

A novel H-structured DNA aligner for highly specific and multiplexed detection of nucleic acids

김한솔, 박현규<sup>†</sup>

KAIST

(hgpark@kaist.ac.kr<sup>†</sup>)

Herein, we describe an H-structured DNA aligner (HSA) for target nucleic acid detection. In this strategy, specially designed two aligners are induced to form the H-shape structure only in the presence of target nucleic acid. It allows the molecular beacon binds to the arms of the H-shape structure. Upon the formation of H-structure, the NEase is loaded on the HSA's stem followed by the cleavage of the molecular beacon, consequently producing an amplified fluorescence signal. Based on this HSA-mediated cleavage (HSA-C), we successfully detected target DNA and RNA with high specificity using only one NEase. Besides, separating the NEase recognition site enabled highly specific detection, allowing multiplexed detection of target DNAs.