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Binding mode of various DNA binding molecules and natural DNA under cell mimic condition

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Meso-tetrakis (N-methyl pyridinium-4-yl) porphyrin (TMPyP) intercalates between the base-pairs of DNA at a low [TMPyP]/[DNA base] ratio in aqueous solutions and molecular crowding conditions, which is induced by the addition of poly Ethylene Glycol (PEG). Studied DNA binding drugs, including TMPyP, 9-AA (aminoacridine), EB (Ethidium Bromide) and DAPI (4', 6-diamidino-2-phenylindole) showed similar binding properties in the presence or absence of PEG molecules which is examined by circular and linear dichroism. According to the LD^r (reduced Linear Dichroism) results of the binding drugs examined in this work, PEG molecules induced no significant change compared to their binding properties in aqueous buffering systems. These results suggest that the transition moments are not expected to be perturbed significantly by PEG molecules. In this study, the experimental conditions of PEG 8000 were maintained at 35% (v/v) of total reaction volume, which is equal to the optimal molar concentration (0.0536 M as final concentration for PEG 8000) to maintain suitable cell like conditions. Therefore, there was no need to focus on the conformational changes of the DNA helical structure, such as forming irregular aggregate structures, induced by large quantities of molecular crowding media itself at this stage.

Biography

Ye Sol Oh has completed her undergraduate studies and currently pursuing Masters from Yeungnam University, Republic of Korea.

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