DNA Translocase Spoiiie (spoIIIE) Bacillus Subtilis Recombinant Protein

PRODUCT OVERVIEW

Product Name	DNA translocase SpoIIIE (spoIIIE), Recombinant Protein
Full Product Name	Recombinant Bacillus subtilis DNA translocase SpoIIIE (spoIIIE)
Product Gene Name	spoIIIE recombinant protein
Product Synonym Gene Name	spoIIIE; ftsK
Product Synonym Names	Recombinant DNA translocase SpoIIIE (spoIIIE); DNA translocase SpoIIIE; Stage III sporulation protein E
Sequence	MAKKKRKSRK KQAKQLNIKY ELNGLLCIAI SIIAILQLGV VGQTFIYLFR FFAGEWFILC LLGLLVLGVS LFWKKKTPSL LTRRKAGLYC IIASILLLSH VQLFKNLTHK GSIESASVVR NTWELFLMDM NGSSASPDLG GGMIGALLFA ASHFLFASTG SQIMAIVMIL IGMILVTGRS LQETLKKWMS PIGRFIKEQW LAFIDDMKSF KSNMQSSKKT KAPSKKQKPA RKKQQMEPEP PDEEGDYETV SPLIHSEPII SSFSDRNEEE ESPVIEKRAE PVSKPLQDIQ PETGDQETVS APPMTFTELE NKDYEMPSLD LLADPKHTGQ QADKKNIYEN ARKLERTFQS FGVKAKVTQV HLGPAVTKYE VYPDVGVKVS KIVNLSDDLA LALAAKDIRI EAPIPGKSAI GIEVPNAEVA MVSLKEVLES KLNDRPDAKL LIGLGRNISG EAVLAELNKM PHLLVAGATG SGKSVCVNGI ITSILMRAKP HEVKMMMIDP KMVELNVYNG IPHLLAPVVT DPKKASQALK KVVNEMERRY ELFSHTGTRN IEGYNDYIKR ANNEEGAKQP ELPYIVVIVD ELADLMMVAS SDVEDSITRL SQMARAAGIH LIIATQRPSV DVITGVIKAN IPSRIAFSVS SQTDSRTILD MGGAEKLLGR GDMLFLPVGA NKPVRVQGAF LSDDEVEKVV DHVITQQKAQ YQEEMIPEET TETHSEVTDE LYDEAVELIV GMQTASVSML QRRFRIGYTR AARLIDAMEE RGVVGPYEGS KPREVLLSKE KYDELSS
Host	E Coli or Yeast or Baculovirus or Mammalian Cell
Form/Format	Lyophilized or liquid (Format to be determined during the manufacturing process)
Purity/Purification	Greater or equal to 85% purity as determined by SDS-PAGE. (lot specific)
Preparation and Storage	Store at -20 degree C. For extended storage, store at -20 or -80 degree C.
Molecular Weight	87,181 Da
Sequence Positions	1-787
Tag Information	This protein contains an N-terminal tag and may also contain a C-terminal tag. Tag types are determined by various factors including tag-protein stability, please inquire for tag information.
Sterility	Sterile filter available upon request.
Endotoxin	Low endotoxin available upon request.
Chromosome Location	NC_000964.3 (1752272..1754641)
3D Structure	ModBase 3D Structure for P21458
Species	Bacillus subtilis (strain 168)
ISO Certification	Manufactured in an ISO 9001:2015 Certified Laboratory.
Related Product Information for spoIIIE recombinant protein	MBS1161268 is a recombinant protein targeting spoIIIE. Also known as Recombinant Bacillus subtilis DNA translocase SpoIIIE (spoIIIE). Host: E Coli or Yeast or Baculovirus or Mammalian Cell.
Other Notes	Small volumes of spoIIIE recombinant protein vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for spoIIIE. It may not necessarily be applicable to this product.

NCBI GI #	255767381
NCBI GeneID	936503
NCBI Accession #	NP_389562.2
UniProt Primary Accession #	P21458
UniProt Secondary Accession #	P21459
GenBank Nucleotide #	NC_000964.3
NCBI Official Full Name	spore DNA translocase
NCBI Official Symbol	spoIIIE
UniProt Protein Name	DNA translocase SpoIIIE
UniProt Synonym Protein Names	Stage III sporulation protein E
Protein Family	DNA translocase
UniProt Gene Name	spoIIIE
UniProt Synonym Gene Names	ftsK
UniProt Entry Name	SP3E_BACSU
NCBI Protein Information	spore DNA translocase
UniProt Comments for spoIIIE	Function: Plays an essential role during sporulation. Required for the translocation of the chromosomal DNA from mother cell into the forespore during polar septation, for the final steps of compartimentalization in the presence of trapped DNA, and for the final steps of engulfment. The N-terminus mediates localization to the division septum and is required for both septal membrane fusion and engulfment membrane fusion. May form DNA-conducting channels across the two lipid bilayers of the septum after cell division. The C-terminus functions as a DNA motor that exports DNA in an ATP-dependent manner from mother cell into the forespore. DNA-binding proteins are stripped off the chromosome during translocation, which may play a key role in reprogramming developmental gene expression in the forespore. The two arms of the chromosome are simultaneously pumped into the forespore, which suggests that the septum contains at least two channels, one for each arm. Required for separation of chromosome termini. Also required for optimal chromosome partitioning in vegetative cells, by actively moving chromosomal DNA trapped within the division septum into the daughter cells. Ref.6 Ref.7 Ref.8 Ref.9 Ref.10 Ref.11 Ref.12 Ref.14 Ref.15 Ref.16 Ref.18 Ref.19 Ref.20 Subunit structure: Homohexamer. Forms a ring that surrounds DNA. Assembles into complexes that could contain two hexamers. Ref.11 Subcellular location: Cell membrane; Multi-pass membrane protein. Note: Localizes to the middle of the sporulation septum, then moves to the forespore pole before the completion of engulfment. Delocalizes after membrane fusion is complete. During sporulation, is exclusively assembled on the mother-cell side of the septum. During vegetative growth, assembles at the division septum when DNA is entrapped in the membranes. Ref.6 Ref.10 Ref.16 Ref.18 Ref.19 Domain: Consists of an N-terminal domain, followed by a linker domain, and a C-terminal domain, which forms the translocation motor involved in chromosome segregation. The C-terminal domain can be further subdivided into alpha, beta and gamma subdomains. Specific interactions between the gamma subdomain and specific SpoIIIE recognition sequences (SRS) regulate the compartment-specific activation of a mother-cell SpoIIIE complex. Interactions with nonpermissive SRS in the forespore lead to inactivation of the complex. Ref.13 Ref.16 Disruption phenotype: Cells lacking this gene show a chromosome translocation defect and aberrant compartimentalization of both sigma-F and sigma-E, and fail to complete membrane fusion at the end of engulfment. Ref.6 Sequence similarities: Belongs to the FtsK/SpoIIIE/SftA family.Contains 1 FtsK domain. Sequence caution: The sequence CAB13553.2 differs from that shown. Reason: Erroneous initiation. Translation N-terminally shortened.

Research Articles on spoIIIE	**1.** It is concluded that SpoIIIE is required during spore formation for chromosome separation as well as for translocation; SpoIIIE is not required for separation during vegetative growth.
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