

gyrB Protein, E.coli

Cat. No.:	HY-P701907
Synonyms:	gyrB; DNA gyrase subunit B; Type IIA topoisomerase subunit GyrB
Species:	E.coli
Source:	E. coli
Accession:	P0AES6 (S2-T392)
Gene ID:	75205413
Molecular Weight:	

PROPERTIES

Appearance	Solution.
Formulation	Supplied as a 0.22 μ m filtered solution of 50 mM Tris-HCl, pH7.5, 200 mM NaCl, 20% glycerol.
Endotoxin Level	<1 EU/ μ g, determined by LAL method.
Reconstitution	Please use rapid thawing with running water to thaw the protein.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

DESCRIPTION

Background	<p>gyrB protein, as a component of DNA gyrase, functions in the ATP-dependent negative supercoiling of closed circular double-stranded DNA, maintaining chromosomes in an underwound state. This activity enhances substrates for topoisomerase 4 (ParC and ParE), the principal enzyme responsible for unlinking newly replicated chromosomes in E. coli. gyrB catalyzes the interconversion of various topological isomers of double-stranded DNA rings, including the formation of catenanes. Additionally, it relaxes negatively supercoiled DNA in an ATP-independent manner. Notably, E. coli gyrase exhibits higher supercoiling activity compared to other characterized bacterial gyrases, introducing more supercoils faster than Mycobacterium tuberculosis gyrase. On the other hand, M. tuberculosis gyrase demonstrates higher decatenation activity than supercoiling in comparison to E. coli. Intriguingly, despite 777/804 identical residues, the GyrB subunit of S. typhimurium is toxic in E. coli, whereas the E. coli copy can be expressed in S. typhimurium. The enzymatic distinctions between E. coli gyrase and topoisomerase IV primarily stem from the GyrA C-terminal domain, particularly the GyrA-box. These insights emphasize the multifaceted role of gyrB in DNA topology regulation and its contribution to the functional diversity of gyrase enzymes across bacterial species.</p>
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Caution: Product has not been fully validated for medical applications. For research use only.

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