

Comparison of green fluorescent protein expressions and
cellular stress levels in several *Escherichia coli*

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ABSTRACT

We have previously demonstrated that green fluorescent protein (GFP) translated under stress protein promoter element such as *rpoH* (sigma 32), *clpB*, or *dnaK*, was successfully employed as a noninvasive stress probe in *Escherichia coli*. Using these stress probes, we compared cellular stress responses in four types of *E. coli* strains (JM105 and BL21 as production hosts & HB101 and TOP10 as cloning hosts). When GFP was employed again as a model foreign protein, we observed specific expression levels were somewhat related to cellular stress levels in each strain. While JM105 strain showed the highest cellular stress levels and very low GFP expression levels, BL21 exhibited the lowest cellular stress levels and the highest GFP expression levels under heat shock stressed and even non-stressed conditions.

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