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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 studies of G-Quadruplex DNA

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