DNA as a molecular programming tool

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Polymers made from a small set of different monomers can store information and are the molecular equivalent of binary strings[1]. DNA for example contains the information that unfolds into the myriad of functions performed by living organisms. Technological developments in life science have made the writing and reading of genetic information easily available. It is therefore now possible to take a very informational approach to the building of molecular systems. Recent results allow the design of DNA sequences with almost any arbitrary shapes, and it is also possible to use DNA-encoded information to generate molecular analogs of electronic circuits with a variety of dynamical or computational functions. Future directions in this field will result in a new generation of molecular devices with unexpected properties, and possibly challenge our understanding of living systems.

1.WatsonJ.D,CrickF.H.C,*AstructurefortheDeoxyriboseNucleicAcid*,Nature171, 737-738,1953