



**PGLS20 vector: A novel dual purpose vector for protein expression in E.coli and S.cerevisiae.**

Genes of interest are often expressed in more than one system for various purposes. For example, a bacterial system may be used initially to study the basic protein characteristics. The same gene may be then expressed in eukaryotic cells, in order to obtain the appropriate post-translational modifications.

Sometimes all hosts are used with the same purpose; for example, there are two-hybrid systems working in bacteria, yeast or mammalian cells. With currently available expression vectors, it is necessary to clone the target gene into separate vectors, each dedicated to a particular system. Although vectors exist that are able to express proteins using a single plasmid in bacterial, insect and mammalian cells, no such vector is available for the expression in both bacterial and yeast cells.

To address this need, FCCC has developed a novel expression plasmid that enables optimal protein expression in both bacterial and yeast cells, the pGLS20 vector.

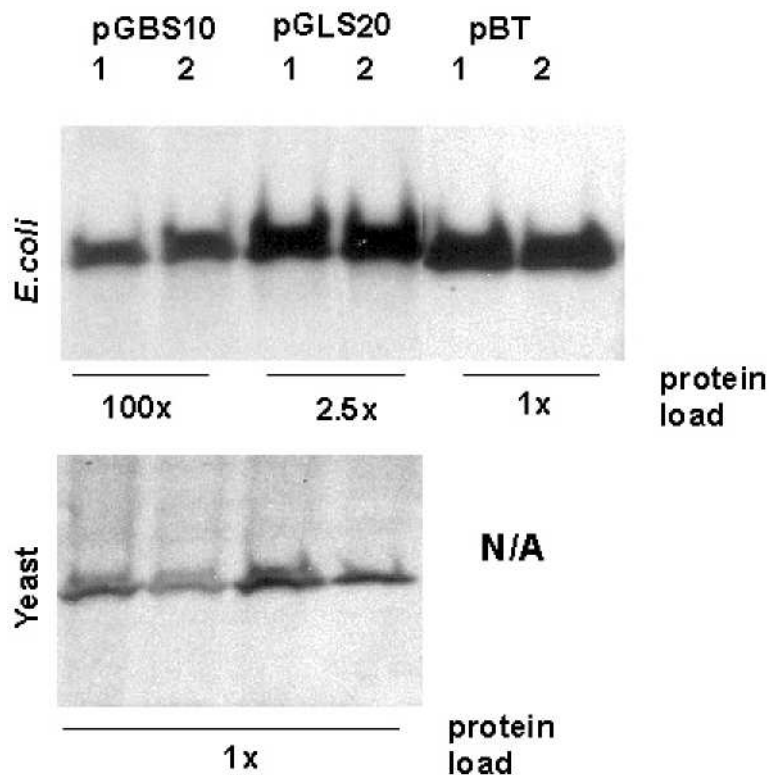
cl protein is the basis of a two-hybrid system in E.coli [1] and in yeast ("Dual Bait" system, [2] ). Each of these systems has proven to be efficient in identifying and characterizing protein-protein interactions. However, specialized bait-expression vectors for E.coli system are not maintained in yeast, while yeast vectors do not produce enough fusion protein in E.coli. With the new pGLS20 vector, there is no need to clone the target gene into two separate vectors: the same bait can be used to screen the library in E.coli - and in yeast - based two-hybrid systems.

The pGLS20 vector has been extensively tested for performance in both expression systems. In each case, expression was similar to that obtained with system-specific vectors.

1. Serebriiskii, I., and Keith, J., Yeast and Bacterial Two-Hybrid Selection Systems for Studying Protein-Protein Interactions. In "Protein Interactions", ed. E.Golemis. CSHL Press, 2001.
2. Serebriiskii, I., Khazak, V., and Golemis, E. A. A two-hybrid dual bait system to discriminate specificity of protein interactions. J. Biol. Chem. 1999, 274(24):17080-87

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**Top:** pGLS20 vector shows increased expression levels of the *cl* gene in *E.coli* compared to the specialized yeast vector pGBS10, and essentially equivalent to that of the specialized bacterial vector pBT (Stratagene).

**Bottom:** expression levels in yeast are the same or slightly better than from the specialized yeast vector (*E.coli* vector cannot be tested in yeast).

