

Recombinant Bifunctional ligase/repressor BirA

#R00512

Size: 5 µg/100 µg/500 µg

Stability & Storage

Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 6 months from date of receipt, -20 to -70 °C as supplied.
- 3 months, -20 to -70 °C under sterile conditions after opening.



Warning: This product is intended for scientific research only. It is not to be used for medical or diagnostic procedures in humans or animals, nor as a food, cosmetic, or household product.

Background

BirA, the biotin-protein ligase (BPL) of Escherichia coli, is also known as biotin operon repressor, biotin-[acetyl-CoA-carboxylase] ligase, and biotin-[acetyl-CoAcarboxylase] synthetase. BirA, a member of the group II biotin-protein ligase family, contains an N-terminal helix-turn-helix DNA-binding domain, a catalytic core that catalyzes biotinyl 5' adenylate (bio-5'-AMP) synthesis, and a C-terminal domain that plays a role in DNA binding, dimerization, and catalytic function. BirA functions both as a DNA-binding protein that represses the biotin biosynthesis operon as well as an enzyme that synthesizes its own corepressor, bio-5'-AMP, an intermediate in biotinylation reactions. BirA biotinylates via the lysine side chain of biotin-accepting proteins/peptides, including natural substrate, carboxyl carrier protein (BCCP),and Avi Tag fusion proteins. Once biotinylated, (strept)avidin-biotin interactions can

be utilized in a wide variety of applications of biochemistry and cell biology, including protein capture, immobilization, multimerizing, and bridging molecules.

AA Sequence

MKDNTVPLKLIALLANGEFHSGEQLGETLGMSRAAIN
KHIQTLRDWGVDFVTPGKGYSLPEPIQLLNAKQILG
QLDGGSVAVLPVIDSTNQYLLDRIGELKSGDACIAEYQ
QAGRGRGRKWFSPFGANLYLSMFWRLEQGPAAAI
GLSLVIGIVMAEVLRLKGADKVRVKWPNDLYLQDRKL
AGILVELTGKTGDAAQIVIGAGINMAMRRVEESVVNQ
GWITLQEAGINLDRNTLAAMLIRELRAALELFEQEGLA
PYLSRWEKLDNFNRPVKLIIGDKEIFGISRGIDKQGAL
LLEQDGIKPWMGGEISLRSAEK

Product Specification

Source	Escherichia coli.
Molecular Weight	Approximately 35.3 kDa, a single non-glycosylated polypeptide chain containing 321 amino acids.
Purity	> 97 % by SDS-PAGE analyses.
Biological Activity	Measured by its ability to generate pyrophosphate from the biotinylation reaction. The pyrophosphate is subsequently hydrolyzed using Recombinant Yeast Inorganic Pyrophosphatase/PPA1 (ryPPA1). The specific activity is > 10.0 pmol/min/µg, as measured under the described conditions.
Physical	Sterile colorless liquid.

Appearance**Formulation**

Supplied as a 0.2 µm filtered solution in 50 mM Tris-HCl, pH 8.0, 150 mM NaCl, 1 mM EDTA, 1 mM DTT, 10 % glycerol.

Endotoxin

Less than 0.1 EU/µg of rBirA as determined by LAL method.
