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Title:	A novel protein-engineered dsDNA-binding protein (HU-Simulacrum) inspired by HU, a nucleoid-associated DNABII protein
Authors:	Thakur, Bhishem (/jspui/browse?type=author&value=Thakur%2C+Bhishem) Gupta, Archit (/jspui/browse?type=author&value=Gupta%2C+Archit) Guptasarma, Purnananda (/jspui/browse?type=author&value=Guptasarma%2C+Purnananda)
Keywords:	protein-engineered dsDNA-binding protein (HU-Simulacrum) HU
Issue Date:	2021
Publisher:	Elsevier
Citation:	Biochemical and Biophysical Research Communications, 534, 47-52.
Abstract:	HU, a DNA-binding protein, has a helical N-terminal region (NTR) of ~44 residues and a beta strand- and IDR-rich C-terminal region (CTR) of ~46 residues. CTR binds to DNA through (i) a clasp (two arginine/lysine-rich, IDR-rich beta hairpins that bind to phosphate groups in the minor groove), (ii) a flat surface (comprising four antiparallel beta strands that abut the major groove), and (iii) a charge cluster (two lysine residues upon a short C-terminal helix). HU forms a dimer displaying extensive inter-subunit CTR-CTR contacts. A single-chain simulacrum of these contacts (HU-Simul) incorporating all DNA-binding elements was created by fusing together the CTRs of Escherichia coli HU-A and Thermus thermophilus HU. HU-Simul is monomeric, binds to dsDNA and cruciform DNA, but not to ssDNA.
Description:	Only IISER Mohali authors are available in the record.
URI:	https://doi.org/10.1016/j.bbrc.2020.11.088 (https://doi.org/10.1016/j.bbrc.2020.11.088) http://hdl.handle.net/123456789/4426 (http://hdl.handle.net/123456789/4426)
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