### DNA Gyrase (E. coli)

**Source:** An *E. coli* strain containing the cloned and expressed gyrA and gyrB genes.

**Notes:**
- **Store at −70°C**

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**1X DNA Gyrase (E. coli) Reaction Buffer:**
- 50 mM KCl
- 10 mM Tris-HCl (pH 7.5)
- 1 mM EDTA
- 2 mM DTT
- 50% glycerol
- pH 7.5 @ 25°C

**Unit Definition:** One unit is defined as the amount of enzyme that catalyzes the conversion of DNA Gyrase (E. coli) Substrate (NEB #N0471) to DNA (HindIII digest) and 25 units of DNA Gyrase (E. coli) for 16 hours at 37°C resulted in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.

**Survival in a Reaction:** A minimum of 0.13 unit is required to convert 0.5 µg of substrate DNA to supercoil plasmid in a total reaction volume of 30 µl in 16 hours.

**Exonuclease Activity:** Incubation of 25 units of DNA Gyrase (E. coli) with 1 µg pUC19 DNA for 4 hours at 37°C in 50 µl reaction buffer resulted in < 0.05% conversion to RF II.

**Heat Inactivation:** 25 units of DNA Gyrase (E. coli) were inactivated by incubation at 65°C for 20 minutes.

**References:**

**Companion Product:**
- DNA Gyrase (E. coli) Substrate #N0471 20 µg

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**Heat Inactivation:** 25 units of DNA Gyrase (E. coli) were inactivated by incubation at 65°C for 20 minutes.

**Note:** The 5X DNA Gyrase Reaction Buffer should be stored at −70°C to maintain optimal stability of components.