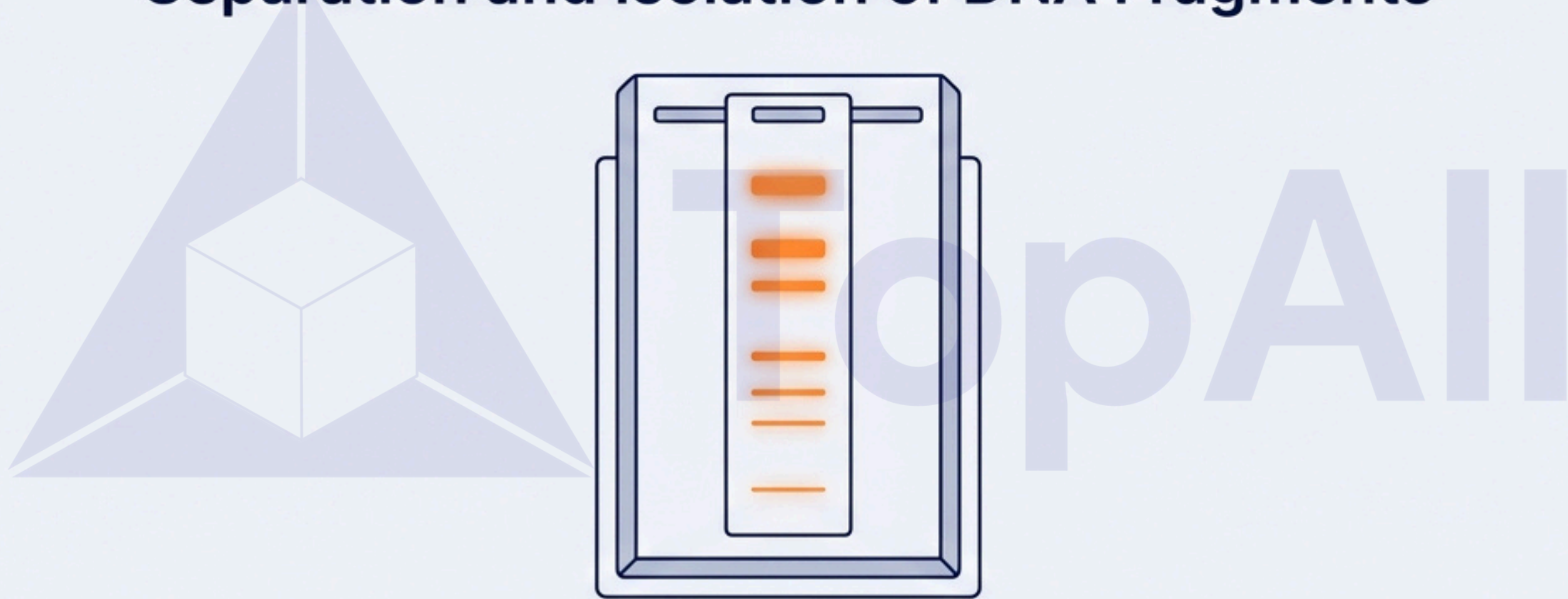


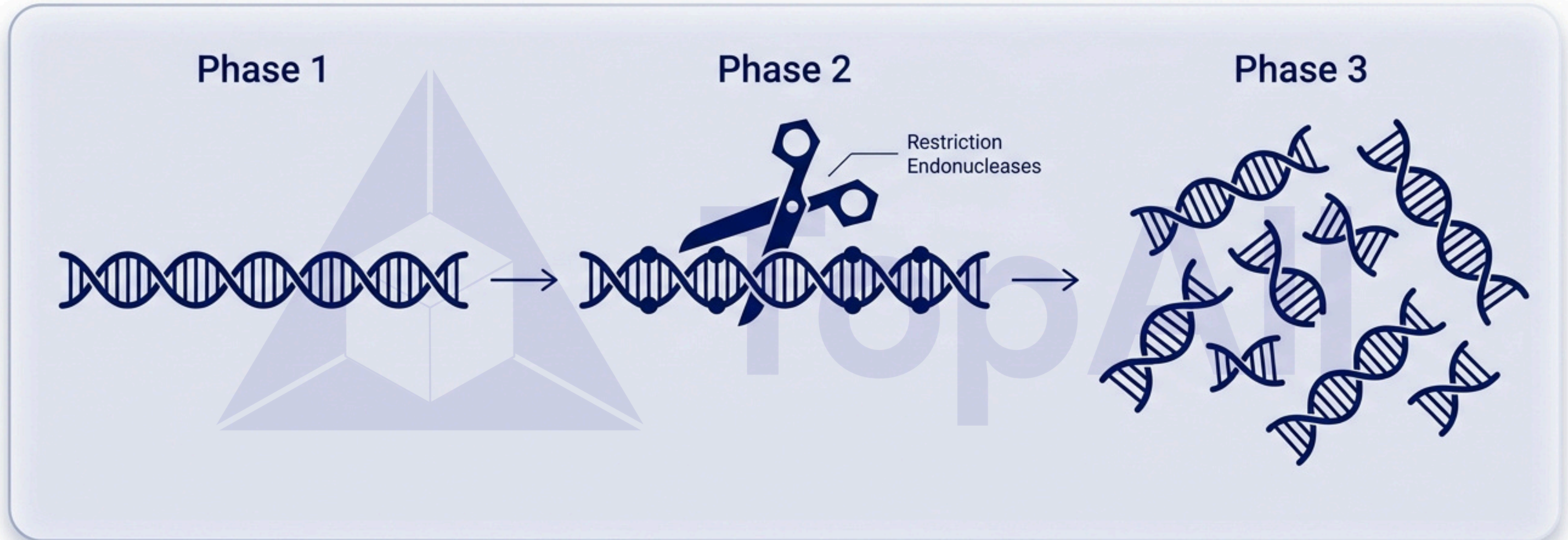
Gel Electrophoresis

Separation and Isolation of DNA Fragments



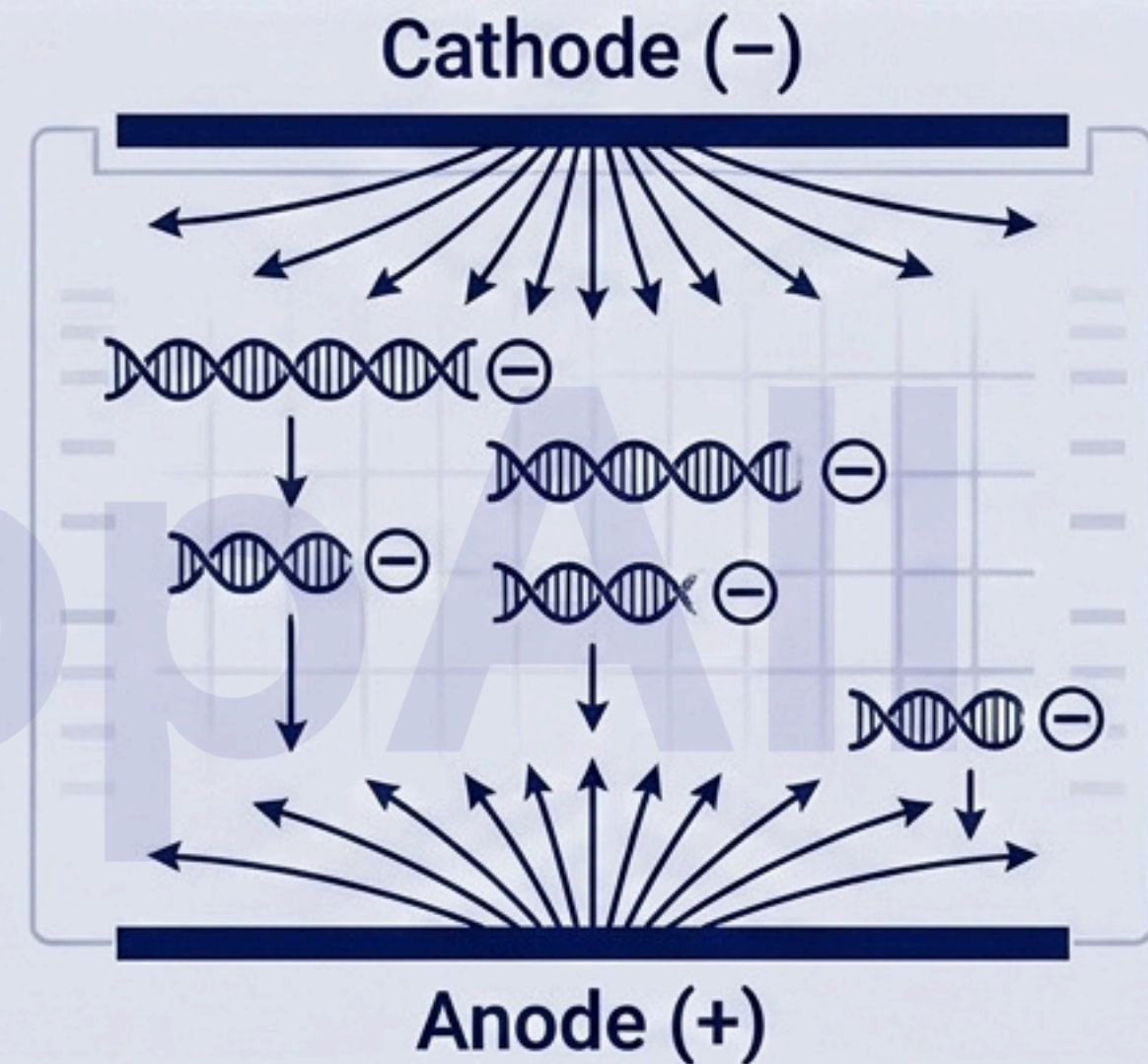
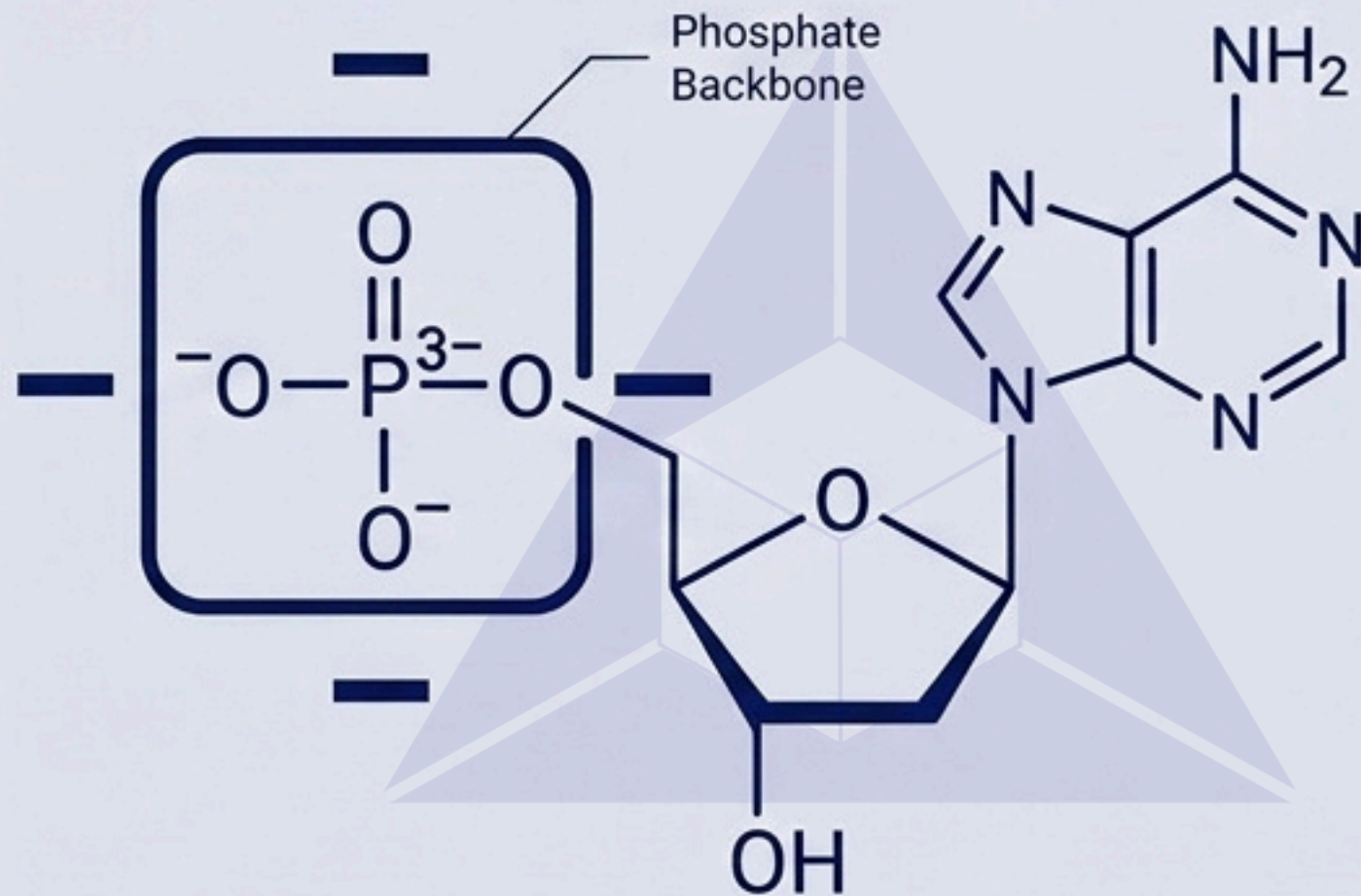
A core biotechnology technique used to separate DNA fragments based on their size and charge, isolating them for recombinant DNA technology.

The Starting Point: Restriction Cutting



Restriction enzymes digest source DNA at specific locations. This results in a mixed pool of different-sized DNA fragments that now require physical separation.

The Driving Force: Electric Charge



DNA is a negatively charged molecule. When an electric field is applied across the matrix, the fragments are forced to migrate away from the cathode (–) and toward the positive anode (+).

The Matrix: Agarose Gel as a Sieve



The most common matrix is agarose, a natural polymer extracted from seaweeds. At a microscopic level, this gel forms a dense physical—a **molecular sieve** that the migrating DNA must navigate through.



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



Turn theory into marks with **unlimited MCQs, smart analysis, and focused revision.**

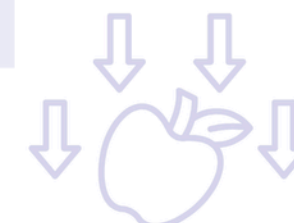
Practice Now



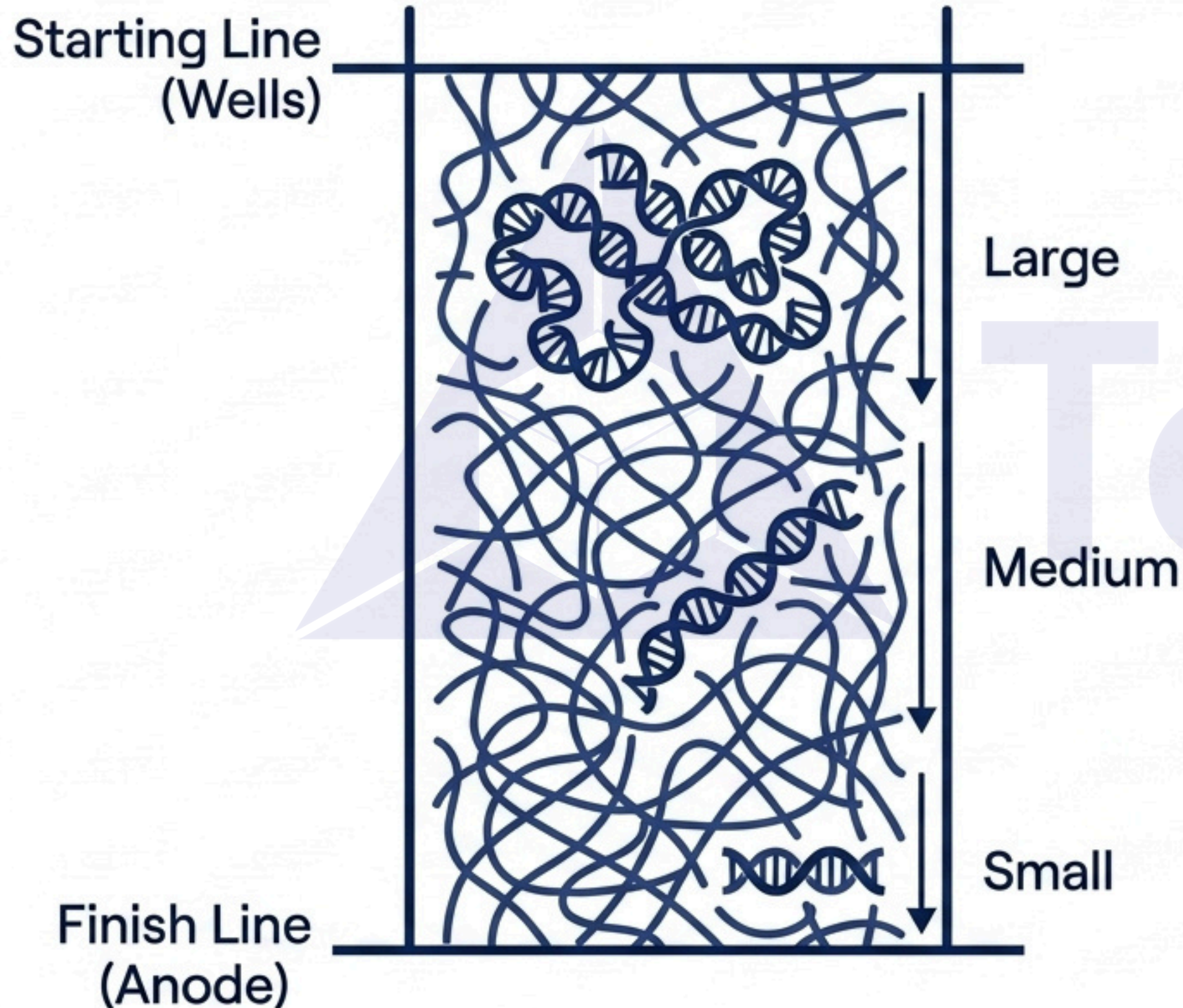
At prep.topall.app

Key Highlights

- » Free Study Material, Videos & Infographics
- » Push Your Limits with Level-Based Challenges
- » Climb the Leaderboard Among Fellow Aspirants
- » Practice Unlimited MCQs for NEET & JEE
- » Get Clear Explanations, Not Just Marks
- » Track Your Performance Smarter

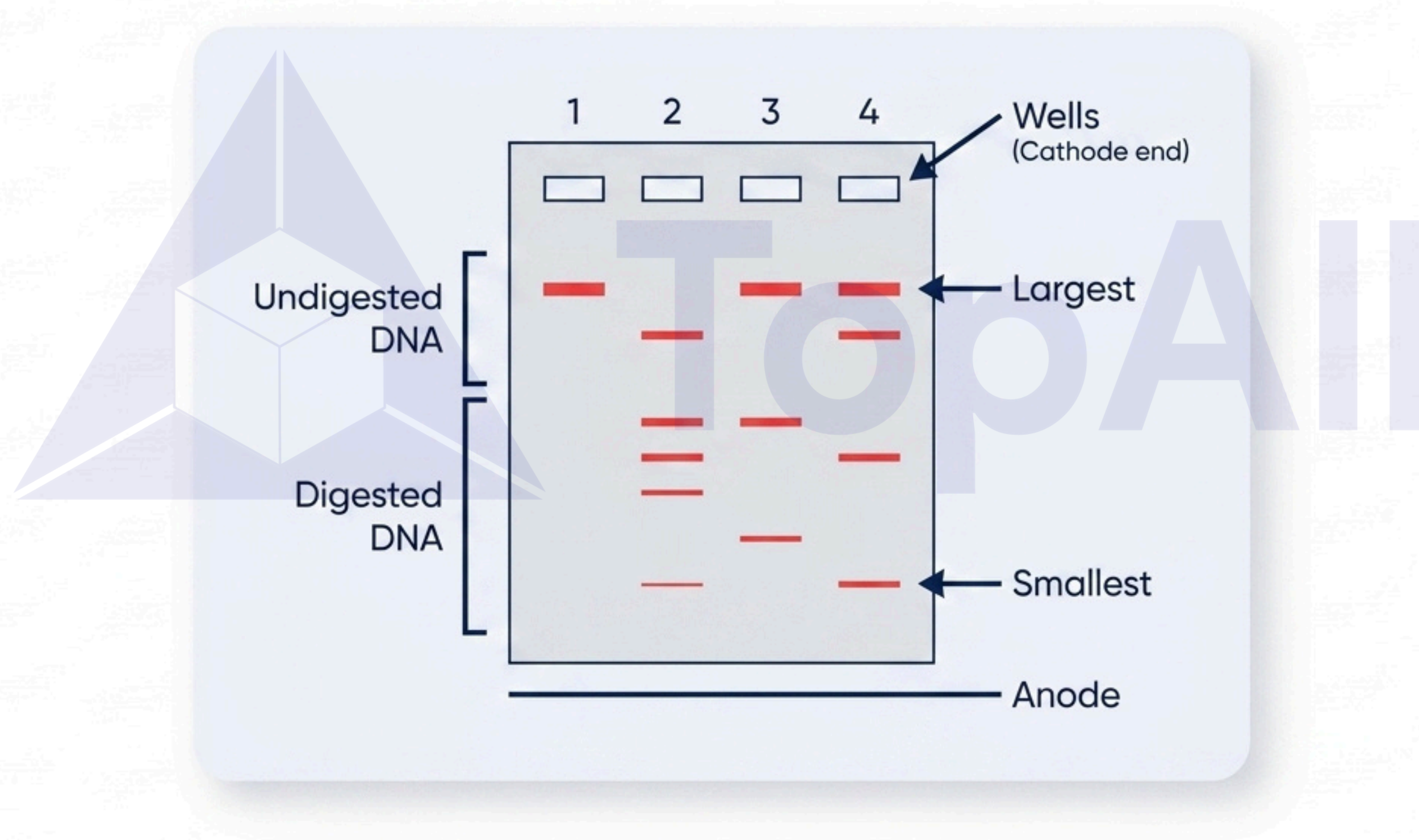


The Sieving Effect: Smaller Moves Farther

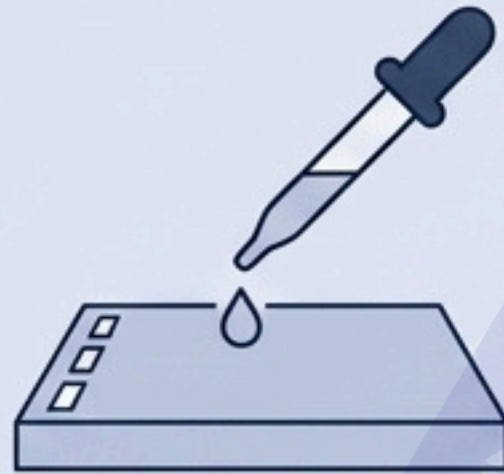


DNA fragments resolve according to their size. The smaller the fragment size, the less resistance it faces in the agarose mesh, allowing it to move farther and faster toward the anode.

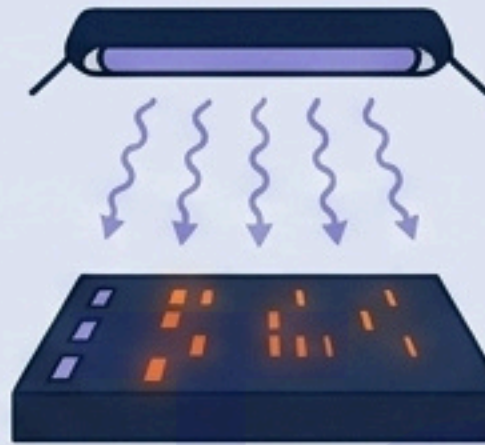
Standard Gel Electrophoresis Migration



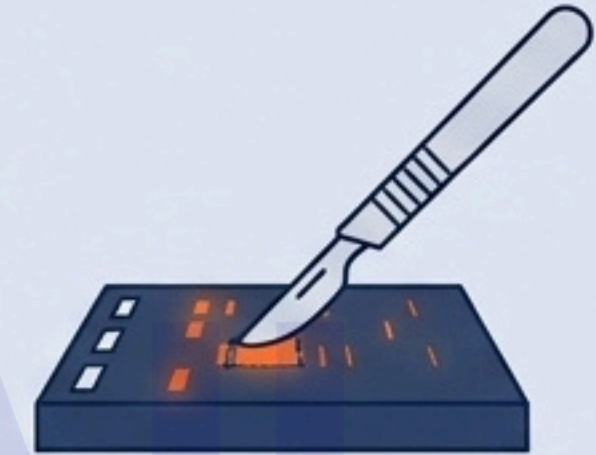
Visualization and Extraction



Staining: Pure DNA is invisible and requires Ethidium Bromide.



Visualization: UV radiation exposes bright orange coloured bands.



Elution: The separated bands are cut out and extracted from the agarose gel piece.

EXAM YIELD: Remember the triplet sequence—**Ethidium Bromide + UV Exposure = Bright Orange Bands**. The final physical extraction step is uniquely termed **Elution**.



You've Learned the Theory.

Now Let's Test It.

Reading notes gets you knowledge.

Practicing MCQs gets you marks.

That's exactly what TopAll Pro is built for.

Try TopAll Pro Now

What TopAll Pro Does Differently

-  **Stuck? Snap it. Solve it. — Doubts AI**
Photo → step-by-step solution in seconds, 24/7
-  **Your AI Coach finds your blind spots**
Concept-level weakness detection — not just chapter-level
-  **4.5 Lakh+ questions. Never run out.**
13× more content than any other prep app in India
-  **Build your own test in 60 seconds**
Pick a chapter, set difficulty — AI does the rest instantly.
-  **AI Recommendation that helps you improve**
AI Recommendation Analysis your Tests and tell you where you need to improve.



Practice the moment you finish studying
Jump in while the concept is still fresh in your head

4.5L+
MCQs

1.5L+
Students

AI Powered
In-Depth Analysis