

RuvA Protein, E.coli (His-SUMO)

Cat. No.:	HY-P71491
Synonyms:	ruvA; b1861; JW1850; Holliday junction ATP-dependent DNA helicase RuvA; EC 3.6.4.12
Species:	E.coli
Source:	E. coli
Accession:	P0A809 (M1-L203)
Gene ID:	946369
Molecular Weight:	Approximately 38.1 kDa

PROPERTIES

AA Sequence	<pre> M I G R L R G I I I E K Q P P L V L I E V G G V G Y E V H M P M T C F Y E L P E A G Q E A I V F T H F V V R E D A Q L L Y G F N N K Q E R T L F K E L I K T N G V G P K L A L A I L S G M S A Q Q F V N A V E R E E V G A L V K L P G I G K K T A E R L I V E M K D R F K G L H G D L F T P A A D L V L T S P A S P A T D D A E Q E A V A A L V A L G Y K P Q E A S R M V S K I A R P D A S S E T L I R E A L R A A L </pre>
Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 µm sterile filtered PBS, 6% Trehalose, pH 7.4
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	<p>The RuvA protein plays a central role in genetic recombination and DNA repair as a key component of the RuvA-RuvB-RuvC complex, which processes Holliday junction (HJ) DNA during these critical cellular processes. This complex, along with the RuvA-RuvB system, contributes significantly to the rescue of blocked DNA replication forks via replication fork reversal (RFR), with RFR and homologous recombination being essential for UV light survival. RuvA, in conjunction with RuvB, facilitates HJ branch migration by binding to HJ cruciform DNA and conferring an open structure. In the presence of RuvB,</p>
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ATP, and Mg(2+), the junction is dissociated, with the RuvB hexamer acting as a molecular pump to pull double-stranded DNA into and through the RuvAB complex. RuvA imparts specificity by binding to cruciform junctions, while the ATPase activity of RuvB provides the motor force for branch migration, a process that can occur even in the absence of RuvA. Overexpression of RuvA alone results in UV sensitivity. Additionally, RuvA stimulates the weak ATPase activity of RuvB in the presence of DNA, and the addition of HJ DNA further enhances ATPase activity. RuvA inhibits RuvC endoDNase activity by binding to HJ DNA, and it may act as a collar that slides at the HJ, promoting branch migration while inhibiting other DNA remodeling activities. This comprehensive interplay of RuvA within the RuvABC complex underscores its multifaceted functions in orchestrating DNA repair and recombination events.

Caution: Product has not been fully validated for medical applications. For research use only.

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