







Motivation - Aims

In vitro

1. Find the best condenser for plasmid DNA

2. Reveal the mechanism of condensation

In vivo

1. Follow the faith of condensed DNA in living cells



• dye concentration in nM range



diffusion

reactions

- Monitored: time evolution of fluorescence intensity
- Despite macroscopic equilibrium large fluctuations in the fluorescence signal due to small volume and low concentration

























DNA condensation Summary

- PicoGreen is an ideal dye for FCS/DNA experiments
- · Condensation process followed by FCS:
 - dramatic decrease in τ_{D}
 - decrease in PN
 - shortening of fluorescence lifetime

=> Established assay for condensers screening

- Perfect Condenser: N4,N9-dioleoylspermine (spermine conjugated with two chains of C18 fatty acid, with two positive charges at physiological pH)
- FLCS provides information on condensation mechanism and equilibrium coexistence state <u>intensive research</u>

