

# THE RED CELL MEMBRANE

*A Model for Solute Transport*



Edited by

**B. U. Raess**  
and **G. Tunnickliff**

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and

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Indiana University School of Medicine  
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# **The Red Cell Membrane**

# Contemporary Biomedicine

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# Preface

“After being frequently urged to write upon this subject, and as often declining to do it, from apprehension of my own inability, I am at length compelled to take up the pen, however unqualified I may still feel myself for the task.”

*William Withering, M.D.<sup>1</sup>*

I have yet to find a description or a quote that better summarizes my initial ambivalence towards embarking on such an endeavor as participating in putting together this monograph. The impetus for *The Red-Cell Membrane: A Model for Solute Transport* has been a simple, genuine desire to bring together an authoritative account of the “state of the art and knowledge” in the red-cell-membrane transport field. In particular, it seems important to emphasize the pivotal role the red cell has played for several decades in the discovery and the elucidation of mechanisms of plasma-membrane transport processes. It is only with such knowledge that we can hope to push ahead and make progress in this exciting, multifaceted area. Eventually, one hopes to not only further our knowledge of red cells, but apply the newly gained insights to any other cell with the common denominator of the plasma membrane.

In this compendium of reviews, the reader will find that the term model will take on a variety of gists and meanings. In some chapters, the red cell has been chosen as a model membrane solely on the basis of its preeminent design and simplicity. In other chapters, the model is chosen for its predictive powers by using a more sophisticated approach, i.e., the description and mathematical treatment of a set of experimentally generated data. To each his own! Our hope is that the combination of the two applications will help us visualize and explain, in a simplified way, the intricacies and complexities of life in and around the plasma membrane.

Clearly, one must realize that, within the constraints of a manageable review of the field's development in the past decade or so, many important topics and questions had to be omitted. Making the choices and decisions of what to include or, by contrast, omit or, for that matter, whose expertise to call upon was a thoroughly humbling and occasionally

frustrating experience. Unfortunately, many excellent investigators could not be included, but their views are recognized in articles treating their particular disciplines.

Perhaps more importantly, this project has given me the opportunity to step off the teacher's dais (or daze, as the case may be on any given day) and become a listener to old mentors and new experts once again. It is my sincere hope that readers and students in "transportology" will enjoy and learn as much as I have since joining Goff Tunnicliff in organizing the present work.

***B. U. Raess***

<sup>1</sup>In *An Account of the Foxglove, and Some of Its Medical Uses; with Practical Remarks on Dropsy, and Other Diseases*. Birmingham MDCCLXXXV.

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