

EES Catalysis

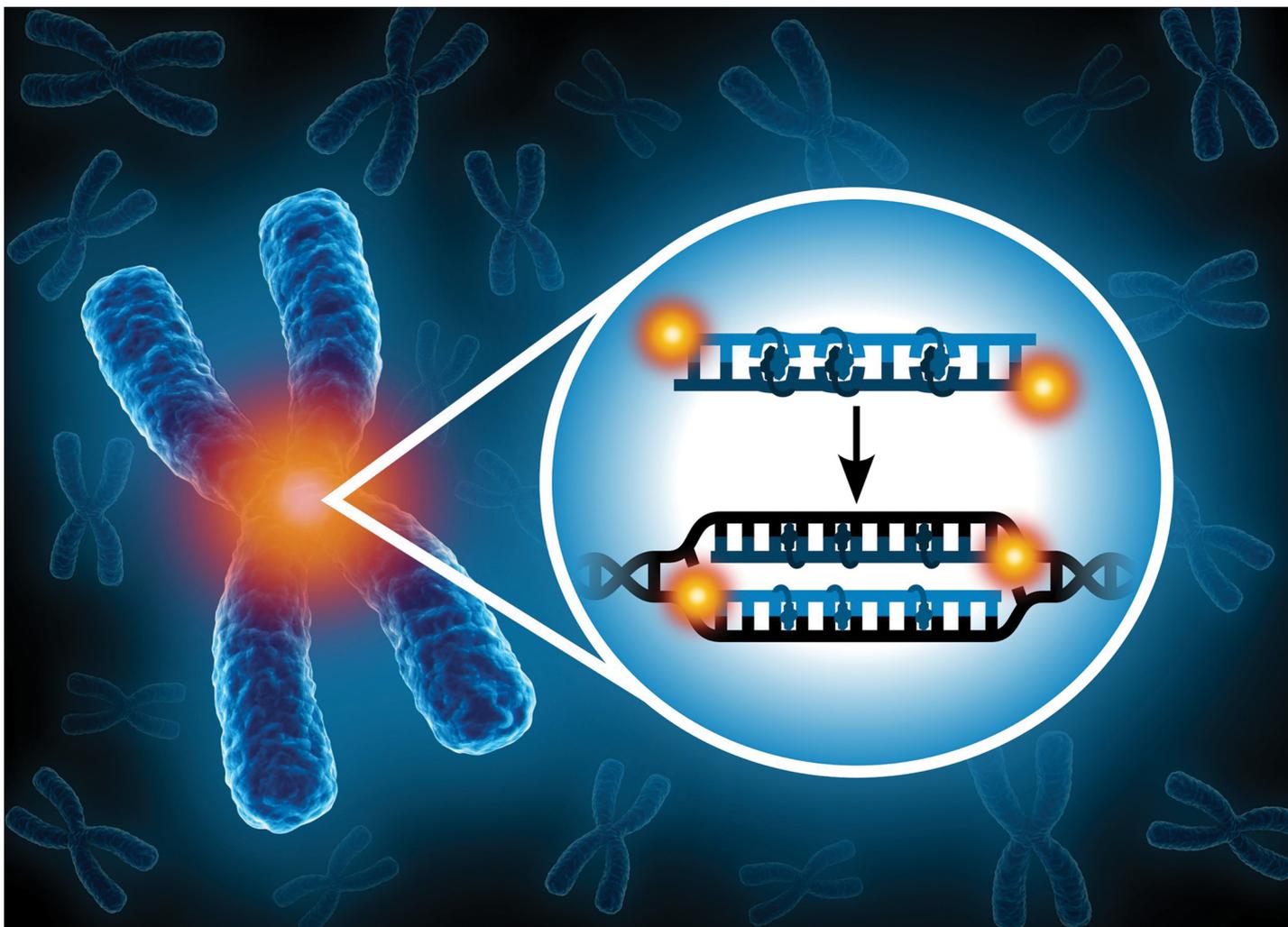
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Fundamental questions
Elemental answers



Showcasing research from Professor Hrdlicka's laboratory,
Department of Chemistry, University of Idaho, Moscow, USA

DNA-targeting Invader probes: discovery, principles and applications

The development of chemically modified oligonucleotides, nucleic acid mimics, and protein-based constructs capable of sequence-unrestricted recognition of specific double-stranded (ds) DNA regions continues to attract considerable attention. This Account describes the discovery, design principles, and applications of Invader probes. These double-stranded oligonucleotides incorporate intercalator-functionalized nucleotides arranged to destabilize the probe duplex, while individual strands bind complementary DNA with high affinity. This thermodynamic asymmetry enables selective recognition of dsDNA targets *via* double-duplex strand invasion, supporting their use as diagnostic agents, modulators of gene expression, and versatile tools in biotechnology.

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As featured in:



See Patrick J. Hrdlicka and
Michaela E. Everly,
RSC Chem. Biol., 2026, **7**, 323.