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Using Synchrotron Radiation Circular Dichroism (SRCD) to probe G-quadruplex DNA-platinum(II) complex interactions

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Platinum(II) anticancer drugs, such as cisplatin and carboplatin, bind to DNA coordinately and have many limitations including poor effectiveness against many cancer cell lines, acquired resistance, cross-resistance as well as unwanted side effects. To overcome these limitations we have recently synthesised dinuclear (2,2':6',2"-terpyridine)-based complexes that are connected by thiol chains of varying length (with IC50 in L1210 cells). These compounds have demonstrated potent cytotoxicity in cancerous cell lines and are thought to interact with DNA through π-stacking interactions involving their terpyridine moieties. Small molecules that selectively bind to G-quadruplex DNA (Q-DNA) have been shown to stabilise these structures, and so Q-DNA represents a potential biological target for the suppression of telomerase activity. Here we present SRCD-based melting studies of the binding of our platinum(II) complexes to Q-DNA.

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Synchrotron Radiation Circular Dichroism (SRCD) melting studiesof G-Quadraplex DNA

Summary

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