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AFM investigation of DNA and their interaction with MCM protein complex

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We are interested to study helicase connected to replication process in eukaryotic: is MCM (mini chromosome maintenance) complex, six homologous MCM proteins known as MCM2-7, which form a ring that is supposed to "load" onto the DNA using energy produced by ATP hydrolysis and move across unwinding the double helix. In this study we used archaeal MCM from Methanothermobacterthermautotrophicusas a model system. Our main idea is to investigate the conformational changes of the DNA deposited on a mica surface upon the interaction with MCM proteins by means of AFM imaging. Based on structural and biochemical evidences, two modes of MCM-DNA interaction have been proposed. The canonical mode where the MCM protein complex is encircling the DNA and is thus "loaded" onto DNA ready for unwinding. A second mode of interaction called associated MCM, where the DNA is wrapped around the external part of the proper ring structure.

Biography

Amna Abdalla Mohammed Khalid has completed her PhD from Trieste University (Nanotechnology school). She is currently a research fellow at Nano innovation lab in Elettra- Sincrotrone Trieste. Moreover she is Next Einstein forum ambassador of Sudan.

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