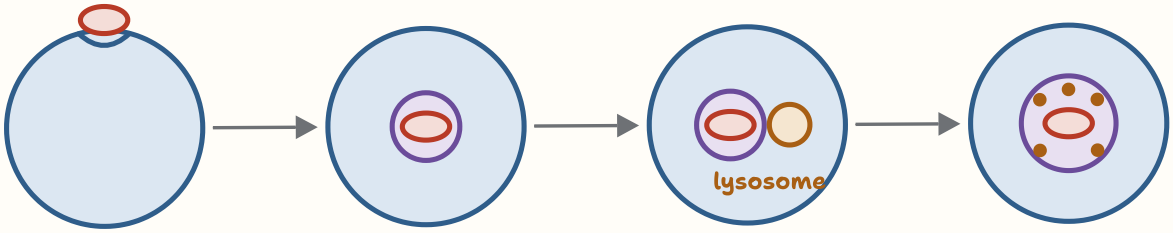
Phagocytosis: How Phagocytes Work

A phagocyte binds and engulfs a bacterium, encloses it in a phagosome, then a lysosome fuses with it and lysozymes digest it.

Phagocytosis: engulf, enclose, fuse, digest



1 engulf — binds antigens, takes it in

2 phagosome — bacterium in a vesicle

3 fusion — lysosome joins phagosome

4 digestion — lysozymes hydrolyse it

Key terms

phagocyte	a white blood cell that engulfs and destroys pathogens.
phagocytosis	the engulfing of a pathogen into a phagocyte, where it is destroyed.
phagosome	the vesicle inside the cell that contains the engulfed bacterium.
lysosome	an organelle (vesicle) containing lysozymes; it fuses with the phagosome.
lysozymes	hydrolytic enzymes that hydrolyse (digest) the bacterium inside the phagosome.
hydrolytic enzyme	an enzyme that breaks bonds by adding water.

I can...

- ☐ Phagocytosis of pathogens
- ☐ Destruction of ingested pathogens by lysozymes

EXAM TRAP

The lysosome fuses with the phagosome (not the cell membrane), and the enzyme that digests is the lysozyme, released inside the phagosome. Do not write that antibodies engulf bacteria.

4 marks: what earns them

1. Phagocyte binds to / recognises the antigens on the bacterium and engulfs it
   Not: eats the bacteria, with no engulfing into the cell; antibodies bind
2. Bacterium is enclosed in a phagosome (vesicle) inside the cell
   Not: bacterium floats in the blood; phagosome with the bacterium outside the cell
3. Lysosome fuses with the phagosome
   Not: lysosome fuses with the cell membrane; lysozyme fuses with the phagosome
4. Lysozymes (hydrolytic enzymes) are released and hydrolyse / digest the bacterium
   Not: lysozymes kill bacteria in the blood; enzymes dissolve it, with no release into the phagosome

Remember

Engulf into a phagosome.
Lysosome fuses with it.
Lysozymes digest the bacterium.

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