

Resource Summary Report

Generated by [RRID](#) on Aug 19, 2026

pET22b_PstS_3

RRID:Addgene_78200

Type: Plasmid

Proper Citation

RRID:Addgene_78200

Plasmid Information

URL: <http://www.addgene.org/78200>

Proper Citation: RRID:Addgene_78200

Insert Name: pstS (A17C,I76G,A197C)

Organism: E. coli

Bacterial Resistance: Ampicillin

Defining Citation: [PMID:26199994](#)

Vector Backbone Description: Vector Backbone:pET22b; Vector Types:Bacterial Expression; Bacterial Resistance:Ampicillin

Comments: Please note- The numbering system used was for the mature natural wild-type PstS protein. The plasmid produces an extra N-terminal methionine so all mutations will be off by 1nt (e.g., A197C =A198C) PstS ORF encoding the mature E. coli (A17C, I76G, A197C)PstS protein (PBPw) containing a stop codon at the end of the gene in pET22b (inserted between Nde1 and Xho1 sites in the MCS). Expression produces MEA at the N-terminus of the mature PstS: So there is an extra M at the N-terminus over the natural, mature PstS. A stop codon was also added at the end of the sequence BEFORE the plasmid-derived His tag. This gives PLY at the C-terminus at the C-terminus of the expressed protein, as in the natural PstS. The amino-acid numbering has been left as based on positions in the natural, mature protein. Usage The expressed protein is a weak-binding variant of E. coli phosphate binding protein, PstS. It contains two cysteines (A17C, A197C) and a mutation to weaken binding (I76G). The gene encodes the mature protein without the N-terminal signal peptide, but with an N-terminal methionine. Subsequently the cysteines are labeled with 2 6-iodoacetamidotetramethylrhodamines per molecule. This adduct is then used as a phosphate biosensor, having up to 9-fold fluorescence intensity increase on binding inorganic phosphate, with a low dissociation constant so inorganic phosphate can be measured in the tens of micromolar range.

Plasmid Name: pET22b_PstS_3

Relevant Mutation: A17C,I76G,A197C (please see depositor comment below)

Record Creation Time: 20220422T222515+0000

Record Last Update: 20260815T082022+0000

Ratings and Alerts

No rating or validation information has been found for pET22b_PstS_3.

No alerts have been found for pET22b_PstS_3.

Data and Source Information

Source: [Addgene](#)

Usage and Citation Metrics

We have not found any literature mentions for this resource.