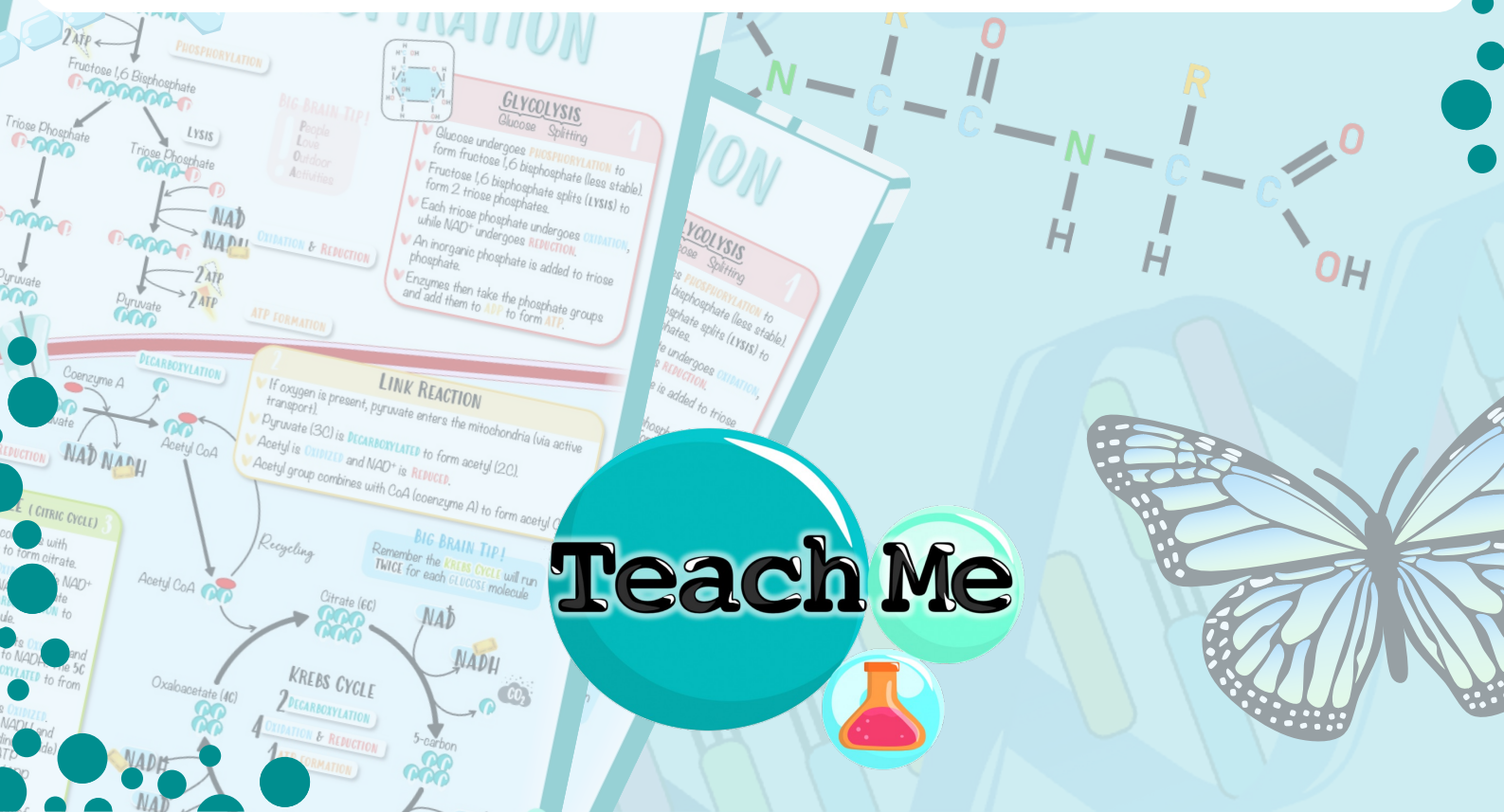


TeachMe

STUDY NOTES

CHAPTER 10 – INFECTIOUS DISEASE

HIV / AIDS



Teach Me

HIV & AIDS



PATHOGEN FACTS

- **Human Immunodeficiency Virus (HIV)**, a **Retrovirus**
- Incubation period: 5-10 years until AIDS symptoms
- Site of action: T helper lymphocytes (CD4+); a type of immune cell
- Worst Case Scenario: **AIDS (Severe HIV)**

HIV vs. AIDS

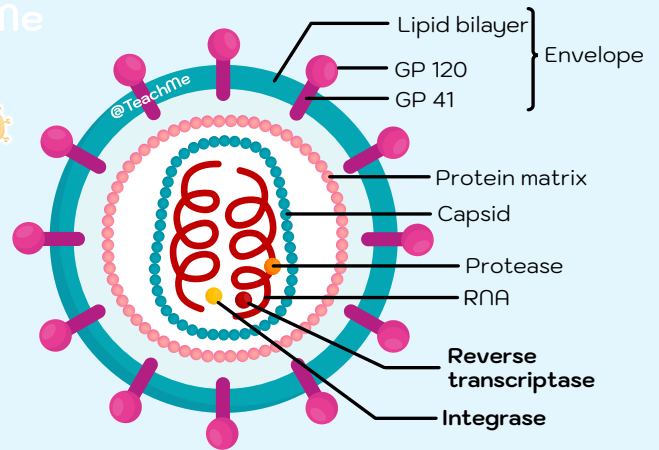
When an HIV infection has become so severe so that the CD4+ T cell count is *lower than 200* OR the person experiences an *AIDS-defining illness* (examples in “**clinical features**”)

We then refer to this severe HIV infection it as **AIDS**.

@TeachMe

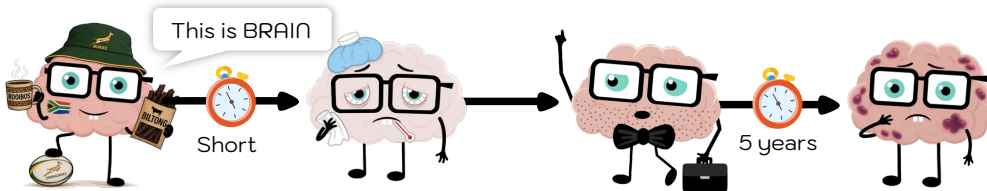
AIDS: Acquired Immunodeficiency Syndrome

@TeachMe



Story Time!

Five years later, he noticed unusual purple skin lesions and became increasingly unwell.



Brain was living his normal life in South Africa when he developed a short **flu-like illness**. The symptoms quickly disappeared, so he thought nothing more of it.

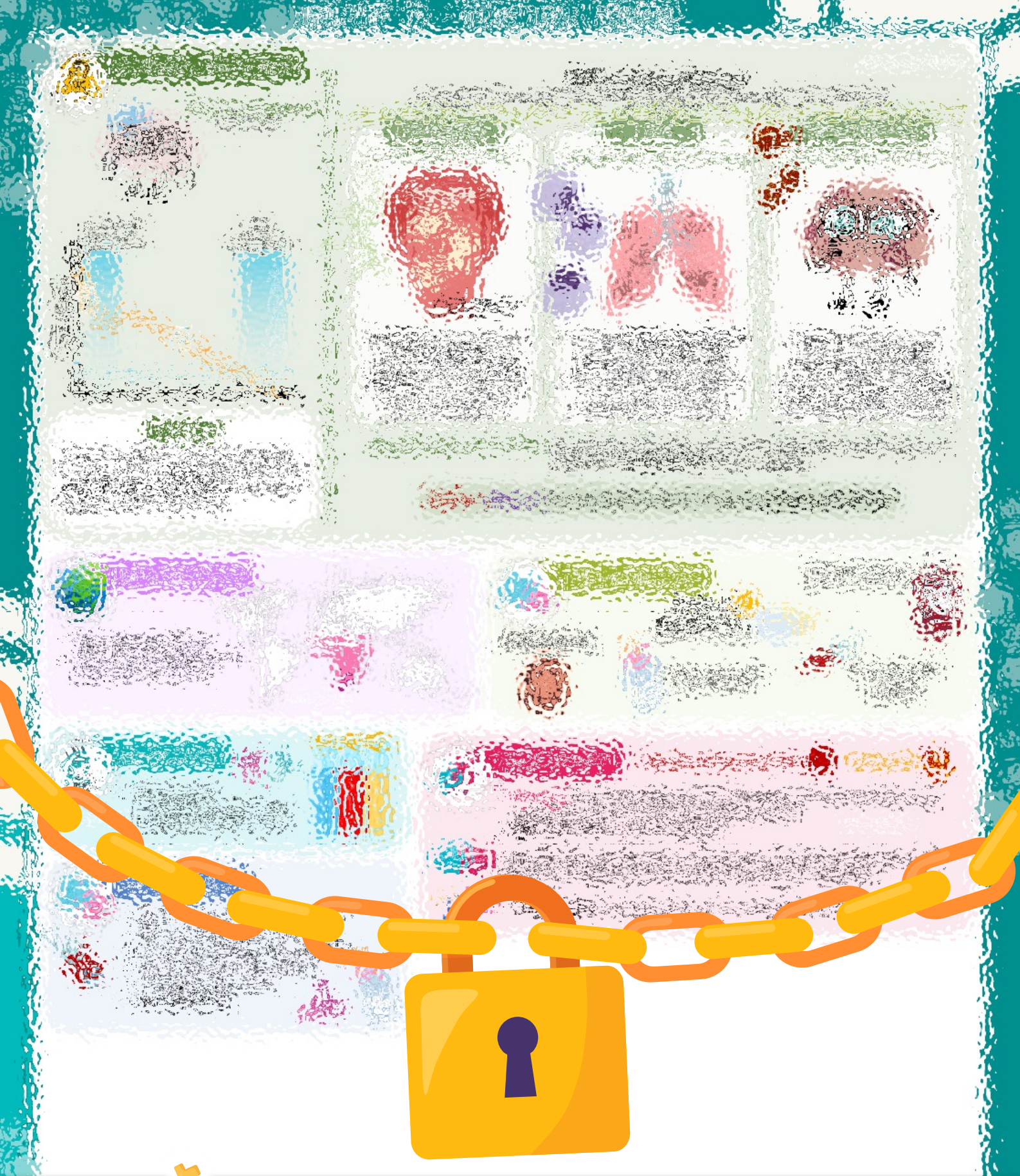
After visiting his doctor, he was diagnosed with **HIV** that had progressed to **AIDS**, and the purple lesions were identified as **Kaposi sarcoma**. Fortunately, he was started on **antiretroviral therapy (ART)** and lived to tell the tale.



PATHOGENESIS

- 1 HIV binds to CD4 receptors on **helper T lymphocytes** and enters the cell.
- 2 The viral **RNA** is converted into **DNA** by the enzyme **reverse transcriptase**.

For full access → teachmebio.org



For full access → teachmebio.org



The first step in the process of protein synthesis is transcription. This occurs in the nucleus of the cell, where the DNA double helix is unwound. One of the two strands of the DNA is used as a template to synthesize a complementary RNA strand. The RNA strand is then processed and transported out of the nucleus to the cytoplasm, where it is translated into a protein.

The second step in the process of protein synthesis is translation. This occurs in the cytoplasm, where the RNA strand is read by a ribosome. The ribosome moves along the RNA strand, and transfer RNA (tRNA) molecules bring amino acids to the ribosome. The amino acids are then joined together to form a polypeptide chain, which is the primary structure of a protein.

The third step in the process of protein synthesis is folding. The polypeptide chain folds into a specific three-dimensional shape, which is determined by the sequence of amino acids. This shape is crucial for the protein's function.

The fourth step in the process of protein synthesis is modification. The protein may be modified by the addition of chemical groups, such as phosphate groups or sugar groups. These modifications can affect the protein's function and stability.

The fifth step in the process of protein synthesis is transport. The modified protein is transported to its site of action, where it can perform its function.



For full access → teachmebio.org