

Kingdom Protista: Single-Celled Eukaryotes

Exploring the aquatic link between simple cells and complex life.

Chrysophytes

Dinoflagellates

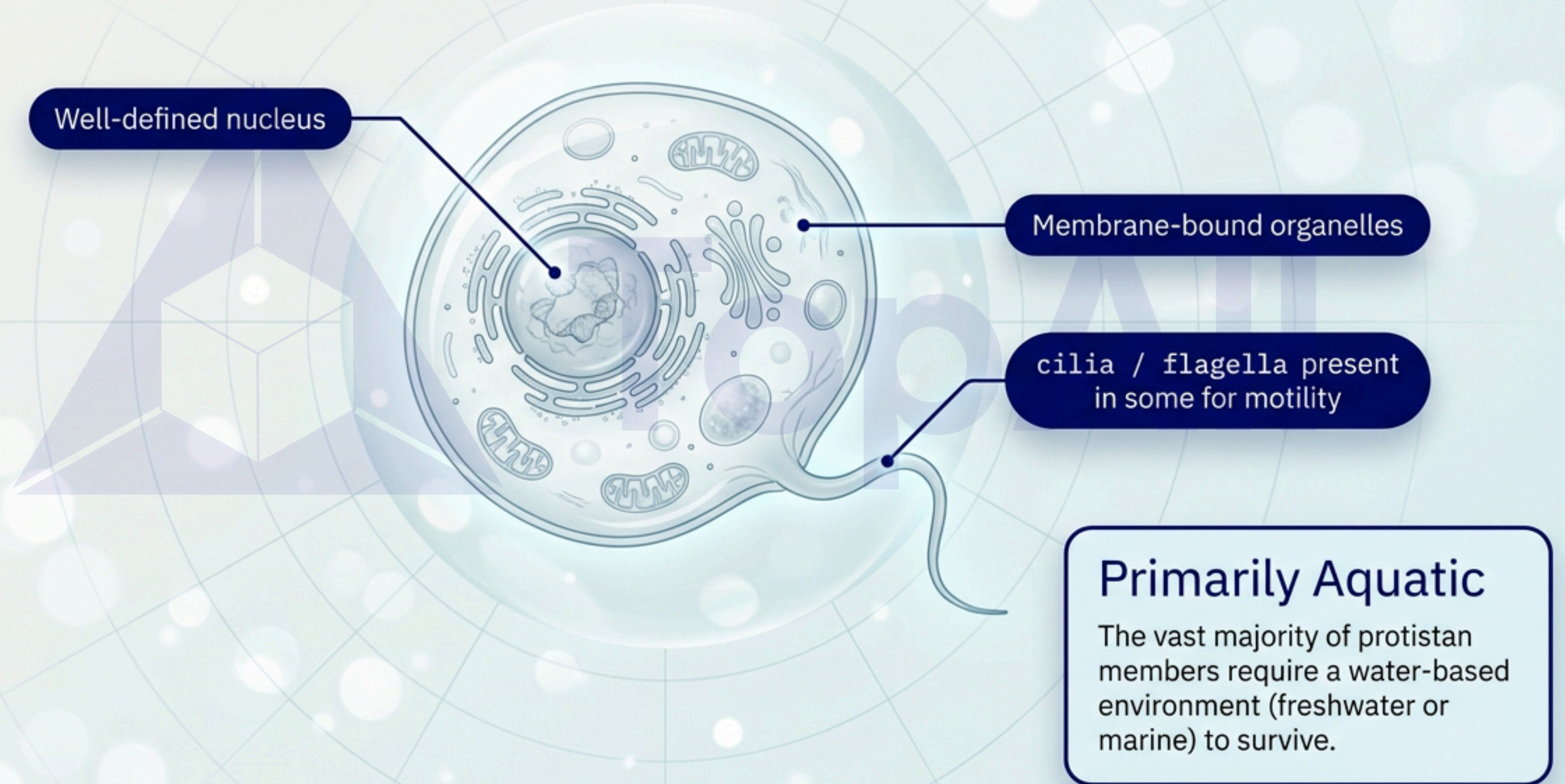
Euglenoids

Slime moulds

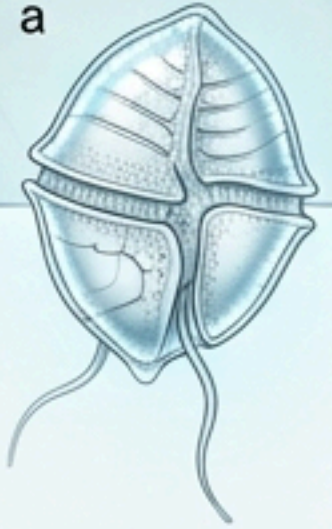
Protozoans

The Protistan Blueprint

All single-celled eukaryotes are placed under Protista.



The Ocean Producers: Armored Photosynthesizers



Chrysophytes

(Diatoms & Golden Algae)



- Microscopic, passive floaters (plankton) in fresh/marine water.
- Indestructible, overlapping silica shells fitting together like a soap box.
- Leave massive cell wall deposits over billions of years known as 'diatomaceous earth'. They are the chief 'producers' in the oceans.

Dinoflagellates

- Mostly marine & photosynthetic. Yellow, green, brown, blue, or red based on pigments.
- Outer surface has stiff cellulose plates. Possess two flagella (longitudinal and transverse).

Rapid multiplication of red dinoflagellates (e.g., *Gonyaulax*) causes red tides. Toxins released can kill marine animals like fishes.



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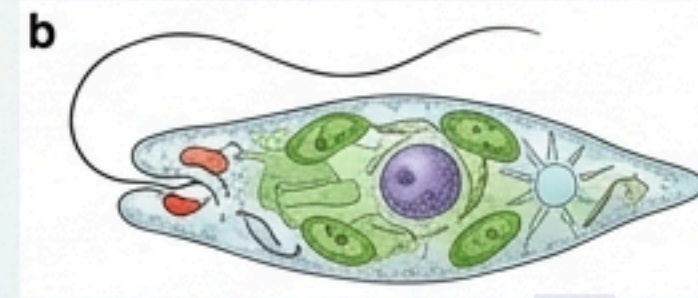


Adaptable Survivors: Mixotrophs & Decomposers

Euglenoids

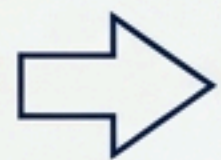
- Habitat: Freshwater / stagnant water.
- Mixotrophic strategy:
 - Photosynthetic (pigments identical to higher plants) in sunlight ☀.
 - Heterotrophic predators of smaller organisms in darkness 🌙. Ex: Euglena.

Amber Alert Box: Instead of a cell wall, they have a flexible, protein-rich layer called a pellicle.

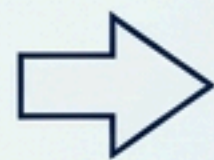


The Decomposers

- Lifestyle: Saprophytic protists moving along decaying organic material.

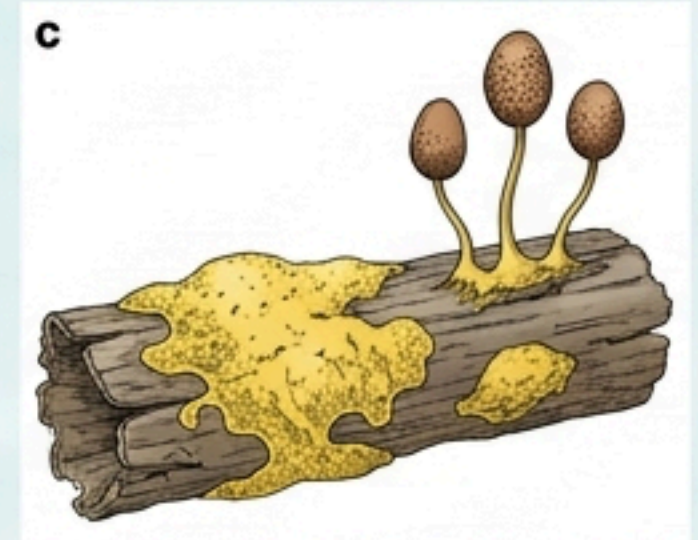


Favorable Conditions)
Form a massive aggregation
called a plasmodium.



(Unfavorable Conditions)
Differentiate into fruiting bodies
bearing highly resistant true-
walled spores dispersed by air.

Slime moulds

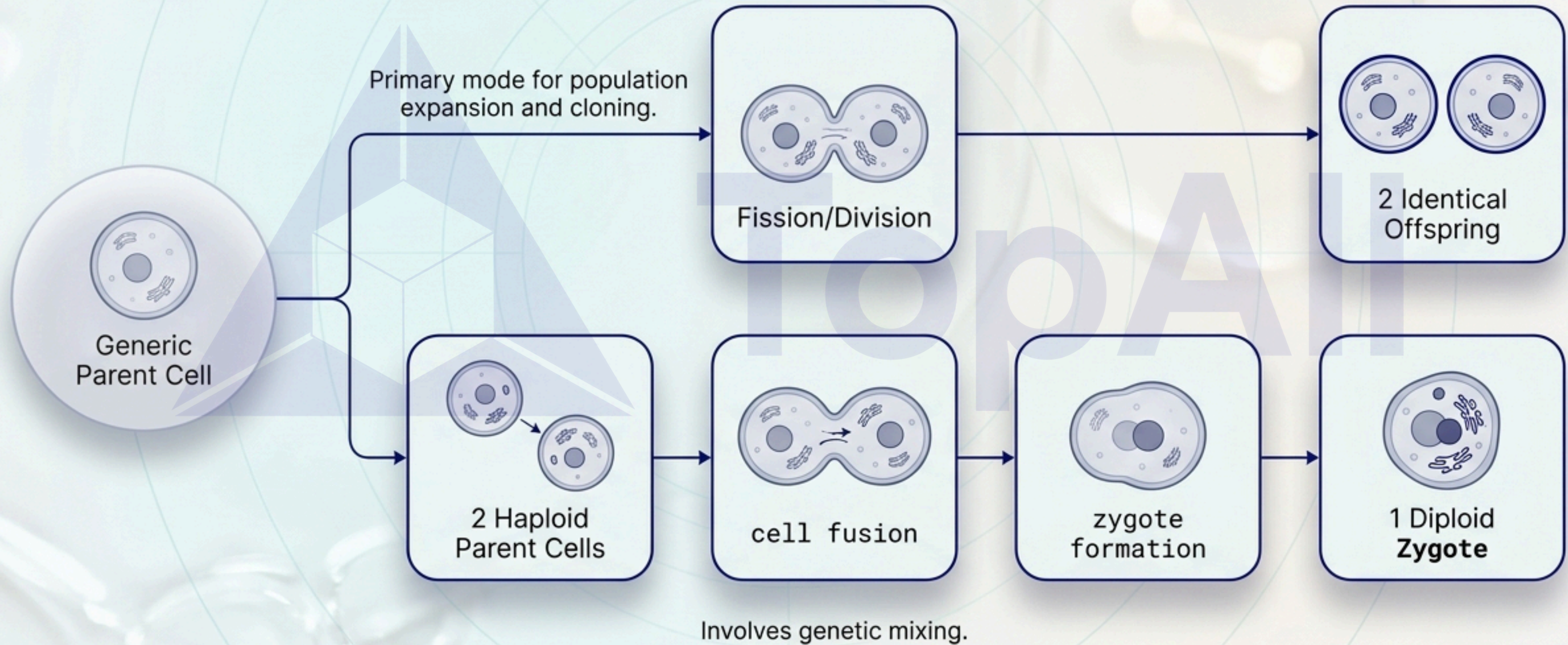


The Animal Relatives: Protozoans

All are heterotrophs living as predators or parasites.

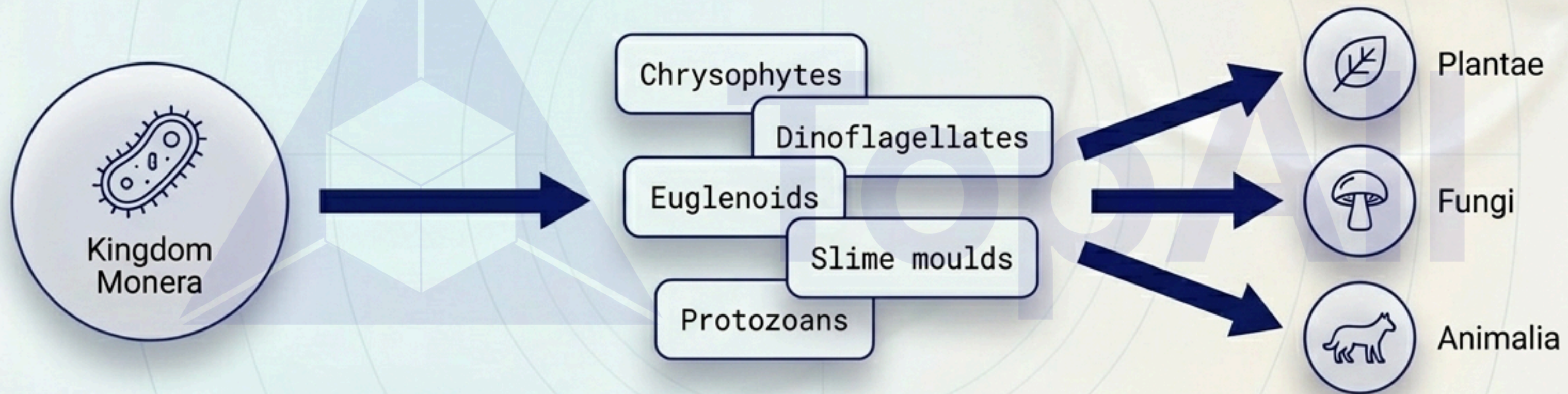
Amoeboid	Flagellated	Ciliated	Sporozoans
 Move and capture prey via pseudopodia (false feet). Marine forms have silica shells. <i>Amoeba</i>, <i>Entamoeba</i> (parasitic).	 Free-living or parasitic movers using flagella. <i>Trypanosoma</i> causes sleeping sickness.	 Active aquatic movers using thousands of cilia to steer food into an external-opening gullet. <i>Paramecium</i>.	 Diverse organisms possessing an infectious spore-like stage in their life cycle. <i>Plasmodium</i> is the malarial parasite with staggering human impact.

Lifecycle & Reproduction



The Evolutionary Bridge

Kingdom Protista forms the vital biological link connecting simple Monerans to complex multicellular life.



Final Revision Recap

- Exclusively single-celled Eukaryotes.
- Primarily aquatic habitats.
- Contains five core groups: Chrysophytes, Dinoflagellates, Euglenoids, Slime moulds, and Protozoans.
- Boundaries are not rigid ("plant" vs "protistan" is a spectrum).



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