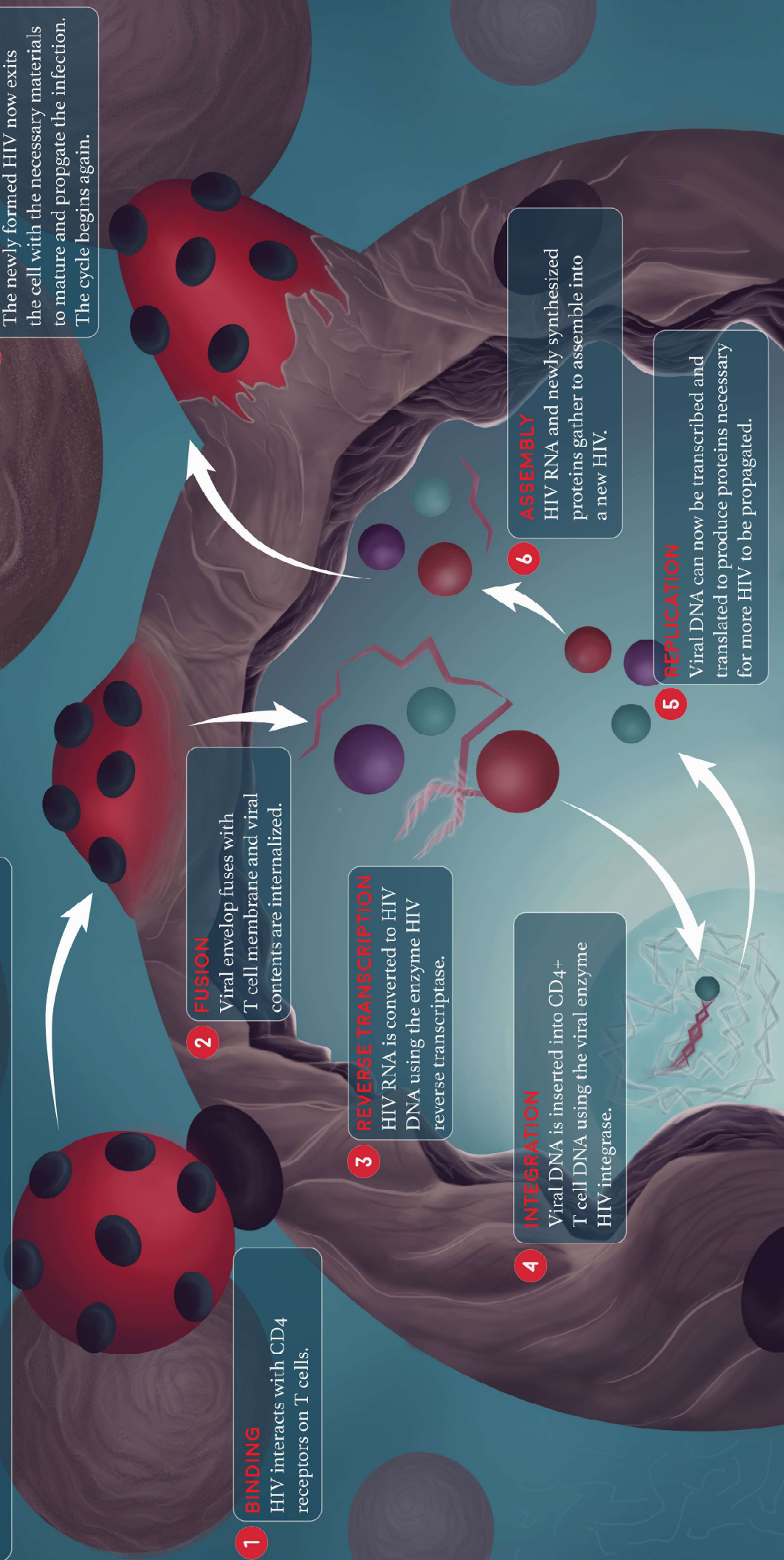


THE HIV LIFECYCLE

Human Immunodeficiency Virus (HIV) is a retrovirus that attacks CD4+ T cells of the immune system. The virus acts by recognizing CD4 receptors on the cell surface and using them to infiltrate the cell. Upon entry, the virus uses enzymes to convert its genetic information from RNA format into DNA so that it can be integrated into host DNA. Viral DNA is then transcribed and translated using host machinery to produce new proteins needed for new HIV, thus allowing for propagation of the infection. Without treatment, HIV infection can lead to Acquired Immunodeficiency Syndrome (AIDS), rendering the immune system insufficient to combat infection.

SYLVIA MOHANRAJ is the winner of the Meducator's first Editor's Choice Graphics Contest with her concept poster outlining the life cycle of the human immunodeficiency virus, completed entirely in Adobe Photoshop and Illustrator. She is currently a third year student in the Bachelor of Health Sciences (Honours) Program at McMaster University.



1 BINDING
HIV interacts with CD4 receptors on T cells.

2 FUSION
Viral envelop fuses with T cell membrane and viral contents are internalized.

3 REVERSE TRANSCRIPTION
HIV RNA is converted to HIV DNA using the enzyme HIV reverse transcriptase.

4 INTEGRATION
Viral DNA is inserted into CD4+ T cell DNA using the viral enzyme HIV integrase.

5 REPLICATION
Viral DNA can now be transcribed and translated to produce proteins necessary for more HIV to be propagated.

6 ASSEMBLY
HIV RNA and newly synthesized proteins gather to assemble into a new HIV.

7 BUDDING
The newly formed HIV now exits the cell with the necessary materials to mature and propagate the infection. The cycle begins again.