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Interactions of Cationic Porphyrin derivatives with d(CGCGAATTCGCG)$_2$ duplex

홍석주, 허성호
충남대학교 자연과학대학 생화학과

Interactions of two porphyrin dervatives(meso-tetra(para-N-trimethylanilinium) porphine; TMAP, meso-tetra(4-N-methylpyridyl)porphine;T4MP) with d(CGCGAATTCGCG)$_2$ duplex have been investigated by using UV, CD, and NMR spectroscopic methods.

Many recent studies show that binding mode of cationic porphyrins with DNA oligomer can be one of intercalation, groove binding and outside stacking. According to our experimental data including ^{1}H-NMR, CD and UV-VIS absorbances, the two cationic porphyrins bind to d(CGCGAATTCGCG)$_2$ duplex in different ways. T4MP is considered to have partial intercalation as well as groove binding mode, but TMAP shows a quite show different binding mode.

In order to obtain more detailed information about the binding site and binding modes, we performed 2D-NMR experiments, and molecular modeling of the cationic porphyrin-DNA oligomer complex.