Research Tools

CELL LINE: Lemo21-sufZM ("IMPROVED EXPRESSION STRAINS FOR FE-S CLUSTER PROTEINS")

WARF: P250352US02

Inventors: Patricia Kiley, Banerjee Rajdeep, Erin Mettert, Isabel Askenasy

The Invention

UW-Madison researchers previously discovered that Escherichia coli BL21(DE3) and commercially available derivatives of it carry a deletion that results in an in-frame fusion of sufA and sufB genes within the sufABCDSE operon. They corrected the suf operon and enhanced its expression, and they found that the improved cell line (called 'SufFeScient' cells, see WARF Technology P190138US01 linked below) is suitable for enhanced large-scale synthesis of Fe-S cluster-containing proteins.

A derivative of BL21(DE3) called Lemo21(DE3)2 offers the added benefit of being able to finely tune gene expression, which supports the expression of difficult constructs, including membrane proteins, toxic proteins and proteins prone to insoluble expression.

The researchers have now created additional protein production strains with several key improvements/variations. They've created the strains in the Lemo21 background and replaced the Suf operon promoter with a constitutive moderately expressed promoter (namely, the fnr promoter). They've also tested two sources for the Suf operon – the same E. coli K12 strain as used for their 'SufFeScient' cells, or the Suf operon from the alphaproteobacterium Zymomonas mobilis.

P250352US02 is the resulting Lemo21-sufZM strain - Lemo21 with Suf-operon taken from Zymomonas mobilis under control of the fnr promoter.

Additional Information

For More Information About the Inventors

- Patricia Kiley

Related Technologies

- P190138US01
- P250352US01
- P250352US03

Tech Fields

- Research Tools : Biomanufacturing
- Research Tools : Cell lines
- Research Tools : Microbial technologies
- Research Tools : Protein tools

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