

分類C

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反応で遺伝子の小さな「しるし」を検出可能に — 知りたい遺伝子のメチル化修飾を遺伝子診断応用に期待 —

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Selective Photo-Crosslinking Detection of Methylated Cytosine in DNA Duplex Aided by a Cationic Comb-Type Copolymer

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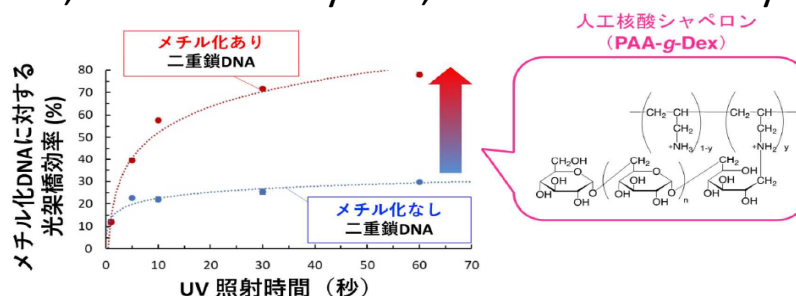
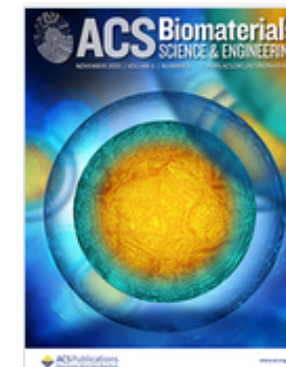


図 人工核酸とシャペロンを用いたメチル化DNAの光検出

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表紙に選ばれました！



遺伝子 (DNA) がメチル化修飾されると、その遺伝子の働きは抑制されます。遺伝子に施されるこの小さな「しるし」は、発生や分化、がん化の過程にも関与する重要なマーカーの1つとして非常に注目されています。本研究では、遺伝子に施されるメチル化修飾を光で検出する新しい技術の開発に成功しました。この技術は遺伝子診断への応用も期待され注目を集めています。

In the process of cell development and differentiation, C-5-methylation of cytosine (5-methylcytosine: 5-mC) in genome DNA is an important transcriptional regulator that switches between differentiated and undifferentiated states. Further, abnormal DNA methylations are often present in tumor suppressor genes and are associated with many diseases. Therefore, 5-mC detection technology is an important tool in the most exciting fields of molecular biology and diagnosing diseases such as cancers. In this study, we found a novel photo-crosslinking property of psoralen-conjugated oligonucleotide (Ps-Oligo) to the double-stranded DNA (ds-DNA) containing 5-mC in the presence of a cationic comb-type copolymer, poly(allylamine)-graft-dextran (PAA-g-Dex). Photo-crosslinking efficiency of Ps-Oligo to 5-mC in ds-DNA was markedly enhanced in the presence of PAA-g-Dex, permitting 5-mC-targeted crosslinking.