METHOD FOR PRODUCING PROTEIN

ABSTRACT

It has been believed that promoting the assembly of polysomes composed of many ribosomes attached to mRNA is very effective for highly efficient protein synthesis. However, the mechanism for p180 protein's capability of promoting polysome formation has been yet to be elucidated.

The inventors of the present application newly discovered SF3b4 protein as a protein that specifically interacts with the coiled-coil domain of p180 protein, a responsible region for its capability of promoting polysome formation, and which is capable of promoting mRNA localization to an endoplasmic reticulum (ER). The inventors also found that, in cells capable of highly expressing both p180 protein and a protein promoting mRNA localization to an endoplasmic reticulum (ER) (e.g., SF3b4 protein), the mRNA localization to the endoplasmic reticulum can be significantly elevated so that the secretory capacity in cultured cells can be enhanced. Further, the inventors demonstrated that when a particular nucleotide sequence is inserted into an expression plasmid, SF3b4 protein exhibiting protein expression enhancing ability can be localized onto the endoplasmic reticulum membrane, and the mRNA distribution in polysomes can be shifted towards heavier fractions, whereby the secretory capacity in cells can be enhanced.