

1. Record Nr.	UNINA9910483680003321
Autore	Kinoshita Masahiro
Titolo	Mechanism of functional expression of f1-atpase // Masahiro Kinoshita
Pubbl/distr/stampa	Singapore : , : Springer, , [2021] Â©2021
ISBN	981-336-232-4
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XI, 79 p. 41 illus., 40 illus. in color.)
Collana	SpringerBriefs in Molecular Science, , 2191-5407
Disciplina	572.793
Soggetti	Biochemistry Chemistry Biophysics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1. Introduction -- 2. A New View on Mechanism of Functional Expression of an ATP-Driven Motor -- 3. Mechanism of Unidirectional Rotation of $\gamma$ -Subunit in F1-ATPase -- 4. Concluding Remarks.
Sommario/riassunto	This book presents a new view of the mechanism of functional expression of ATP-driven motors (proteins or protein complexes). It is substantially different from the prevailing idea that the motor converts chemical energy to mechanical work. To facilitate understanding, the differences between the new and prevailing views are explained using many illustrations. The book is of interest to those who are not convinced of the notion of chemo–mechanical coupling. The claims presented are the following: The system, which comprises not only the motor but also water, does no mechanical work during the ATP hydrolysis cycle; a protein is moved or a protein in the complex is rotated by the entropic force generated by water. The highlight of the explanation in the book is that the mechanism of unidirectional rotation of the central shaft in F1-ATPase is discussed in detail on the basis of this new view. The hydration entropy of each subunit to which a specific chemical compound (ATP, ADP and Pi, Pi, or nothing) is bound, the hydration entropy of the $\gamma$ 33 complex, and the dependence of the hydration entropy of F1-ATPase on the orientation

of the subunit play essential roles.

---