DNA gel electrophoresis

Introduction

The DNA gel electrophoresis protocol is used to test if we get the right DNA by its length. By comparing our sample with ladder, we get to know correct or not.

Reference:
1. Lee, P. Y., Costumbrado, J., Hsu, C. Y., & Kim, Y. H. (2012). Agarose gel electrophoresis for the separation of DNA fragments. *Journal of visualized experiments : JoVE*, (62), 3923. https://doi.org/10.3791/3923

Materials

- 0.7% agarose gel
- 1% TBE
- Stain-Ethidum bromide (stock concentration of 10 mg/mL)
- sample
- Ladder

Procedure

DNA gel electrophoresis

Gel preaparation

1. mix TBE with 0.7% agarose gel

   small gel ：20mL TBE+ 0.14g agarose
   big gel ：50mL TBE+ 0.35g agarose

2. Microwave for 1 minute, repeat 3-4 times until the agarose has completely melted and turned transparent (it must be completely melted). Then let it cool to 55°C

3. Pour it into the casting tray

4. For small gels, add 1 μL of stain; for large gels, add 2 μL of stain

5. Insert the comb and wait at least 30 minutes for it to cool

6. Carefully remove the comb, this will leave wells (holes for loading samples)

Sample Dyeing

7. Drop 2 μL of 10x dye onto a flat surface
8. Take 4 μL from each sample
9. Pipetting onto the dye and mix with the dye
10. Draw up 4 μL and load it into the well

Electrophoresis

11. Place the gel into the electrophoresis tank, pour in TBE buffer until it covers the gel
12. Add the sample
13. Pipetting
14. Load into the well, about 4 μL (rest your elbow on the table [for stability])
15. Load the marker (ladder) in the last well, 5 μL
16. Cover the electrophoresis tank with its lid, set to 100V, 30 min
17. Check whether there are bubbles

Result

18. Compare our sample with ladder