Laboratory 1

Micropipetting

Creating a standard curve

Preparing an agarose gel

Loading an agarose gel

Exercises preparing solutions

Pipettes Used for Different Volumes

Bulb

Pasteur pipette

Pipetboy

Graduated pipettes

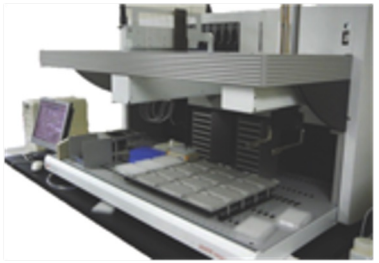
Micropipette

Filter tip

Multipipette

Repeating pipette

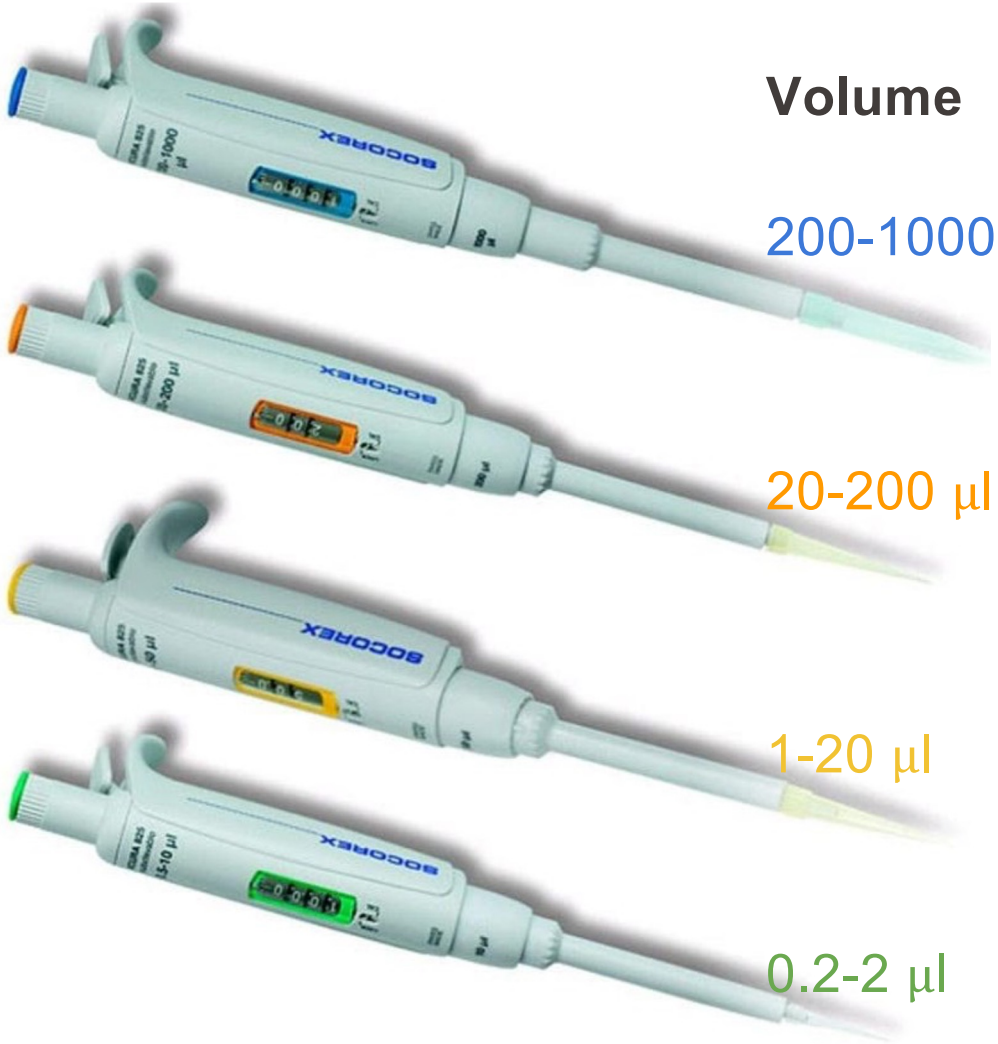
Pipetting robot



milliliter range (ml)

microliter range (µl)

Adjustable Micropipettes

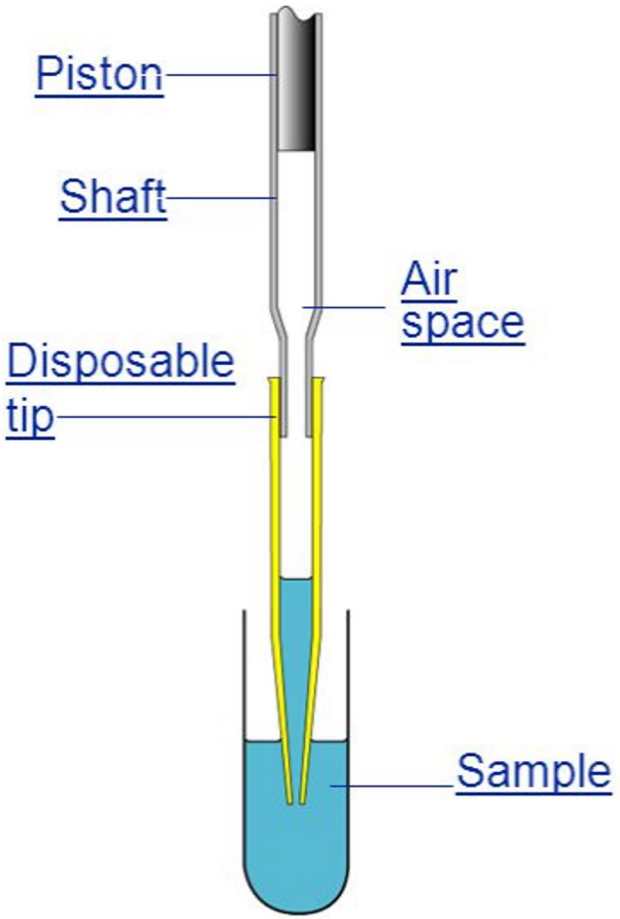


Air Displacement Pipette

When pressing the plunger to the **first stop** the piston displaces the set volume of air

Upon slow release of the plunger the set volume is aspirated in the tip

Press plunger to **second stop** to displace and blow out liquid



Before you start: Organize the bench

- Adjust chair height
- Remove things not needed (electronic devices)
- Order material according to experimental steps (ex. left to right)
- Label tubes before pipetting

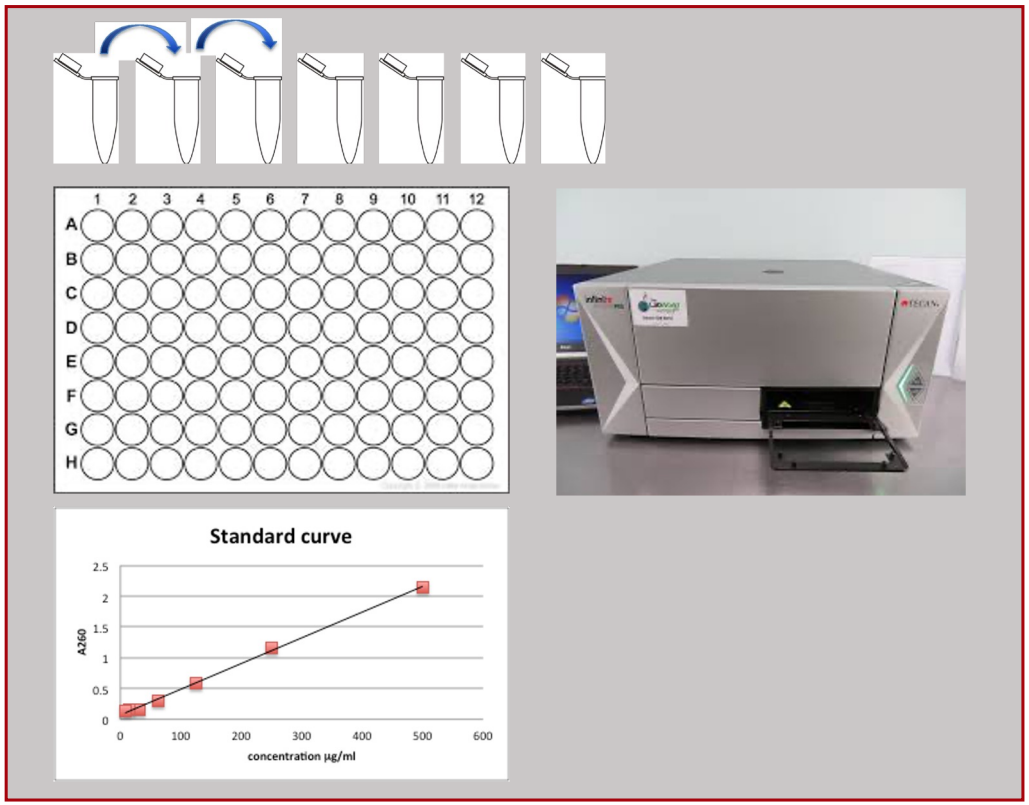
Experiment: Create a standard curve

Serial dilution of DNA

Transfer to 96 well plate

Measure absorbance

Create a standard curve (Excel)



How to make an agarose gel

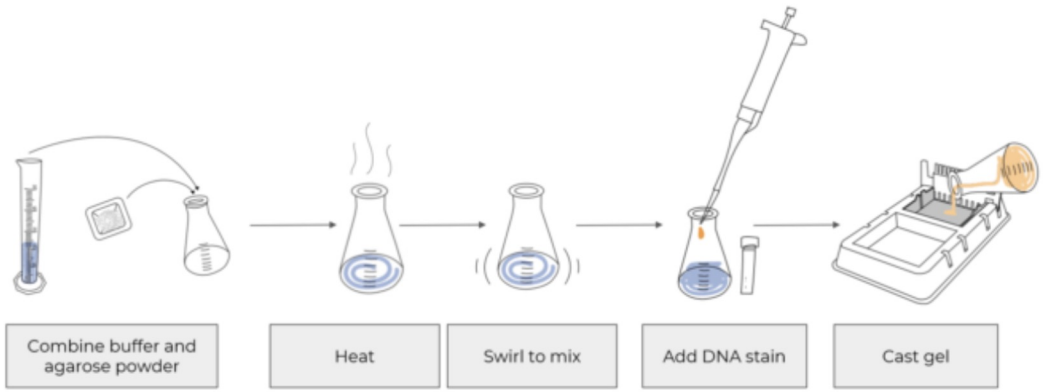
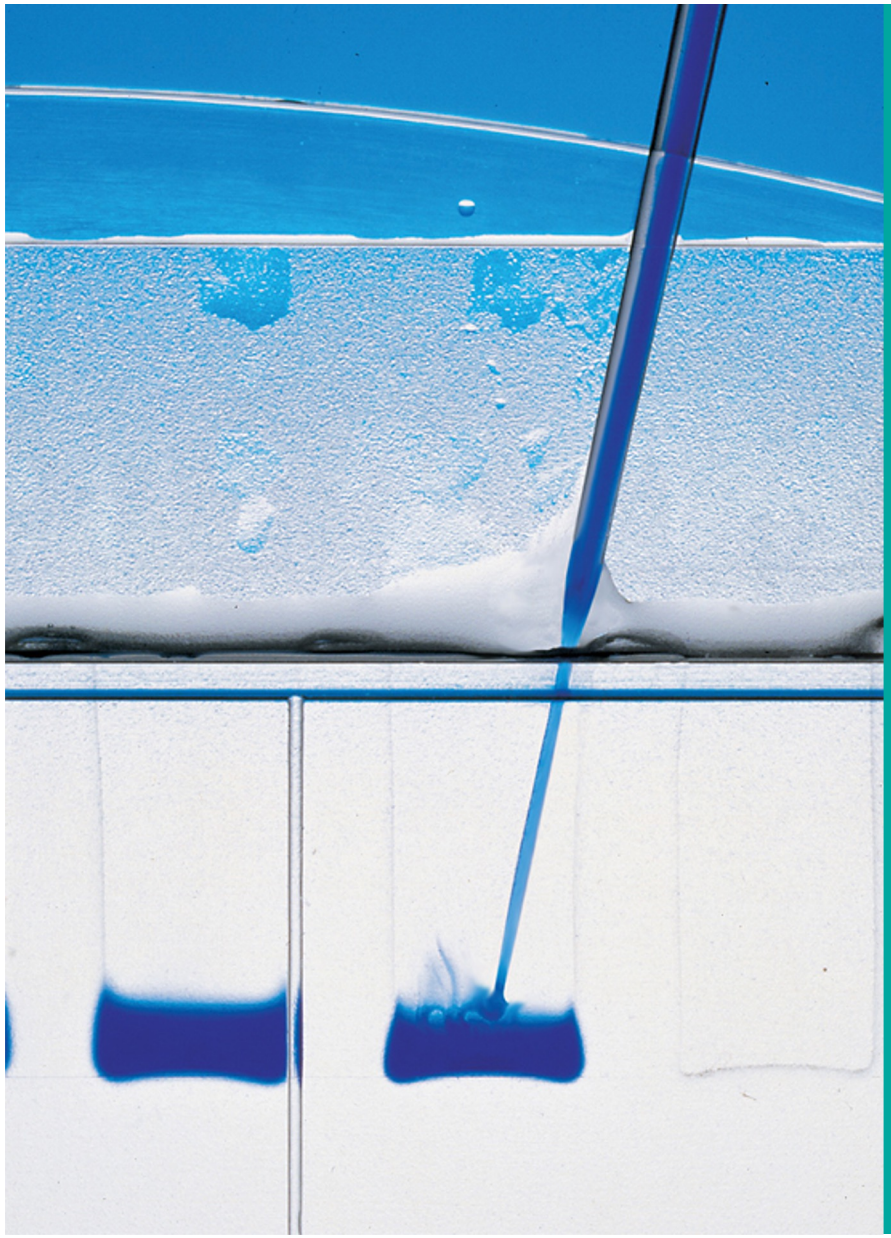


image: https://www.minipcr.com/how-to-pour-an-agarose-gel/

- mix agarose powder + buffer
- melt in microwave
- let cool down
- add nucleic acid stain
- pour into chamber with comb
- let solidify

How to load an agarose gel

- Carefully place the pipette tip into a well and slowly expel the sample
- The sample will sink into the well
- During loading, do not make holes in the gel with the tip



Gel loading buffer

Loading buffer serves two purposes:

- the blue dye helps loading the sample into the wells makes the migration visible
- the glycerol increases the density of the sample and helps loading the sample into the wells (instead of diffusing)

Making reagents and buffers

- see introduction on Moodle
- exercises: complete quiz