

**Supplemental Table 1:** Summary of structural homology<sup>1</sup> search for the C-terminal RpoN domain of  $\square^{54}$  bound to the -24 promoter element

Homologous Proteins (residues)	Z Score (R.M.S.D. [Å])	DNA binding motif	PDB ID
The Z $\square$ domain of the human ADAR1 enzyme (134-187)	5.5 (2.0)	winged-HTH	1QBJ <sup>1</sup>
N-terminal domain of <i>Methanococcus jannashii</i> DNA topoisomerase VI A subunit (72-136)	5.3 (2.5)	winged-HTH	1D3Y <sup>2</sup>
N-terminal domain of the <i>Bacillus stearothermophilus</i> arginine repressor (4-55)	5.1 (2.0)	winged-HTH	1B4A <sup>3</sup>
N-terminal domain of <i>Pseudomonas aeruginosa</i> ferric uptake regulator (14-84)	5.0 (2.9)	winged-HTH	1MZB <sup>4</sup>
N-terminal domain of <i>Pyrococcus furiosus</i> leucine-response regulator (2-52)	4.9 (2.8)	HTH	1ILG <sup>5</sup>
$\square^3$ domain of <i>Thermus aquaticus</i> $\square^A$ (277-330)	4.4 (2.6)	HTH	1KU2 <sup>6</sup>

## References

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<sup>1</sup> The structures with the top five DALI Z scores (for the RpoN domain only) are listed, as well as the highest scoring fragment of a  $\square^{70}$ -type protein.s

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