Wheat Germ Agglutinin (WGA) and Concanavalin A Conjugates for Detecting Glycoproteins

Introduction

Lectins are carbohydrate-binding proteins and exhibit various specificities to different sugar components on cellular protein and lipid substances. Wheat germ agglutinin (WGA) is a lectin that protects wheat (Triticum) from insects, yeast and bacteria. It selectively binds to N-acetylglucosamine and sialic acid residues. Concanavalin A (ConA) is a lectin originally extracted from the jack-bean (Canavalia ensiformis) and binds specifically to α-D-mannosyl and α-D-glucosyl groups. Wheat germ agglutinin (WGA) or Concanavalin A conjugates are commonly used to label glycoproteins, detect glycoprotein in histochemical stain or localize the glycoproteins in gels. The conjugates can be used for a variety of applications, such as imaging mammalian cell plasma membrane in live or fixed cells, immunohistochemical applications etc.

Spectral Properties

Table 1. The excitation and emission maxima of the WGA or Concanavalin A conjugates

Cat#	Product Name	Unit	Ex	Em
25500	Wheat Germ Agglutinin, AF488 Labeled	1mg	499	520
25509	Wheat Germ Agglutinin, AF594 Labeled	1mg	590	617
25530	iFluor™ 488-Wheat Germ Agglutinin (WGA) Conjugate	1mg	491	516
25539	iFluor™ 555-Wheat Germ Agglutinin (WGA) Conjugate	1mg	556	569
25550	iFluor™ 594-Wheat Germ Agglutinin (WGA) Conjugate	1mg	587	603
25559	iFluor™ 647-Wheat Germ Agglutinin (WGA) Conjugate	1mg	654	669
25570	Concanavalin A, AF488 Labeled	1mg	499	520
25575	Concanavalin A, AF594 Labeled	1mg	590	617
25580	iFluor™ 488-Concanavalin A Conjugate	1mg	491	516
25585	iFluor™ 555-Concanavalin A Conjugate	1mg	556	569
25590	iFluor™ 594-Concanavalin A Conjugate	1mg	587	603
25595	iFluor™ 647-Concanavalin A Conjugate	1mg	654	669

Storage and Handling Conditions

The fluorescent conjugates are lyophilized powder form, and should be stable for at least 6 months from date of receipt if stored at recommended conditions of -20 °C and protected from light.

Sample Assay Protocols

Note: Warm the vial to room temperature centrifuge briefly before opening. Staining protocols vary with applications. Appropriate dilution of conjugates should be determined experimentally.

1. Prepare 200X stock solution:

Add 500 µL of ddH2O into the powder form to make 2 mg/mL stock solution. The reconstituted conjugate solution can be stored at 2-8°C for short-term storage or at -20°C for long-term storage.

2. Prepare 1X WGA conjugate working solution:

Add 5 µL of 200X WGA conjugate solution to 1mL HHBS Buffer. The optimized staining concentration may be different with different cell lines. The recommended starting concentration is 5-10 ug/mL for live cells.

3. Live Cells Stain:

3.1 Wash cells twice with a HHBS buffer.
3.2 Add 100uL WGA working solution.
3.3 Incubate cells with WGA working solution for 10-30 minutes at 37°C.

3.4. Wash cells twice with HHBS buffer.
3.5. Image cells on a microscope using the appropriate filter set (Table 1).

4. Fixed Cell Stain:

WGA conjugate and ConA conjugate can be also used to stain fixed cells.
4.1 Fix cells with 4% Formaldehyde in PBS.
Note: For fixed cell membrane staining, it is recommended to stain without permeabilization step. Permeabilized step can after fixation will lead to intracellular compartments stain such as Golgi and Endoplasmic Reticulum (ER) structures.
4.2 Add 100uL WGA working solution.
4.3 Incubate cells with WGA working solution for 10-30 minutes at room temperature.
4.4. Wash cells twice with HHBS buffer.
4.5. Image cells on a microscope using the appropriate filter set (Table 1).

Disclaimer: These products are for research use only and are not intended for therapeutic or diagnostic applications. Please contact our technical service representative for more information.