

Model DNA Restriction

Materials:

- Two DNA molecules with the same size of two meters
 - o First molecule has one restriction site for *EcoRI* (GAATTC)
 - o Second molecule has two restriction sites for *EcoRI*
- A sissor (model standing for restriction enzyme *EcoRI*)

Performance:

1. Step:
Two mentors carry a DNA molecule each. They demonstrate that both molecules have the same length by overlapping both molecules.
2. Step:
Executing mentor goes with the sissor along the first DNA molecule looking for a restriction site, the palindromic sequence GAATTC for *EcoRI*.
First molecule has one restriction site and the sissor cuts the molecule into two DNA fragments. Both fragments have sticky ends.



3. Step:
Executing mentor goes with the sissor along the second DNA molecule looking for restriction sites of *EcoRI*, which is the palindromic sequence GAATTC.
Second DNA molecule has two restriction sites and the sissor cuts the molecule twice into three DNA fragments.
4. Step: Summary
Both DNA molecules have the same size but a different base sequence.
First molecule is restricted one time → two fragments in the mixture
Second molecule is restricted twice → three fragments in the mixture

Fragments in both mixtures can be separated by Gel-Electrophoresis (Presentation 9)