

ENERGY YIELDING-PROCESSES BY RESPIRATORY CHAIN AND PROTEIN TRANSLOCATION ACROSS THE CYTOPLASMIC MEMBRANE IN BACTERIA

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In the energy yielding-processes of bacteria, as well as of other cells, the electrochemical potential generated by respiratory chain is of central importance. In general, nonhalophilic bacteria generate the electrochemical potential of H^+ from respiratory chain, while halophilic bacteria including marine bacteria generate the electrochemical potential of Na^+ from respiratory chain. Fluorescence quenching technique is useful for the rapid identification and characterization of the respiratory segment involved in H^+ or Na^+ translocation. On the other hand, the electrochemical potential generated by respiratory chain can be used by the cell to drive energy-correcting processes, such as the active transport of solutes, flagella motility, the synthesis of adenosine triphosphate (ATP) from adenosine diphosphate (ADP) and inorganic phosphate and protein translocation across the cytoplasmic membrane. Here, the kinds of electrochemical potential generated by respiratory chain and involved in the protein translocation across the cytoplasmic membrane in bacteria are introduced.