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Importance of the location and number of positive charge of periphery cationic ions of porphyrin bound to DNA**Min Ik Kwak, Ji Hoon Kim and Seog K Kim**
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The binding modes of *o*-, *m*- and *p*-trans-BMPyP and DNA were investigated by using spectroscopy properties. We also compared the binding modes of the cationic porphyrin with the position and number of the periphery cationic methyl pyridine ions. When *o*-, *m*- and *p*-trans-BMPyP was bound to DNA, the absorption spectrum showed red shift and hypochromism compared with the absorption spectrum of DNA free cationic porphyrin and *m*-trans-BMPyP-DNA showed the greatest. In the case of *o*- and *p*-trans-BMPyP-DNA at all concentration ratios as a result of CD spectrum, positive and negative bisignate absorption bands in Soret region of porphyrin and two negative absorption bands of *m*-trans-BMPyP-DNA were observed. The results of the LD^r spectra show that the Soret absorption band of porphyrin is small and that *m*- and *p*-trans-BMPyP-DNA has a positive absorption value when compared with the absorption band of the light absorbing region of DNA. Considering these various spectroscopic properties, *o*-, *m*- and *p*-trans-BMPyP are far from the insertion mode when they are bound to DNA. The comparison of the binding modes with TMPyP with 4 number of peripheral cationic methyl pyridine ions of cationic porphyrin showed that the position of the periphery cationic methyl pyridine ion is important but the number is the most important factor to be inserted into the DNA base pair. In other words, *o*-TMPyP in the case of TMPyP with 4 number of periphery cationic methyl pyridine ions of cationic porphyrin exhibits outside binding mode which interacts with DNA phosphate due to steric hindrance of periphery cationic methyl pyridine ion and *m*- and *p*-TMPyP was inserted into the DNA base pair. However, trans-BMPyP with the number of two cationic methyl-pyridine ions in cationic porphyrin was found to be an outside binding mode that interacted with DNA phosphate or to bind to the groove.

Biography

Min Ik Kwak has completed his graduation and currently pursuing Postgraduate studies from Yeungnam University majoring in Biophysical Chemistry.

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