GENOME RESEARCH
Volume 31 Issue 9 September 2021

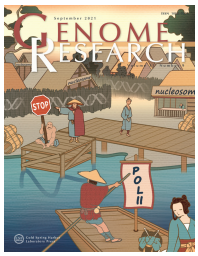
Research

(continued)

Methods

Resources

OAOpen Access paper



Cover A boat docking process represents the participation of G-quadruplex (G4) in the early stages of gene transcription. The tangled mass of DNA (fence) and nucleosomes (huts) resemble an island. During transcription, promoter double-stranded DNA (the long platform at the back) is exposed and forms the dock for the binding of transcription factors. Along with double-stranded DNA melting and single-stranded DNA opening, G4 structures (the front three-layered platform) are formed in the promoter regions. After stabilization by G4-targeted ligands (the people occupying the front three-layered platform), the stabilized G4 inhibits the loading of general transcription factors, such as TFIID complex, GTF2B, and RNA polymerase II (Pol II, the boat on its way to promoter region). This process results in the impairment of transcription initiation. (Cover illustration drawn by Jinbo Li [zcool.com.cn/u/15625898], based on a concept by Kaiwei Liang, Conghui Li, and Jinbo Li. [For details, see Li et al., pp. 1546–1560.])