

SCIENTIFIC SEMINAR

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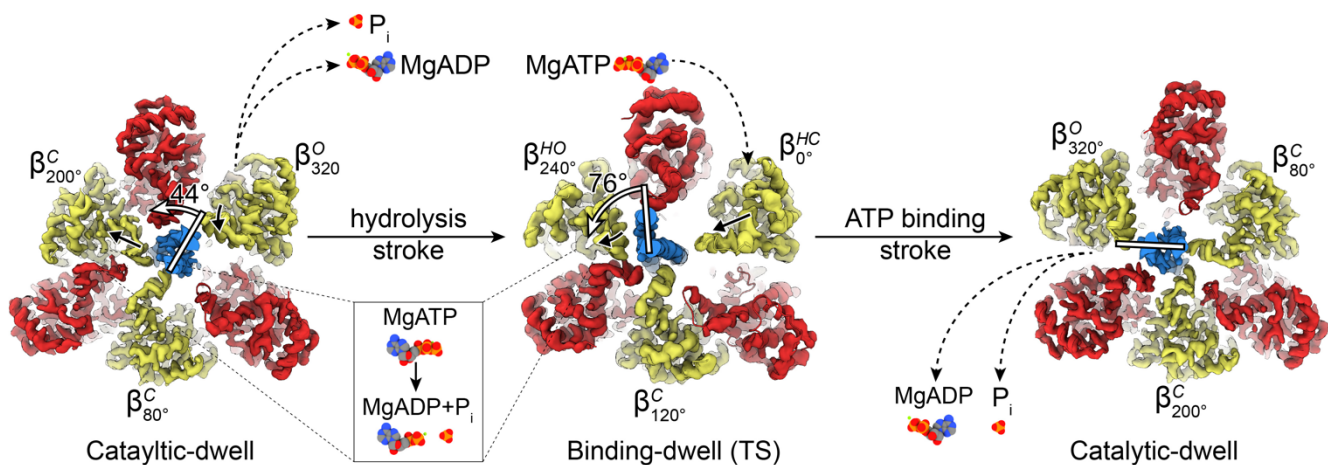
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The F₁-ATPase rotary catalytic cycle

F₁F₀ ATP synthase interchanges phosphate transfer energy and proton motive force via a rotary catalysis mechanism. Isolated F₁-ATPase catalytic cores can hydrolyse ATP, passing through a series of intermediate conformational states to generate rotation of a central rotor subunit. Here we address two central questions regarding F₁-ATPase function using cryo Electron Microscopy in combination with single molecule rotation studies.

First, we provide structural models for the F₁-ATPase in both the binding- and catalytic-dwell states. Each state shows three catalytic sites in different conformations, establishing the structures of the complete set of six states taken up during the catalytic cycle and providing molecular details for both the ATP binding and hydrolysis strokes.

Second, we provide structural models of the rotorless F₁-ATPase that demonstrate how the motor can rotate in the absence of the central rotor subunit. Overall, these findings provide a detailed picture of how the F₁-ATPase catalyses the interconversion of ATP and ADP+P_i.



Large Seminar Room, AI Building
21/04/23 - 13:00

