

세미나 초록

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발표 주제	Affinity-directed site-specific intact protein labeling and its application to antibody-drug conjugates
발표 내용	<p>Chemically modified proteins have diverse applications; however, conventional chemo-selective methods often yield heterogeneously labeled products. To address this limitation, site-specific protein labeling holds significant potential, driving extensive research in this area. Nevertheless, site-specific modification of native proteins remains challenging owing to the complexity of their functional groups. Therefore, we aimed to design a method for site-selective labeling of intact proteins. In this study, we established a novel approach to traceless affinity-directed intact protein labeling, which leveraged small binding proteins and genetic code expansion technology. By applying this method, we successfully achieved site-specific antibody labeling with a drug, which led to the production of highly effective antibody-drug conjugates specifically targeting breast cancer cell lines. This approach enabled traceless conjugation of intact target proteins, which is a critical advantage in pharmaceutical applications. Furthermore, small helical binding proteins can be easily engineered for various target proteins, thereby expanding their potential applications in diverse fields. This innovative approach represents a significant advancement in site-specific modification of native proteins, including antibodies. It also bears immense potential for facilitating the development of therapeutic agents for various diseases.</p>