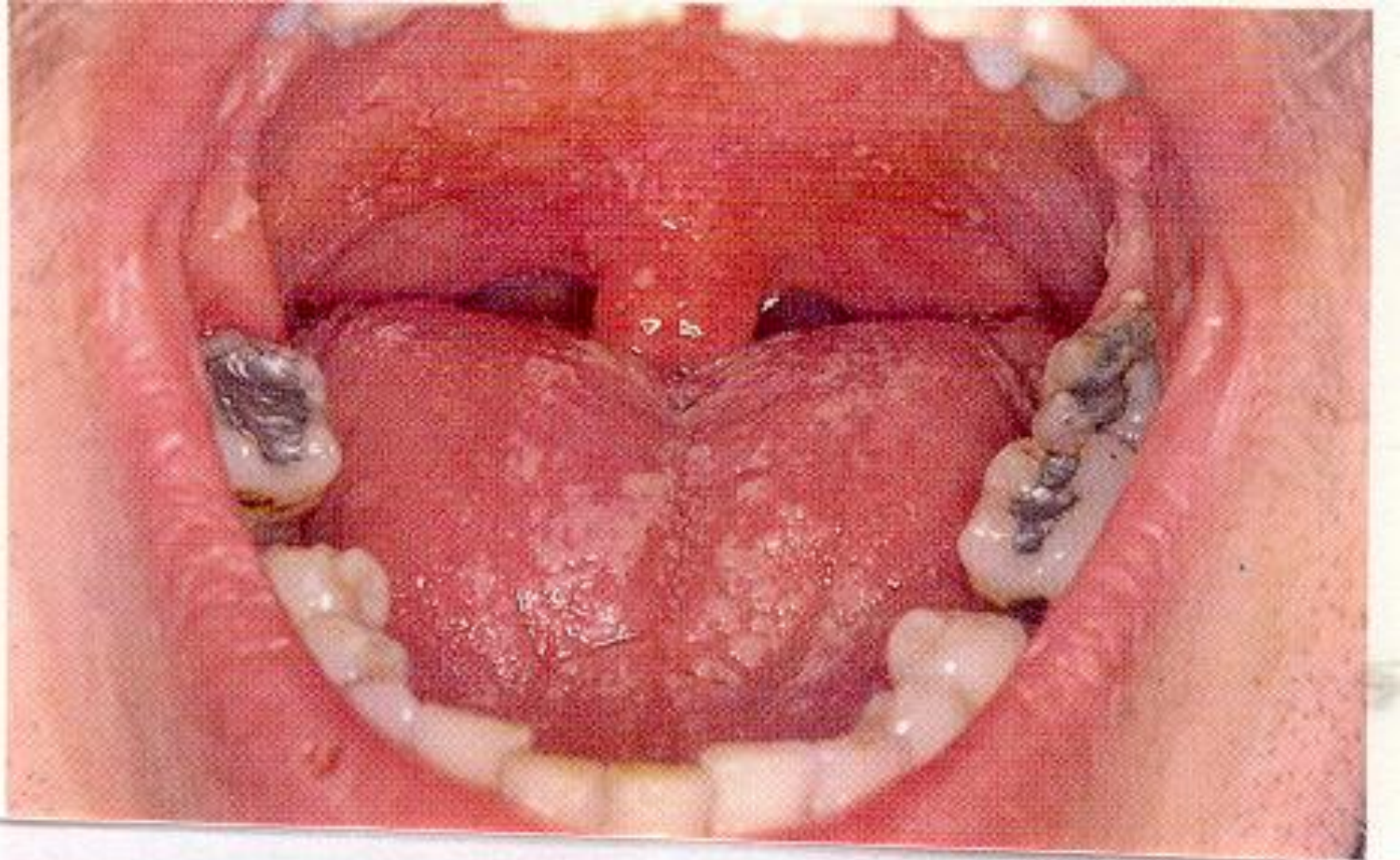


45

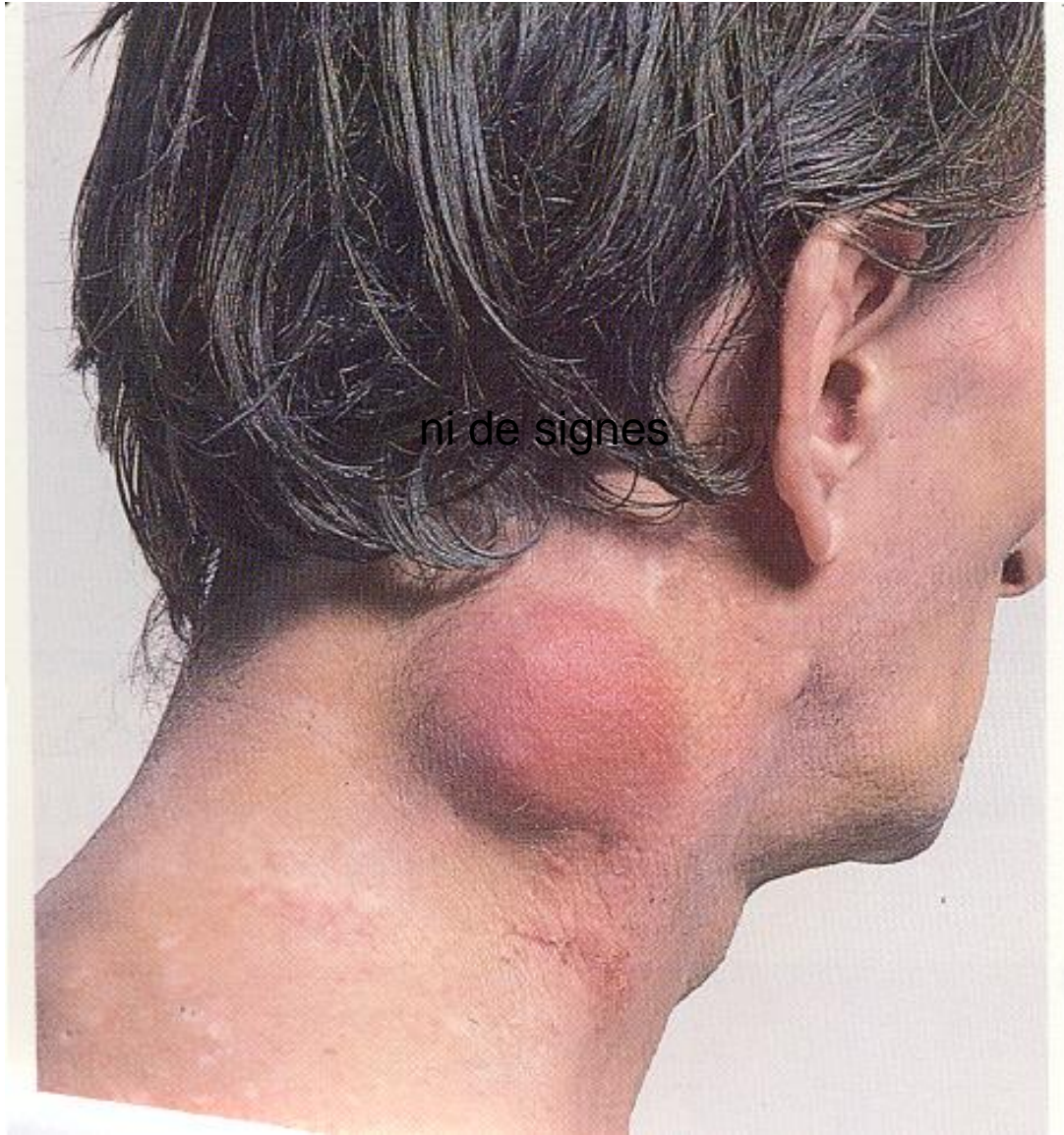


Candidose (Langue)

29



Lymphome (Glande)



TREATMENT

- No Cure
- Increase in Life Expectancy
- Better Quality of Life
- Important Side Effects:
 - Gastro-intestinal
 - Anaemia, thrombocytopenia
 - Allergic reaction
- Expensive drugs

VACCINATION

- Not yet available
- On-going extensive research.....
20 years

PREVENTION

REMAINS THE MAINSTAY

PREVENTION

- A ABSTINENCE
- B BE FAITHFUL
- C CONDOMS

When to think about HIV

- **Consider any patient to be HIV positive**
- **High-risk groups: Inmates, IDUs, CSW, STIs**
- **Signs & symptoms of a primary Infection**
- **Severe Oral Candidiasis**
- **Chronic diarrhoea >3 weeks**
- **Recurrent Herpes simplex or H.zoster**
- **Pulm. Infections resistant to treatment**
- **Loss of weight & cachexia**
- **Recent onset of psychiatric disorders**
- **Low platelet count**