

Identification by electron spin resonance of two axial ligands in Co(II) bleomycin in the presence and absence of DNA

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ESR spectra of Co(II) Blm in the absence and presence of DNA oligomers have been obtained. X-band (9 GHz) and S-band (3.4 GHz) ESR spectra for Co(II) bleomycin are unchanged in the presence of DNA oligomers formed as synthetic 10-mers. Resolution of some of the lines in the $g_{||}$ region into a five-line superhyperfine pattern is consistent with binding of two axial nitrogen donor atoms. It is concluded that either the axial nitrogens are nitrogens from the N-terminal primary amine and nitrogen from an amide group, or, upon binding the amide group, the axial direction changes within the cobalt complex, possibly without altering the chirality and the amide group helps form the equatorial plane.