



Recombinant Type-2 restriction enzyme Eco47I (eco47IR)

Product Code	CSB-EP344636ENL
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P50194
Product Type	Recombinant Protein
Immunogen Species	Escherichia coli
Purity	>85% (SDS-PAGE)
Sequence	MSKETSFVKN AEELAKQKMD AINPELSSKF KFLIKFLSQF PEACSKPRSK KMQNKVGQEE HIEYLARSFH ESRLPRKPTP PTTVPDEVVS IVLNISFNIQ PENLERIKKEE HRLSMAAENI VGDLLERYLA EKLEPSGWIW CSGTSVKA VD FIHYDEKNNE WNLLQVKNRD NTENSSSSKI RDNTTIKKWF RTYSQRDATN WDNFPDEVSS KNLNEEDFRA FVKNYLVKII
Source	E.coli
Target Names	eco47IR
Protein Names	Recommended name: Type-2 restriction enzyme Eco47I Short name= R.Eco47I EC= 3.1.21.4 Alternative name(s): Endonuclease Eco47I Type II restriction enzyme Eco47I
Expression Region	1-230
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	Tag type will be determined during the manufacturing process.
Protein Length	full length protein

Description

The Type IIS restriction enzyme Eco47I, also known as R.Eco47I, is a prokaryotic DNA methyltransferase that is involved in the detection of CG-specific methylation [1]. This enzyme is a thermostable restriction endonuclease extracted from extreme thermophilic bacteria, and it is an isoschizomer of prototype Type II restriction endonucleases AclI and BstYI [2]. The use of type IIS restriction enzymes, such as Eco47I, presents a unique strategy for efficient cloning in protein crystallography [3]. Additionally, the involvement of Type II restriction endonucleases, including Eco47I, in biological restriction has been demonstrated, indicating their significance in DNA recognition specificity [4]. Furthermore, type IIS restriction enzymes, like Eco47I, are utilized in hierarchical DNA assembly systems due to their ability to block restriction sites and generate sticky ends for efficient DNA piece joining [5]. Moreover, type IIS restriction enzymes, which recognize sequences outside the cleavage sites,



allow a programmable signature and can be used in an alternating pattern to form a 'cloning loop' within a proprietary vector [6][7].

References:

- [1] P. Albert, B. Varga, N. Zsibrita, & A. Kiss, "Circularly permuted variants of two cg-specific prokaryotic dna methyltransferases", Plos One, vol. 13, no. 5, p. e0197232, 2018. <https://doi.org/10.1371/journal.pone.0197232>
- [2] D. Gupta and N. Sharma, "Thermostable restriction endonucleases from thermophilic bacteria", International Research Journal of Pharmacy, vol. 5, no. 4, p. 259-263, 2014. <https://doi.org/10.7897/2230-8407.050455>
- [3] N. Galloway, H. Toutkoushian, M. Nune, N. Bose, & C. Momany, "Rapid cloning for protein crystallography using type iis restriction enzymes", Crystal Growth & Design, vol. 13, no. 7, p. 2833-2839, 2013. <https://doi.org/10.1021/cg400171z>
- [4] P. Whitehead, D. Jacobs, & N. Brown, "Restriction endonucleases from herpetosiphon giganteus: an example of the evolution of dna recognition specificity?", Nucleic Acids Research, vol. 14, no. 17, p. 7031-7045, 1986. <https://doi.org/10.1093/nar/14.17.7031>
- [5] L. Da and C. O'Callaghan, "Metclo: methylase-assisted hierarchical dna assembly using a single type iis restriction enzyme", Nucleic Acids Research, 2018. <https://doi.org/10.1093/nar/gky596>
- [6] A. Sarrión-Perdigones, M. Vázquez-Vilar, J. Palací, B. Castelijns, J. Forment, P. Ziarsolo et al., "Goldenbraid 2.0: a comprehensive dna assembly framework for plant synthetic biology", Plant Physiology, vol. 162, no. 3, p. 1618-1631, 2013. <https://doi.org/10.1104/pp.113.217661>
- [7] H. DePaoli, G. Tuskan, & X. Yang, "An innovative platform for quick and flexible joining of assorted dna fragments", Scientific Reports, vol. 6, no. 1, 2016. <https://doi.org/10.1038/srep19278>

Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL. We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.

Shelf Life

The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.