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Capturing the Moment of RNA Unwinding by a Protein

- Elucidation of how a protein modulates RNA folding for its normal functions -

RNA molecules play important roles in the cells of such all the living organism such as animals, plants, or microorganisms, and thus are studied extensively by researchers all over the world. Their main and essential function is to direct the synthesis of proteins based on the genetic information of DNA, the blueprint of life.

However, RNA molecules are apt to get tangled; they sometimes fold into wrong three-dimensional structures in which they cannot work properly. It could be a life-threatening event!

Researchers from RIKEN and the University of Tokyo investigated how a protein, named RNA helicase, unwinds such misfolded structures of RNA, thereby guiding its proper folding. They captured the critical moment of the unwinding process, which illustrates the unwinding mechanism by the protein.

The study helps elucidate how various processes involving RNA, such as developmental differentiation, cell proliferation, and cancerous cell growth, are regulated by RNA helicases.

More details are reported in *Cell*, 125, 287-300, April 21, 2006.

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