

## PrimeGene Technical Data Sheet

---

<b>Catalog Number:</b>	4A8-01
<b>Source:</b>	<i>Escherichia coli</i> .
<b>Molecular Weight:</b>	Approximately 35.3 kDa, a single non-glycosylated polypeptide chain containing 321 amino acids.
<b>Quantity:</b>	5µg/100µg/500µg
<b>AA Sequence:</b>	MKDNTVPLKL IALLANGEFH SGEQLGETLG MSRAAINKHI QTLRDWGV DV FTVPGKGYSL PEPIQLLNAK QILGQLDGG S VAVLPVIDST NQYLLDRIGE LKSGDACIAE YQQAGRGRRG RKWFSPFGAN LYLSMFWRLE QGPAAAIGLS LVIGIVMAEV LRKLGADKVR VKWPNDLYLQ DRKLAGILVE LTGKTGDAAQ IVIGAGINMA MRRVEESV V N QGWITLQEAG INLDRNTLAA MLIRELRAAL ELFEQEGLAP YLSRWEKLDN FINRPVKLII GDKEIFGISR GIDKQGALLL EQDGIKPWM GGEISLRS AE K
<b>Purity:</b>	> 97 % by SDS-PAGE analyses.
<b>Biological Activity:</b>	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.
<b>Physical Appearance:</b>	Sterile colorless liquid.
<b>Formulation:</b>	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.
<b>Endotoxin:</b>	Less than 0.1 EU/µg of rBirA as determined by LAL method.
<b>Stability &amp; Storage:</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"><li>● 6 months from date of receipt, -20 to -70 °C as supplied.</li><li>● 3 months, -20 to -70 °C under sterile conditions after opening.</li></ul>
<b>Usage:</b>	This material is offered by Shanghai PrimeGene Bio-Tech for research, laboratory or further evaluation purposes. <b>NOT FOR HUMAN USE.</b>

---

### ***Bifunctional ligase/repressor BirA***

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.