

FOREFRONTS IN NEPHROLOGY REGULATION OF MEMBRANE TRANSPORT PROTEINS: THEIR LIFE IN THE CELL

Introduction

This issue of *Kidney International* contains abstracts and articles from the research presented at the International Society of Nephrology-sponsored Forefronts in Nephrology Symposium, “Regulation of Membrane Transport Proteins: Their Life in the Cell.” The symposium was held at the Shonan Village Center, Hayama-machi, Kanagawa, Japan, on September 21–24, 2000. The purpose of this symposium was to assemble the leading scientists from renal and nonrenal communities whose interests focus on the regulation of membrane transport proteins. The nearly 100 participants came from many institutions in 12 countries. One-half of the participants were young investigators and nephrology fellows from Asian countries, including Korea, India, China, Thailand, Taiwan, and Japan, all of whom received travel grants (full or partial) from the International Society of Nephrology to attend the meeting. The symposium generated lively discussions and interactions, both in the sessions and at the evening events. These discussions served to create the initiation of new collaborations between participants from the renal and nonrenal communities. It was important that young nephrologists from Asian countries had this opportunity to meet each other and begin their future collaborations.

A large number of membrane transport proteins, channels and carriers, have been identified during the last decade. Molecular identification has allowed more direct approaches to study the regulation of these proteins. The specific aim of this symposium was to determine the regulation mechanisms of transport proteins. We now know that membrane proteins do not remain at the membrane in a static manner, but instead are

dynamically regulated both spatially and temporally inside of the cell compartment. Discussions included the regulation of membrane proteins focusing on their maturation steps from their birth to final degradation. Typical proteins whose mechanisms of regulation at each maturation step were well characterized. Topics following the regulatory events in the course of maturation included transcription/translation, folding/assembly, trafficking and events in the endoplasmic reticulum, trafficking and vesicle transport, clustering by anchoring proteins, interactions with other proteins, chemical modification by kinases, and ubiquitin/proteolysis.

The following pages reflect the presentations and discussions of the Forefronts in Nephrology Symposium in Kanagawa. Regrettably, page limitations preclude publication of the 40 abstracts submitted for the poster session. However, abstracts from all of the nonrenal speakers with a list of recent references for additional reading are included in the next section, and the twelve successive articles are from most of the speakers from our renal community who presented their work at the meeting. We hope that these proceedings will provide the readers of *Kidney International* with our current understanding of the regulation mechanisms of membrane transport proteins as well as a taste of the excitement we shared during the meeting.

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