Detection of Nitrosylated Proteins

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Overview

This invention represents a new method (process) to detect NO-conjugated cysteines in proteins (S-nitrosylation) in intact cells or tissues. We have taken the approach published by Jaffrey et. al., in Nature Cell. Biol. In 2001 which first described a biotin switch method to detect S-nitrosylated proteins in homogenized cells and tissues for proteomics approaches. We have modified this approach by using other chemical reagents, and adapted it in order to be able to visualize the conjugation of NO to proteins in intact cells or fresh frozen tissues. This new method provides a direct approach to directly visualize NO conjugation to proteins that can be used in diagnostic settings.

Invention

Prior to this invention, the only method available to detect S-nitrosylation diagnostically was the use of an antibody directed against S-nitrosocysteine which has questionable specificity, as the NO-cysteine bond (known as S-nitrosylation or S-nitrosation is highly labile). Thus using our method, the ability now exists to visualize S-nitrosylated proteins in intact cells or tissues which is not possible with currently accepted methods. This offers the advantage to visualize the altered NO function which is believed to be important in many diseases. .

Advantages

- Helps determine functional NO in cells or tissues from patients or animals.
- May serve as a diagnostic tool in diseases
- Can also evaluate the effectiveness of NO-delivery strategies.

Applications

- Hospitals and research centers
- Biotechnology markets

Patent Status

Patent Application Filed
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