

Mismatched pyrrolo-dC-modified duplex DNA as a novel probe for sensitive detection of silver ions

Ki Soo Park

Dept. of Chemical and Biomolecular Engineering, KAIST, Korea

We have developed a new technology that enables the highly selective and sensitive detection of silver ions. The method takes advantage of the unique fluorescence property of a mismatched pyrrolo-dC(PdC)-modified duplex DNA, which serves as the key detection component, and the specific interaction of this duplex with silver ions. The new sensing strategy exhibits high selectivity and sensitivity and it does not require the use of procedures to pre-incorporate fluorophore or quencher labels. The latter feature is one of the greatest merits of the new fluorescence-based method. In addition, the novel concept has been successfully extended to a new method to detect biological thiols that is based on their highly specific and tight binding to silver ions. To the best of our knowledge, this is the first example showing that a fluorescent nucleobase analog can be employed in the construction of a new type of sensing system. As a result, the observations made in this study could serve as the basis of new sensing strategies that utilize optical and binding properties of nucleobases and/or their analogs.

Biography

Ki Soo Park is a graduate student studying under the guidance of Prof. Hyun Gyu Park in Korea Advanced Institute of Science and Technology (KAIST). He has published 4 papers in reputed journals such as *Angewandte Chemie International Edition*, *Small* and *Chemical Communications*.

akdong486@gmail.com