

EDITORIAL



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As scheduled, here is the eight issue of *Canal BQ*, comprising reviews on specific biochemistry research topics. In this issue, several leading Portuguese researchers have been invited to contribute with articles covering recent developments on Biomembranes and Membrane Transport, ranging from biophysical methods to study membrane structure and function to important physiological aspects of membrane transport.

This number is yet another step towards increasing the general awareness of *Canal BQ* as a credible, high quality forum for biochemistry research in Portugal and abroad. Although an anonymous peer review system has not yet been implemented, plans do exist to do that in future issues. SPB also plans to internationalize both the editorial board and the invited contributors. Starting from today, consideration for review articles will be invitational only. Moreover, as a first step towards internalization, only English written manuscripts will be accepted. The final goal of this strategy is having *Canal BQ* indexed on the ISI Web of Knowledge, as it happened with the SPB website, encouraging researchers to produce and submit high quality reviews in future issues. In this issue, the *Canal BQ* editorial board wanted, once again, to bring together particular aspects of biochemistry, in particular membrane biology and approaches to assess membrane structure and function, so that those interested in the field can take advantage of new (and old) methods used in membrane studies and gain a better understanding of the molecular mechanisms involved. This is a highly topical subject as biological membranes form the interface between cells and their environment, and the passage of small molecules across this barrier is vital for the supply of metabolites. In the case of most small organic molecules required by the cell, this passage is catalyzed by transport proteins embedded in the membrane.

This issue starts with an article ([Domingues et al.](#)) focusing on biochemical and biophysical processes occurring at the membrane level on human cells and on their viral and bacterial pathogens and showing the use of atomic force microscopy (AFM) to recognize, characterize and identify the human erythrocyte receptor for fibrinogen.

Because of their sensitivity and versatility, the use of fluorescence techniques in membrane biophysics is widespread. The advances provided by the use of Förster resonance energy transfer (FRET) and its applications to the characterization of lipid domains/rafts and protein-lipid selectivity are developed in the second article ([Fernandes et al.](#)).

The transport of solutes across cell membranes, including organic nutrients, such as sugar, osmolytes, ions or metabolic waste products, is of extreme importance in all living systems. The third article ([Conde et al.](#)) reviews fundamental aspects of solute transport across plant cell membranes giving emphasis on the relevance of solute transport in plant defence against adverse environmental factors like increasing soil salinity, heat and drought.

Water is the major component of cells and tissues throughout all forms of life. The existence of water channels that facilitate water permeation through cell membranes is now recognized and many aquaporins have been identified in nearly all-living organisms. The fourth article ([Soveral et al.](#)) summarizes the current knowledge on aquaporin water channels, focusing on the established structure, selectivity and conduction, and on the recently disclosed mechanisms of gating of some aquaporin isoforms. Folates are essential nutrients to the developing foetus, these compounds being obtained from the maternal blood through placental transport. The fifth article ([Keating et al.](#)) summarizes recent findings concerning the placental transport of folates, with a special emphasis on the effect of several dietary substances, therapeutic agents, drugs of abuse and markers of pathological conditions, which may in turn threaten the normal development and growth of the foetus.

It's our hope that this issue will encourage more researchers to venture into the study of biomembranes and transport. Finally, and most importantly, we would like to thank all the authors for their contributions to this new project of *Canal BQ*.