

10TH ASIA-PACIFIC PHARMA CONGRESS

May 08-10, 2017 Singapore

Chemical assay-guided natural product isolation using solid-supported chemodosimetric fluorescent probe

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Newly isolated compounds from natural sources are important in the lead development of new therapeutics for various diseases. Currently, bioassay-guided isolation is the preferred method for identifying new natural products. However, bioassay guidance alone does not guarantee the complete exploration of natural product compounds. We believe that the systematic exploration of the natural product chemical space will be significantly accelerated by the availability of competent chemical assay systems that can reliably isolate compounds with a specific functional group. We present a new and efficient system for chemical assay-guided natural product isolation. This model system was devised for the identification and isolation of terminal alkyne-containing natural products. This new chemical assay system features a fluorogenic chemodosimeter immobilized onto a solid support. In order to isolate compounds with only the terminal alkyne functionality, copper (I)-catalyzed azide-alkyne cycloaddition (CuAAC) reaction was adopted. Our newly designed sensory bead can quantitatively identify terminal alkynes on the basis of the fluorescence signal. With the guidance of our sensory chemical assay system, we were able to detect and isolate a terminal diyne from the methanol extract of *Chrysanthemum morifolium*. We believe that our chemical assay system is applicable in many other fields, such as metabolomics and food science.

Biography

Sanghee Kim has expertise in the synthesis of natural/endogenous products, design and evaluation of their mimetics, and preparation of natural product-like compounds library. Over the last decade, he has been interested in lipids which play essential roles in signal transduction, membrane trafficking and morphogenesis evaluation.

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