

Alginate encapsulation

Aim of the experiment

This protocol is used for encapsulation of phages by using Alginate/ CaCO_3 .

Materials

- Alginic acid sodium salt by ROTH (Art.-No. 9180.1)
- 1 x PBS 1 mM MgCl_2 1 mM MgSO_4
- CaCl_2 solution (1.8 % in ddH₂O)
- Manufactured Droplet Dispenser
- Dispensing Tip with Luer Lock (ID 0.51mm)
- Compressed air/nitrogen

Procedure

Preparation of Alginate solution:

1. 1.8 % Alginic acid sodium salt in 100 ml 1x PBS (1 mM MgCl_2 1 mM MgSO_4)
2. Stirring for 4 hours until homogenized solution.

Droplet generation

1. Preparation of 25 ml beaker with 20 ml of CaCl_2 solution, inside a 250 ml beaker, and put it onto a magnetic stirrer at lowest intensity.
2. Draw up 5 ml Luer syringe with Alginate solution.
3. Plug 0.51mm ID dispensing tip into the Luer lock in the droplet dispenser.
4. Plug syringe on top of the dispenser and into the syringe pump vertically.
5. Align outlet centered to the beaker.
6. Plug nitrogen into dispenser and regulate pressure to 1.5 bar.
7. Select syringe diameter at syringe pump of 12.4mm.
8. Start syringe pump at 500 $\mu\text{l}/\text{min}$.
9. Stir droplets in CaCl_2 -solution for 90 minutes.
10. Store droplets at 4°C.