Biophysical Characterisation of Gene Delivery Vehicles

Jonathan Talbot – King's college London

Gene Therapy

- Applications
  - Genetic modification of cells
  - Treatment of cancers
  - Treatment of genetic diseases
    - E.g. Cystic Fibrosis

Transfection Methods

- Viral Vectors
  - Many Problems
    - High transfection efficiency
    - Immunological response to viral antigens
    - Fatalities in clinical trials
- Synthetic Lipids
  - Much lower transfection efficiency
  - Immunologically inert

Objectives

- Characterise the structure of CLDC's (cationic lipid DNA complex)
  - SANS (small angle neutron scattering)
- Characterise the interaction of CLDC's with a model membrane
  - Neutron Reflectivity of supported bilayers

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