Caesium Chloride Density
Gradient Centrifugation

Introduction
How to purify the concentrated bacteriophage solution so that is ready for the immobilization onto the electrode.

Materials

• Caesium chloride (CsCl)
  0 $\rho_{\text{CsCl(aq)}}=1.6 \text{ g/ml}$
  0 $\rho_{\text{CsCl(aq)}}=1.5 \text{ g/mL}$
  0 $\rho_{\text{CsCl(aq)}}=1.4 \text{ g/mL}$
  0 $\rho_{\text{CsCl(aq)}}=1.3 \text{ g/mL}$
• 1x TM Buffer

Procedure

• Day 1

1. Fill the ultracentrifuge tube (25 mL PC Ultracentrifuge tube) with (starting with 1.6):
   • 2 mL $\rho_{\text{CsCl(aq)}}=1.6 \text{ g/ml}$
   • 3 mL $\rho_{\text{CsCl(aq)}}=1.5 \text{ g/mL}$
   • 6 mL $\rho_{\text{CsCl(aq)}}=1.4 \text{ g/mL}$
   • 6 mL $\rho_{\text{CsCl(aq)}}=1.3 \text{ g/mL}$

2. Pipette 5 mL from the dissolved bacteriophage pellet on top of the tube

3. Centrifuge at 160,000 x g (46 700 rpm), 2.5 h, 4 °C

4. Pipette the phage band with a pipette
   • Phage band should be located between the 1.4 and 1.5 phase

5. Do an overnight dialysis, with a 2.000 x Vol 1x TM-Buffer in order to remove the caesium and chlorides from the purified phage solution