Unravelling the mode of action of membrane-active drugs
Miguel Castanho, Faculty of Sciences, University of Lisbon (Castanho@fc.ul.pt)

**Background**
A wide variety of drugs interact with membranes. Antimicrobial drugs, viral fusion inhibitors and analgesic compounds are among them. At the molecular biophysics lab (Faculty of Sciences, University of Lisbon, Portugal), we use optical spectroscopies to unravel the mechanism of action of membrane-active drugs, mainly peptides. The knowledge on the mechanism of action of these drugs helps developing second-generation drugs, which are more effective.

**Outcomes**
- New antimicrobial molecules
- New analgesic drugs

![Figure 1 - Outline of peptide-membrane interactions. Peptides in contact with membranes may change conformation, which may facilitate proper binding to a receptor, a physiological effect resulting there from Peptides may also exert local specific effects like disorder and permeabilisation (e.g. AMPs – Antimicrobial peptides). Other peptides have the ability to translocate through the membrane, having no apparent effect in the lipid bilayer. (Eur Biophys J (2006) 35: 92–103)](image)

**Progress to date**
Proof of concept only (for new drugs).

**Things still to do**
Animal tests for the new analgesic drug

**Contact details**
Miguel Castanho, Dept. Quimica e Bioquimica, Faculdade de Ciências, Univ. Lisbon Campo Grande, C8, 1749-016 Lisboa, Portugal
castanho@fc.ul.pt; Fax +351217500088;