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Observing the molecular mechanical properties of DNA**Anthony William Coleman, Yannick Tauran and Hiroyuki Fujita**
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The mechanical properties of DNA control both its containment in the nucleus and also the processes of transcription and construction of proteins. Hence, it is clear that knowledge of the properties that is a key to understanding how life is built. However, how to carry out such measurements without perturbing the inherent structure and properties of DNA is a major problem. Classical and even modern methods require modifying the chemical nature of DNA and hence its properties. The discovery of how microfluidics can be applied to silicon nano tweezer (SNT) measurement of the mechanical properties of non-modified DNA is a major step forward. Here, we will present how SNT technology can be used to study events changing the mechanical properties of DNA: (1) How physiological cations change selectively the mechanics of DNA as a function of the physiological localization, (2) The effects of DNA coordinating systems on DNA mechanics and how ion/bioactive couples can have amplified action and (3) The action of DNA coordinating nucleosomes on the structure of DNA.

Biography

Anthony William Coleman has completed his BA in Chemistry and DPhil from the University of Sussex. He has authored 300 research articles, over 120 invited talks and 25 patents. He has numerous international projects underway in particular with the University of Tokyo.

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