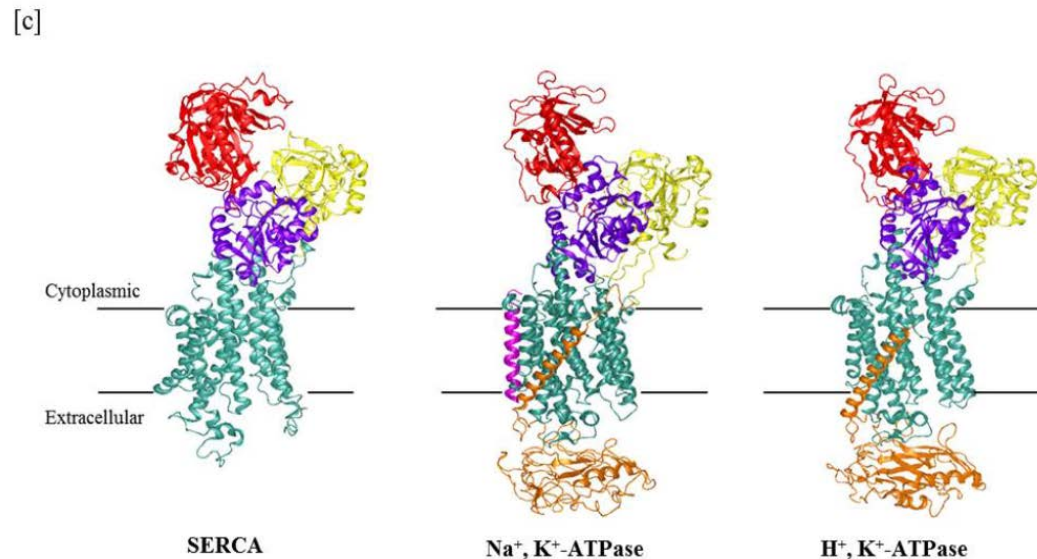
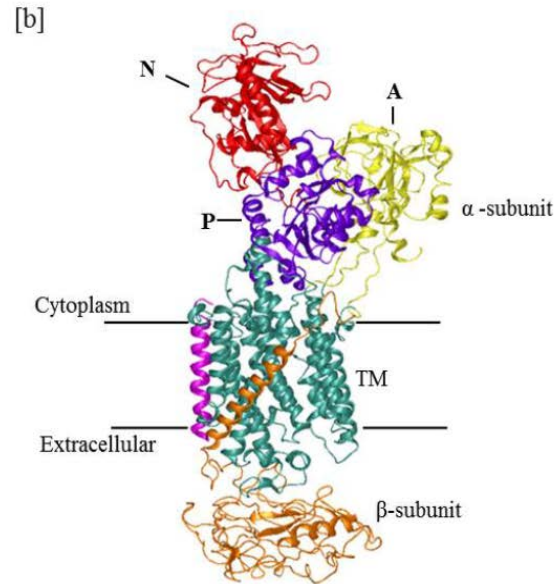
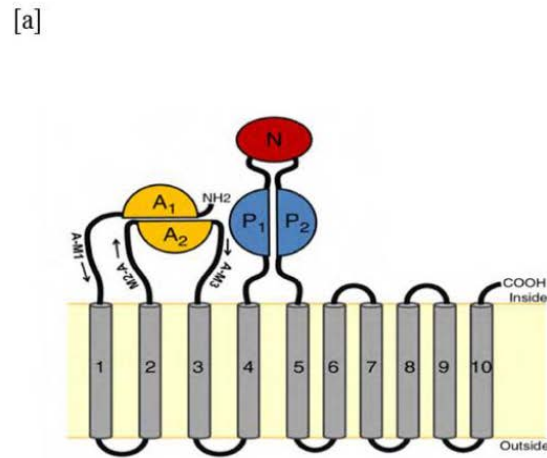


Clarke Pump Squad

P-Type ATPases



Physiological Roles:

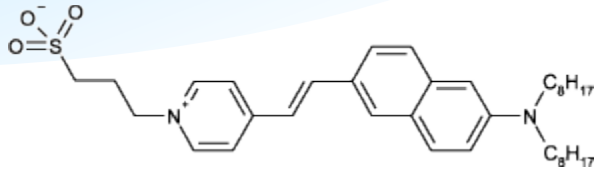
- 1) Muscle relaxation (Ca pump)
- 2) Cell volume regulation (Na pump)
- 3) Nerve activity (Na pump)
- 4) Muscle contraction (Na pump)
- 5) Nutrient reabsorption (Na pump)
- 6) Heat generation (Ca and Na pumps)
- 7) Digestion (Proton pump)

Diseases:

- 1) Rapid-onset dystonia Parkinsonism (alpha-3 isoform of the Na pump)
- 2) Familial hemiplegic migraine type 2 (alpha-2 isoform of the Na pump)
- 3) Congestive heart failure (Na pump)
- 4) Brody myopathy (Ca pump)
- 5) Stomach ulcers (Proton pump)

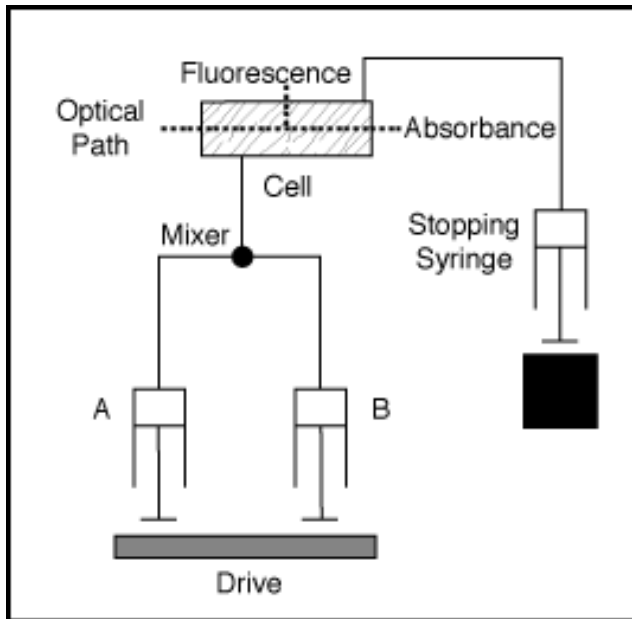
Biophysical Techniques

1) Fluorescence Spectroscopy (Voltage-sensitive dyes)

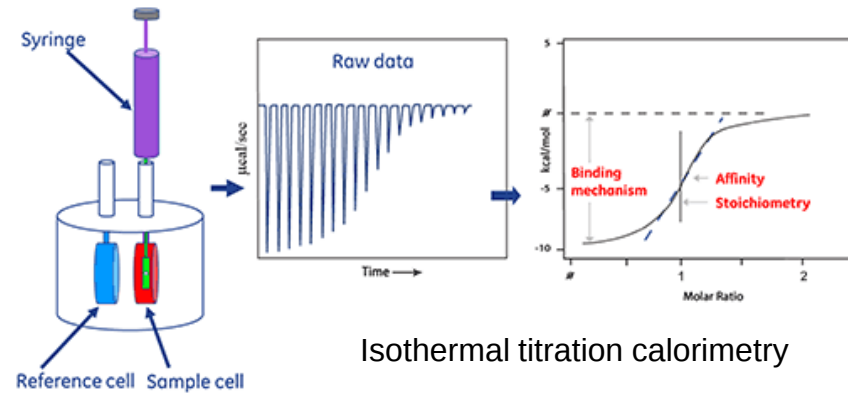


di-8-ANEPPS

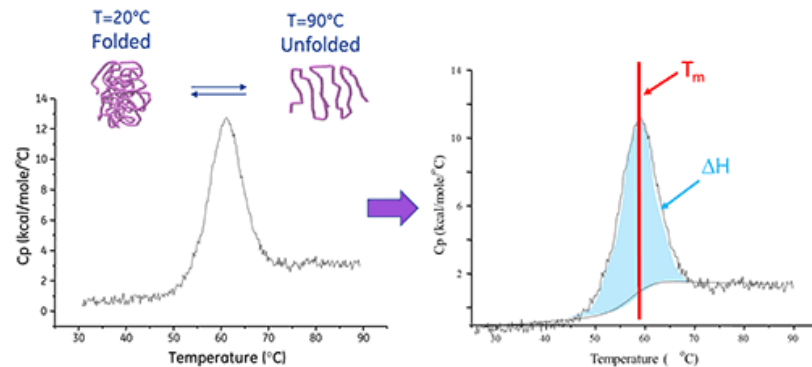
2) Stopped-Flow Fluorimetry



3) Calorimetry



Isothermal titration calorimetry



Differential scanning calorimetry

What we need?

Time

Students

Collaborations