# Oxidative Modification Kit

## For conversion of *cis*-glycol groups in carbohydrates to reactive aldehdye groups

### SODIUM META-PERIODATE MODIFICATION KIT

## (Cat. # 786-1644)

## INTRODUCTION

G-Biosciences offer Oxidative Modification Kit for the modification of glycoproteins to reactive aldehydes for amine- and hydrazide- labeling. Sodium metaperiodate, or sodium m-periodate, is a mild oxidant that is routinely used for the conversion of *cis*-glycol groups in carbohydrates to reactive aldehdye groups. Carbohydrate groups present in some glycoproteins are preferred site for modification or cross linking as they allow for modification away from amino acids in polypeptide that are important for protein activity. Sodium meta-periodate cleaves the bond between adjacent carbon atoms that contain hydroxyl groups (cis-glycols), creating two aldehyde groups that are reactive to amine- and hydrazide- activated labeling.

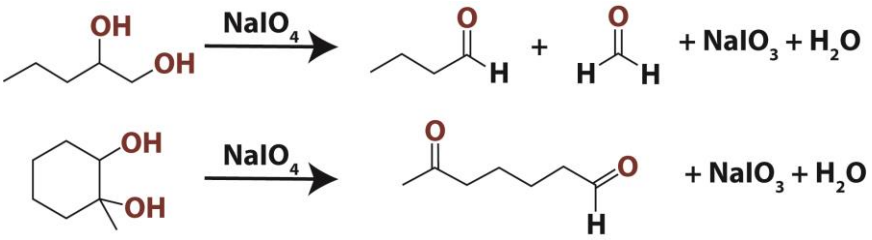



Fig 1: Oxidation of *cis*-glycols to aldehydes and ketones.

The aldehydes can interact with primary amines to from Schiff's bases, which in turn can be stabilized by reduction with sodium cyanoborohydride (Cat. # 786-061, 786-062) to form covalent amide bonds. Alternatively, the aldehydes can spontaneously react with hydrazide activated molecules to form relatively stable hydrazone bonds, which again can be stabilized with sodium cyanoborohydride.

## ITEM(S) SUPPLIED

| **Description** | **Cat. # 786-1643** |
|---|---|
| Sodium metaperiodate | 0.5 g |
| Optimizer Buffer V [5X] | 2 x 25 ml |

## STORAGE CONDITION

The kit is shipped at an ambient temperature. Upon receipt store Sodium metaperiodate at room temperature and Optimizer Buffer V [5X] at 4°C.

## ADDITIONAL REAGENTS REQUIRED

- Glycoprotein to be modified
- Amber Vials [2ml] (Cat. # 786-1646)

## PREPARATION BEFORE USE

1. Prepare 1 X Optimizer Buffer V by mixing Optimizer Buffer V [5X] and deionized water in ratio 1:4 (e.g. take 2 ml of Optimizer Buffer V[5X] and add 8 ml deionized water to it.

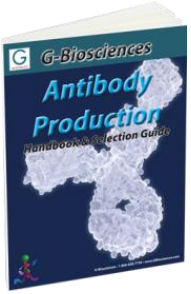
## PROTOCOL

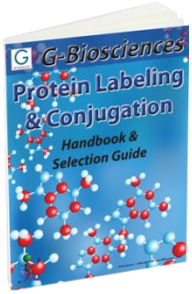
***Oxidation of Glycoproteins***

1. Dissolve 0.5-10mg glycoprotein in 1ml 1 X Optimizer Buffer V.
2. Add 2mg sodium metaperiodate to an amber vial. Using 2mg for each 1ml protein solution results in ~10mM sodium metaperiodate. Add the protein solution to the amber vial and swirl to dissolve the sodium metaperiodate.
3. Alternatively, dissolve 4 mg sodium metaperiodate in 1 ml of 1 X Optimizer Buffer V and then add 1ml to every 1ml glycoprotein solution.
   ***NOTE:*** *The steps involving sodium metaperiodate are light sensitive and must be performed in an amber vial.*
   ***NOTE:*** *To only oxidize the sialic groups, use 1mM final concentration of sodium periodate by adding 50µl 20mM sodium metaperiodate to every 1ml glycoprotein solution.*
4. Incubate at room temperature for 30 minutes.
   **NOTE:** *The incubation time should be optimized for each glycoprotein as excessive oxidation may lead to loss of protein function.*
5. Remove the sodium metaperiodate from the sample by dialysis or desalting. We recommend our Tube-O-DIALYZER™ (Cat. # 786-610 to 786-624) for dialysis or our SpinOUT™ columns (Cat. # 786-705) for desalting.

## RELATED PRODUCTS

Download our Antibody Production and Protein Labeling & Conjugation Handbooks

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