

PLAST CELL ... (NKC, natural killer cells)

 monocyte (spleen) "RESIDENT"

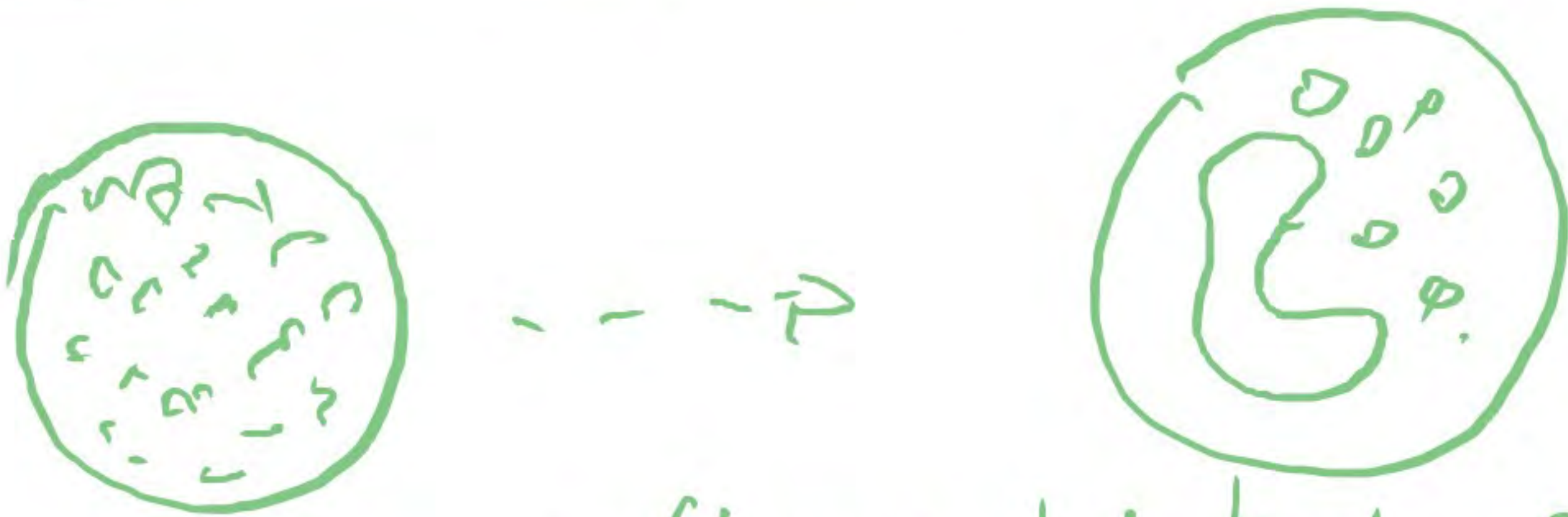
↓ Inflammation

DC
dendritic
cell

MP
Macrophage

blood "CIRCULATING"

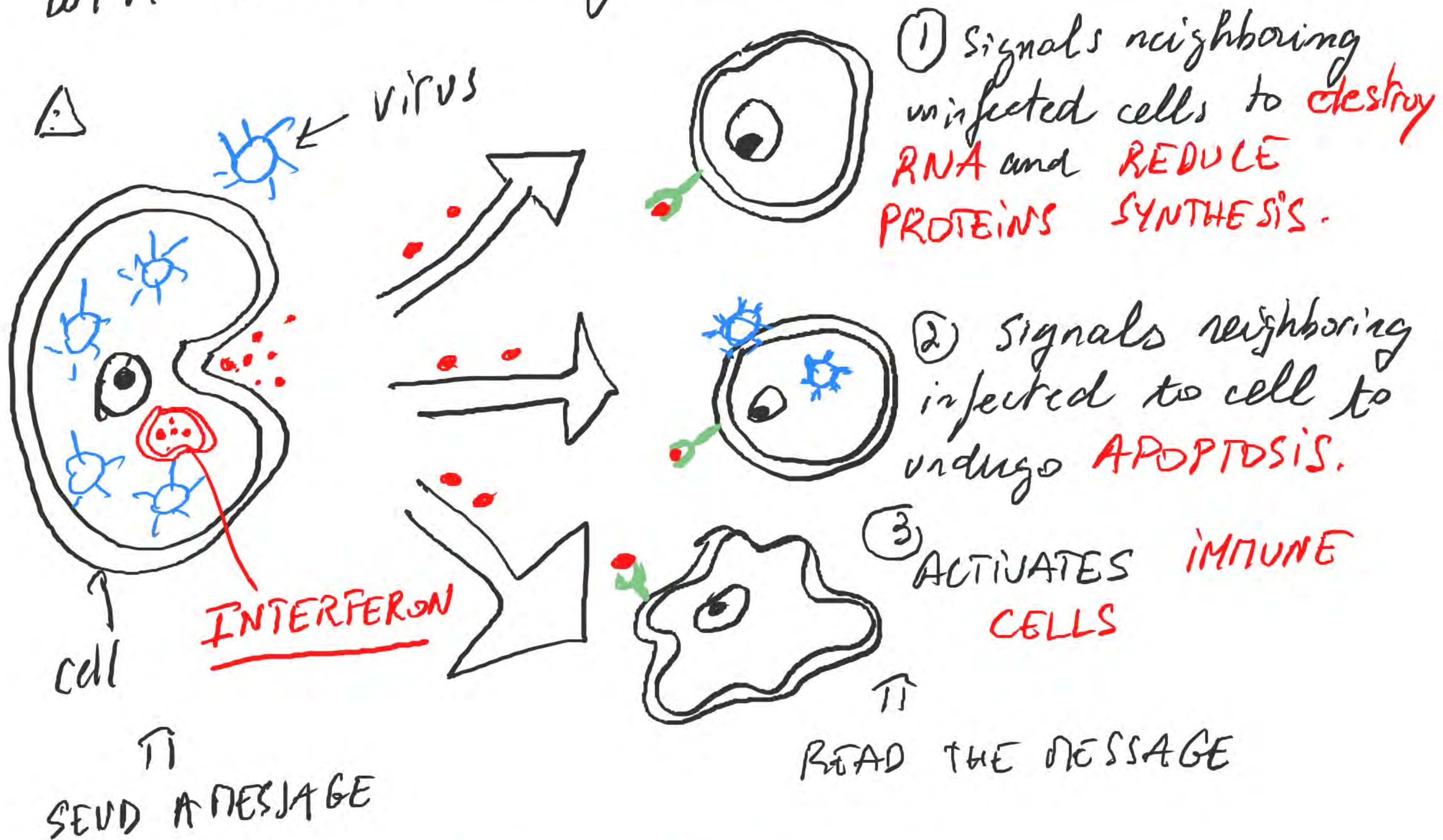
Neutrophil - Basophil - Eosinophil



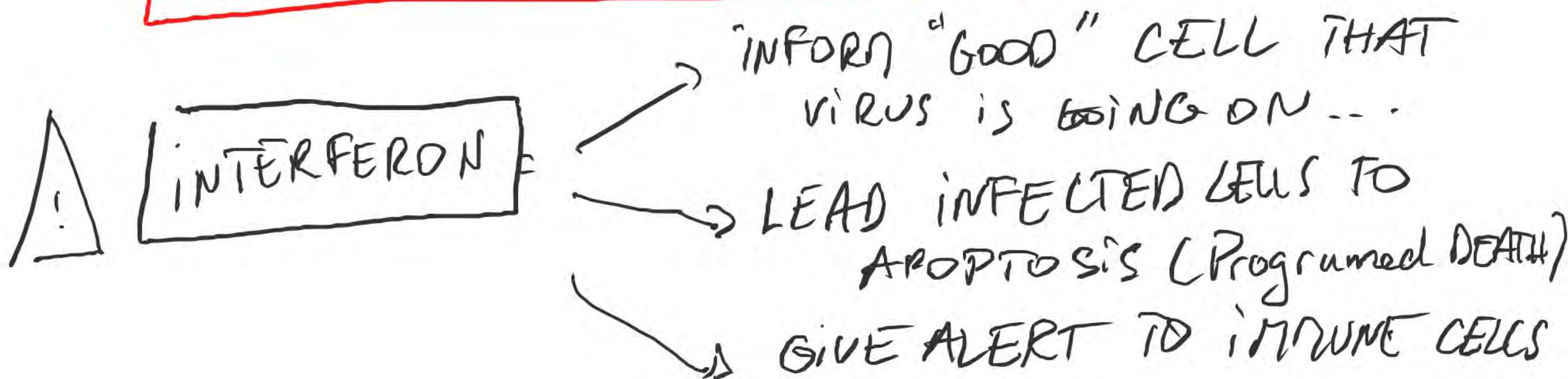
⊕ can be differentiated ONLY with proper staining

Mechanism of activation of immune cells:

In case of infection by a virus, the cells will release **INTERFERONS**. Neighboring cells will "receive" interferons → ANSWER!!!



INTERFERON = CYTOKINES





ANTIBODY (SIGNAL = TAG)

"COMPLEMENT CASCADE"

= SUCCESSION
OF EVENTS
= RAPID, QUICK

C = complement...

① C_1 binds "Antigen-Antibody" complex on the invading pathogen, cause C_2 and C_4 to split into 2.

② $\frac{1}{2} C_2$ and $\frac{1}{2} C_4 \rightarrow$ combine and form Enzyme called C_3 convertase

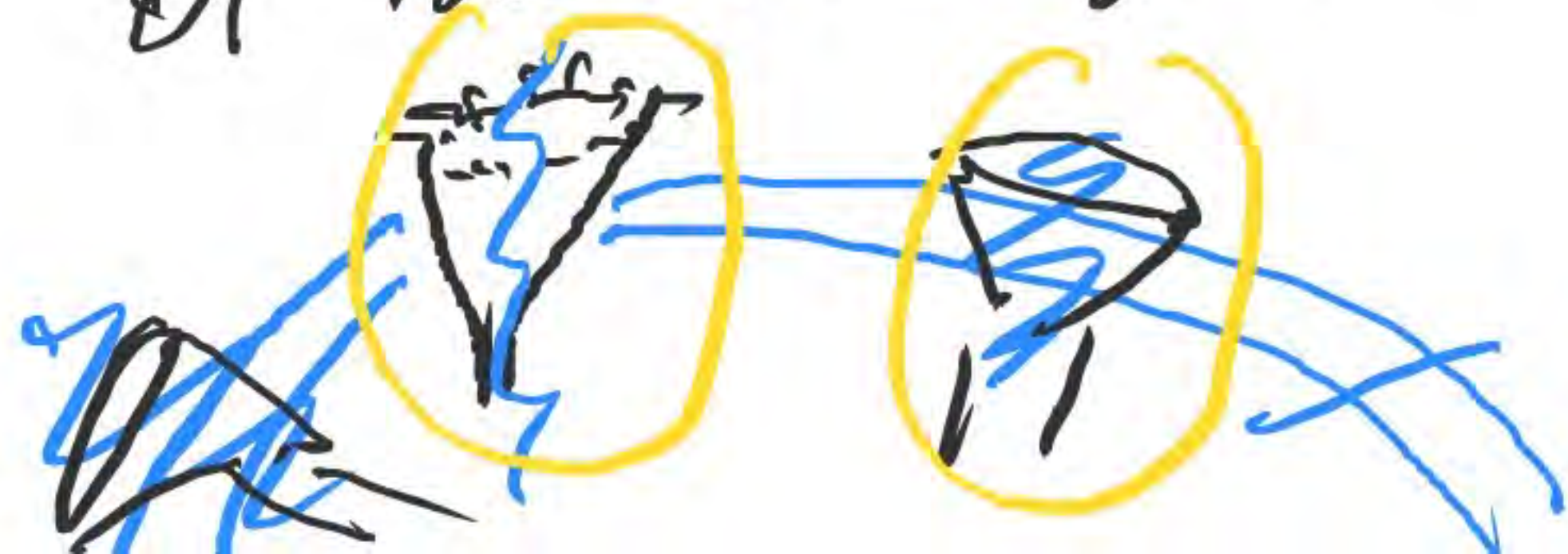
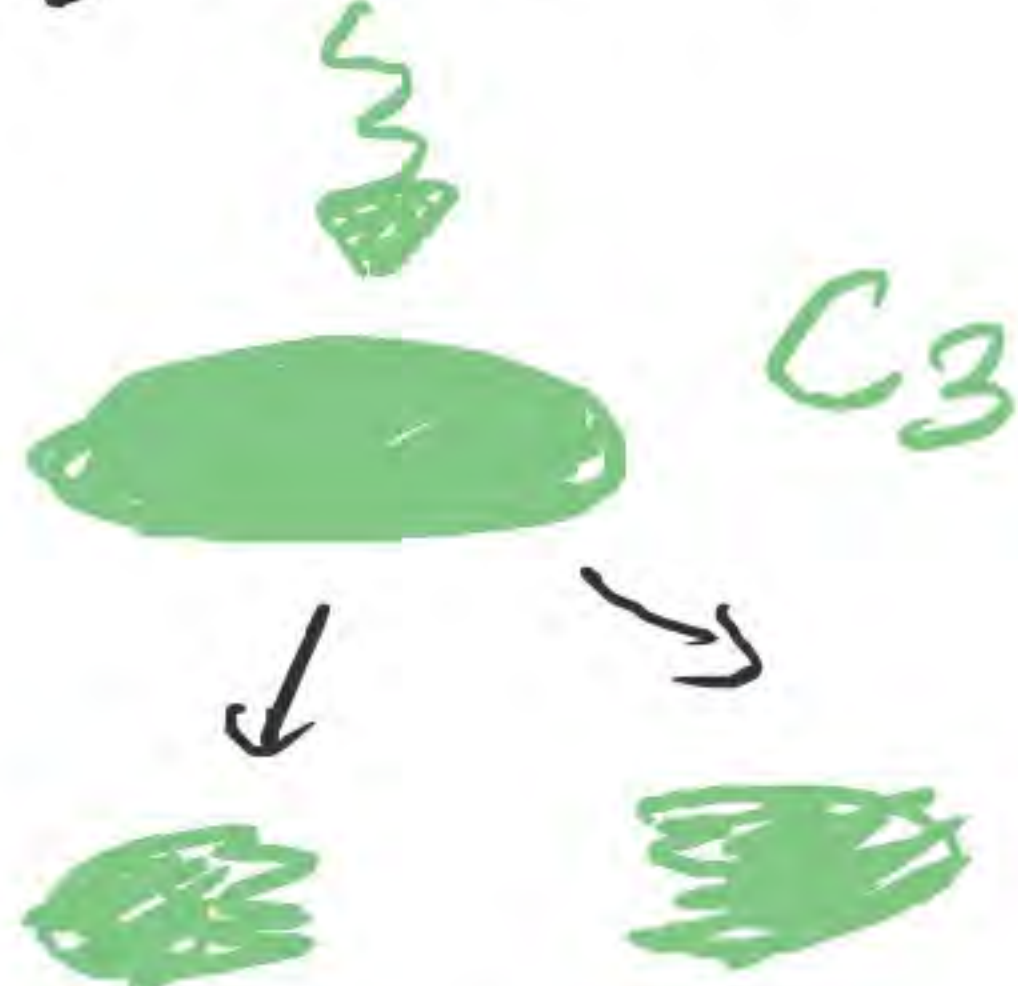
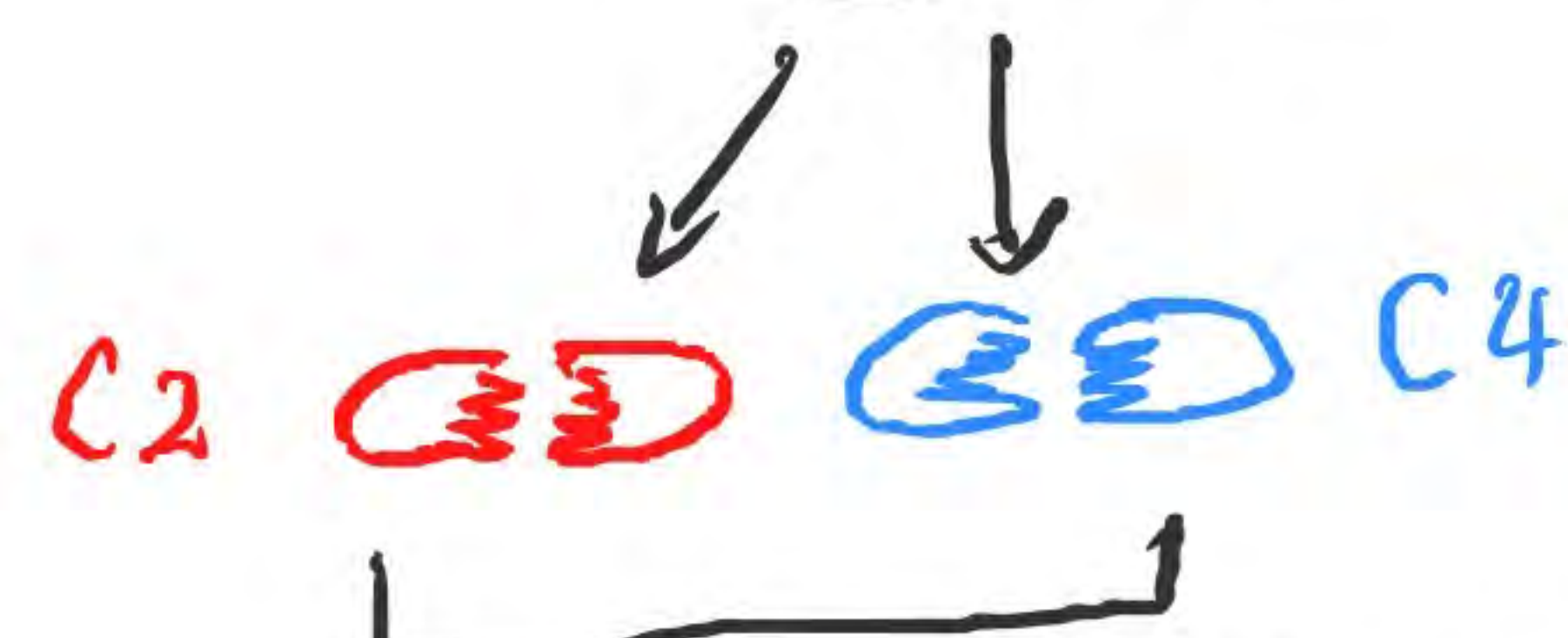
③ C_3 convertase splits C_3 into 2. One fragment from C_3 joins C_3 convertase form another enzyme called C_5 convertase

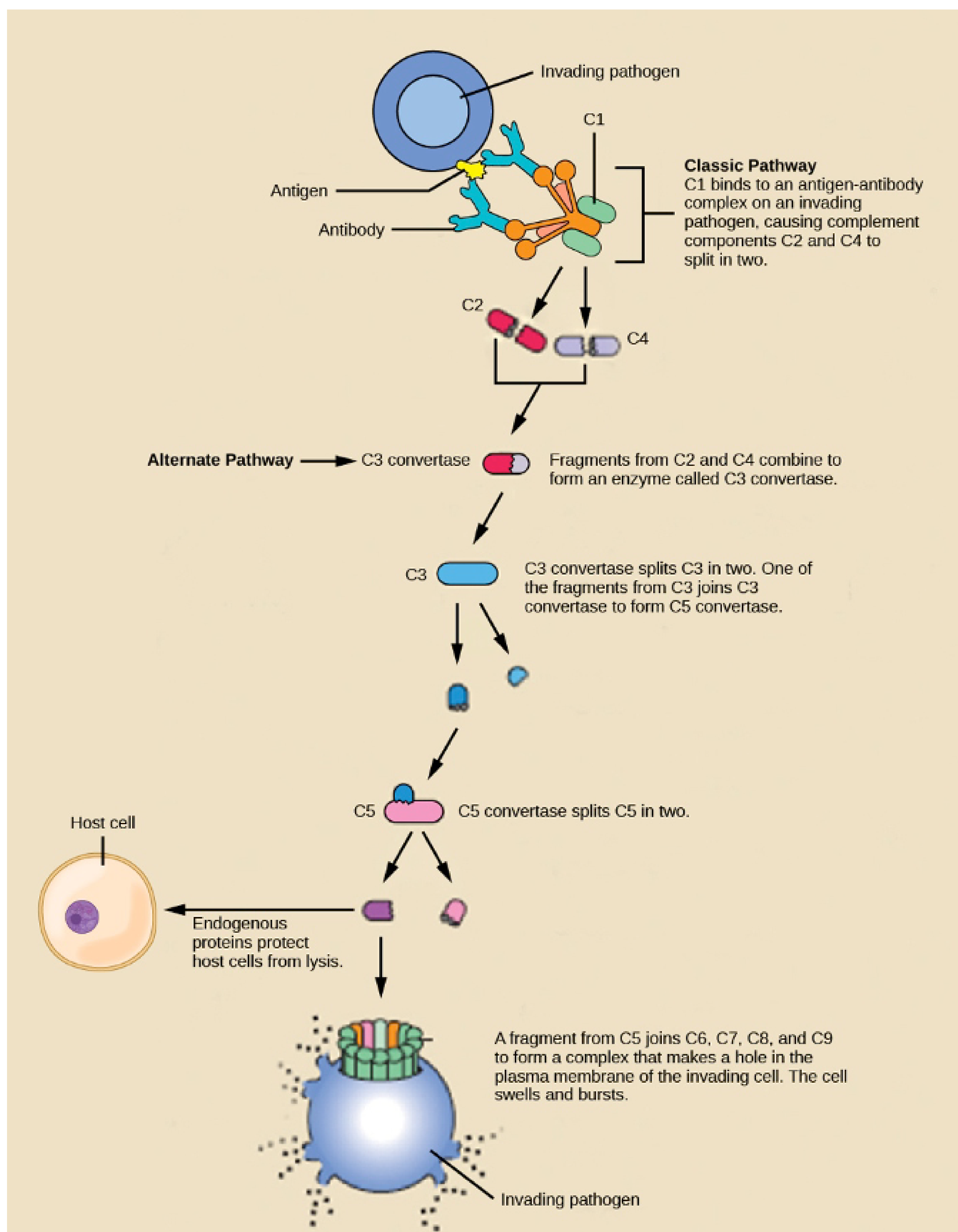
④ C_5 convertase splits C_5 into two!!!

protect host cell from lysis

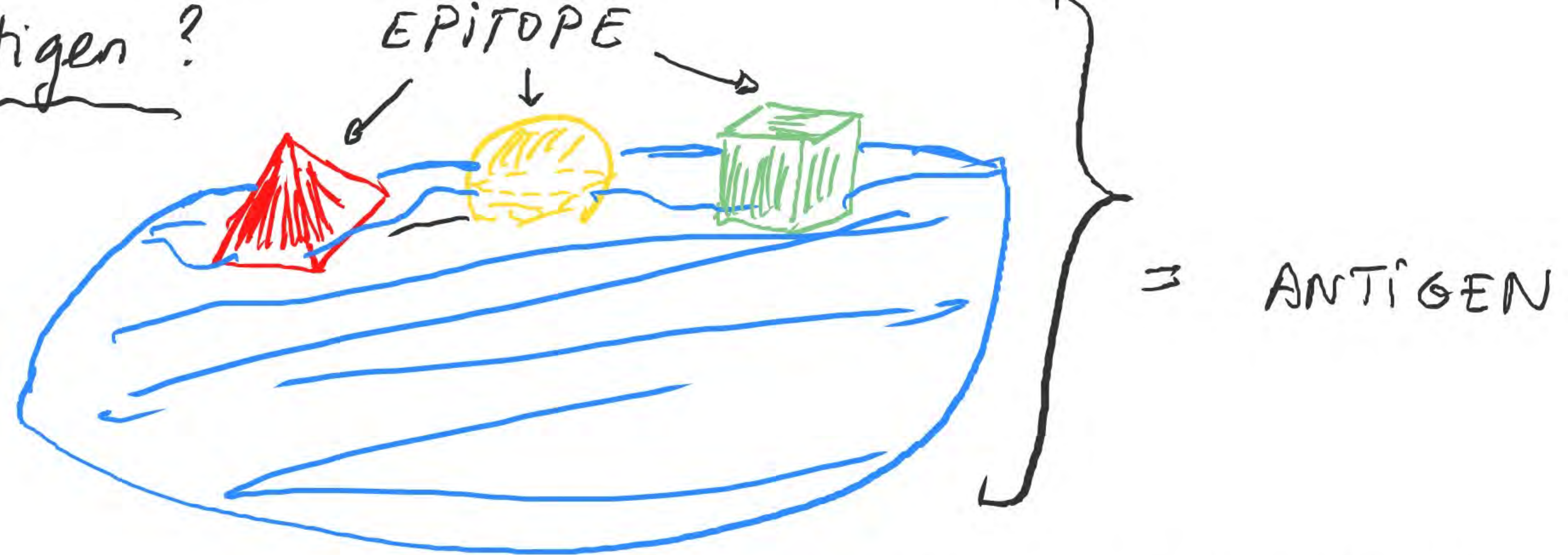
C_5 join a complex made C_6, C_7, C_8 and C_9 to make a "hole" in the plasma membrane of the invading cell. DESTROY PATHOGEN

PATHOGEN DESTROYED





what is an antigen?




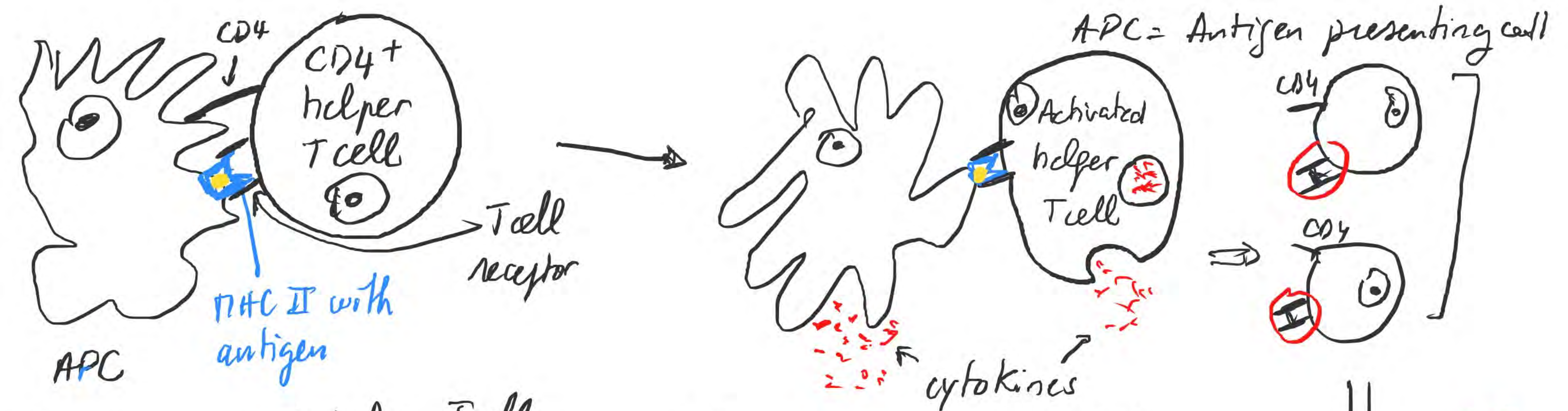
= An antigen is a **MACROMOLECULE** that REACTS WITH COMPONENTS OF THE IMMUNE CELLS. A GIVEN ANTIGEN MAY CONTAIN **SEVERAL MOTIF** THAT RECOGNIZE BY IMMUNE CELLS. EACH MOTIF IS CALLED **EPITOPE**. HERE ON THE FIGURE, THE ENTIRE STRUCTURE IS AN ANTIGEN.

NOMENCLATURE:

$\text{CD4}^+ \text{ T-cell}$ = T cell ^(-without) with CD4 receptors on surface

$\text{CD44}^+ \text{ MP}$ = MP with CD44 receptor on surface





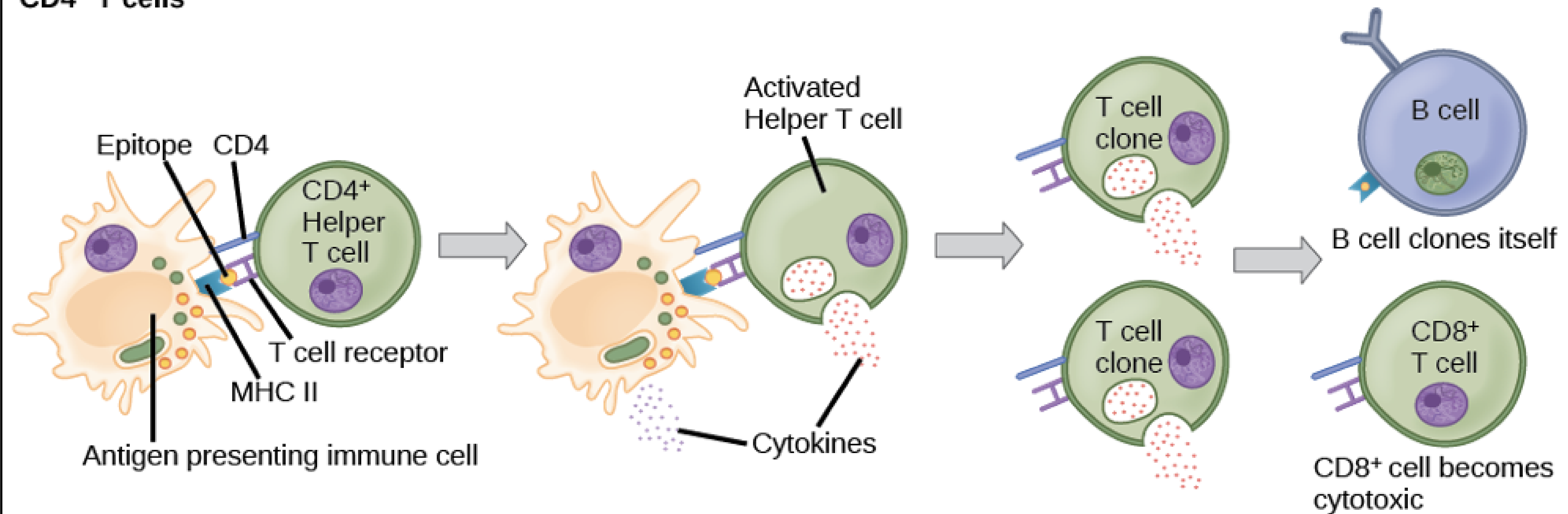
① When a CD4⁺ helper T cell binds MHC II-antigen complex on an APC, both the APC cell and the T-cell release cytokine

② In response to cytokines, the T cells clones itself

③ The cloned T cell produce cytokines that activate B cells and CD8⁺ cells.



CD4⁺ T cells



1. When a CD4⁺ helper T cell binds MCH II-antigen complex on an antigen-presenting cell, both the antigen-presenting cell and the T cell release cytokines.

2. In response to cytokines the T cells clones itself.

3. The cloned T cells produce different cytokines that activate B cells and CD8⁺ cells.