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TODAY'S HEADLINES

March 20, 2003

Triplex-selective groove ligand found

In work that represents a new direction in the molecular recognition of triplex nucleic acids, assistant professor [Dev P. Arya](#) and coworkers at [Clemson University](#) have found the first example of a triplex-selective groove-binding ligand [*J. Am. Chem. Soc.*, **125**, 3733 (2003)]. Molecular recognition of duplex DNA has been achieved either with intercalators or groove binders. Although numerous intercalating ligands for triplex DNA have been identified, no triplex-selective groove-binding agents have been found. Intercalators are agents with planar groups that stack between DNA bases (a classic example being the ligand ethidium bromide). Groove binders (like the antitumor antibiotic netropsin) recognize the DNA minor groove by charge and shape complementarity, using directional hydrogen bonds to DNA bases. Arya and coworkers now find that the aminoglycoside antibiotic neomycin is unique in its ability to bind to the triplex DNA major groove using charge and shape complementarity. (Image shows neomycin approaching the groove.) Potential applications of the work include antimicrobial and HIV therapy, Arya notes.

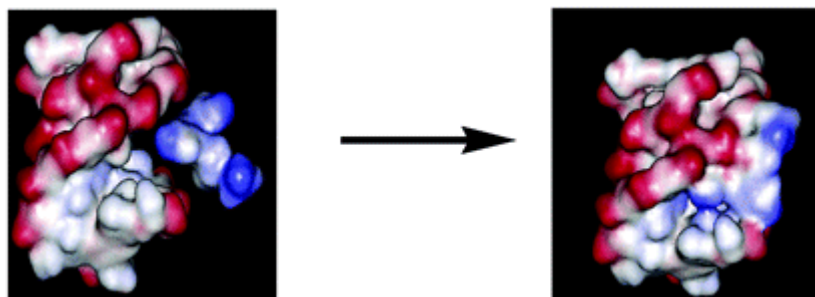
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