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DNA Binding Studies using Synchrotron Radiation Circular Dichroism (SRCD) data and Mathematica

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The binding affinity of a series of square planar achiral platinum(II) compounds of the type [Pt(AL)(IL)]2+, where AL is 1,2-diaminoethane and IL are 1,10-phenanthroline (phen), 4-methyl-1,10-phenanthroline (4-Mephen), 5-methyl-1,10-phenanthroline (5-Mephen), 4,7-dimethyl-1,10-phenanthroline (47-Me2phen), 5,6-dimethyl-1,10-phenanthroline (56-Me2phen) or 3,4,7,8-tetramethyl-1,10-phenanthroline (3478-Me4phen) has been reinvestigated using Synchrotron Radiation Circular Dichroism (SRCD) spectroscopy. SRCD spectroscopy uses the intense light of a synchrotron beam to measure shorter wavelength data, exposing CD bands not previously observed. The additional peaks were considerably more intense than those observed by conventional CD spectroscopy, and could be used for binding affinity determinations. In addition, the authors have reviewed the various mathematical approaches used to estimate equilibrium binding constants and thereby demonstrate that their mathematical approach, which has been implemented with Wolfram Mathematica, has merit over other methods.

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