NEW RESULTS ON THE MICROTOPOLOGY OF RNA PLOYMERASE II USING TAPPING MODE ATOMIC FORCE MICROSCOPY IN LIQUID

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An exploratory study of the dimensions and micro-topology of RNA polymerase on freshly cleaved mica was made relative to its chemical biofunction-ality.A Nanoscope IIIA AFM was used in tapping mode with a (10nm) sharpened SiN tip in a divalent metal buffer..New & useful details were inferred down to 1nm by combining results from two AFM approaches.These measurements agreed well with those previously predicted for models from systematic x-ray crystallography.Such features included a bilobal silouette with an umbrella shaped crater connected by a small but definable linear crevice to another face.These critical feature from the combined approaches were in good agreement overallin that profiling details from the tapping mode complemented the dynamical measurements.These results are subject to further more systematic evaluation at higher resolution (1nm).This combined AFM approach appears to have provided useful new insight into the microtopology and functionality of RNA polymerase.Further AFM studies under dynamic conditions are planned to clarify the role of 3D microtopology in various anerobic liquid environments.