

Site-specific Chemoenzymatic Glycosylation of Peptides

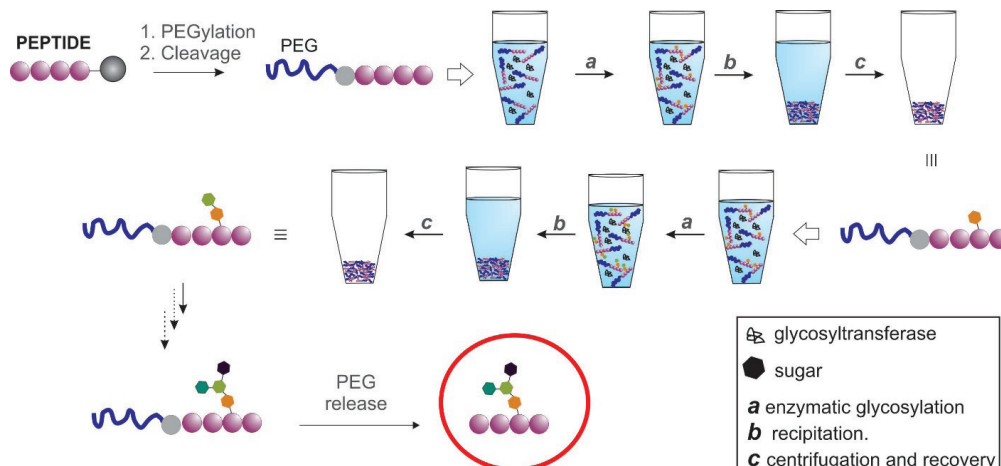
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BACKGROUND

For many eukaryotic proteins, processing by post-translational modifications such as glycosylation is a critical step for correct folding and achievement of biological activity. These modifications that occur naturally within eukaryotic cells have to be replicated when preparing peptides and proteins that are chemically synthesized or recombinantly-produced in prokaryotic cells.

TECHNOLOGY

This technology enables production of glycosylated peptides using a new, patented method relying on a two-step procedure involving reversibly conjugating a peptide with a hydrophilic polymer such as PEG; and subsequently glycosylating the polymer-conjugated peptide using glycosyltransferases.



BENEFITS

- Very high yields of glycosylated product due to near quantitative conversion
- Can be applied to recombinantly-produced peptides as well as to chemically-synthesized peptides
- Easy purification of glycosylated peptide

FURTHER READING

Bello, C., Farbiarz, K., Möller, J.F., Becker, C.F., Schwientek, T. (2014) A quantitative and site-specific chemoenzymatic glycosylation approach for PEGylated MUC1 peptides, *Chem. Sci.*, 5, 1634-1641. (DOI: 10.1039/C3SC52641K)

REFERENCE:
2013/17

KEYWORDS:
Glycosylation, polymer-conjugated peptide, enzymatic modification, glycosyltransferases

APPLICATION:
Production of site-specific glycosylated peptides for therapy, prophylaxis and diagnostic purposes (including peptide vaccines, antibodies, hormones etc.).

DEVELOPMENT STATUS:
The method has been tested and used extensively on a laboratory scale, and using a variety of different substrates.

IPR:
A European patent application has been approved for grant.

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