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Universal labeling method for antibody IgG

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Researchers want labeled antibodies that work in their specific applications. Traditional labeling methods include amine-reactive chemistry, thiol-reactive chemistry; periodate oxidation and carbodiimide reactions. Antibodies labeled with these approaches give stable conjugates but can also disrupt antigen binding and are difficult to characterize. In the worst of cases, antibody specificity is lost upon conjugation. A modular copper-less click method for antibody labeling has been shown to be both reproducible and robust and is currently the best option for antibodies where standard chemistries have failed. Antibodies from different sub-classes and species have performed remarkably well in a variety of applications when using this gentle approach. Additionally, this approach allows for the labeling of any existing antibody to be carried out in the presence of BSA, a common stabilizing protein included in the formulation buffer of many commercially available primary antibodies. The method developed uses UDP-GalNAz and the permissive enzyme beta-galactosyltransferase (GalT (Y289L) to produce a site-selective azide label on the N-linked glycans of the heavy chain Fc region far from the antigen binding domain. The azide tagged antibodies are reacted without metal catalysts with any dibenzocyclooctyne (DIBO)-functionalized probe of choice. These biologically unique moieties are inert and stable until the eight-member strained ring reacts with the azide modified antibody forming a stable triazole linkage. This site-specific universal labeling of IgG's without genetic engineering can be applied to essentially any existing antibody and is currently the preferred method for reproducibly making well-defined antibody conjugates.

Biography

Judie Berlier is a Staff Scientist at Thermo Fisher Scientific Inc., USA. Since joining Molecular Probes and continuing through acquisitions and mergers to become a Member of Thermo Fisher Scientific, one constant has been finding and using the technology needed to make novel and useful detection tools for cell biology.

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