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(54) **METHODS AND KITS FOR DETECTION OF O-GLCNAC AND N-GLCNAC MODIFICATION OF PEPTIDES AND PROTEINS**

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See application file for complete search history.

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(57) **ABSTRACT**

Methods and kits for detecting the presence of GlcNAc modification of a peptide or protein. The steps of detection may include combining the peptide or protein with PAP^{35}S and a sulfotransferase to produce a reaction product including ^{35}S labeled GlcNAc modified protein or peptide, removing background labeling with a glycosidase, separating the ^{35}S labeled GlcNAc modified protein or peptide from PAP^{35}S, free S-35 sulfate and labeled oligosaccharides if present, and detecting isotopic emissions from the ^{35}S labeled GlcNAc modified peptide or protein. The detection may further include, prior to detection, the step of combining the peptide or protein with a GlcNAc transferase and UDP-GlcNAc under appropriate conditions for the GlcNAc transferase to transfer a GlcNAc to the peptide or protein.

12 Claims, 7 Drawing Sheets