ABSTRACT

TITLE:	A New Octahedral Cobalt(III) Complex as a Possible Anti-Cancer Prodrug: Synthesis and Characterization Studies in Solid-State and Solution
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ABSTRACT: Coordination complexes with redox active metal centers are gaining interest for their potential uses in anti-cancer research. KP1019 and NAMI-A are two ruthenium(III) coordination complexes with indazole and dimethylsulfoxide ligands, respectively, that are currently in phase II clinical trials for their anti-tumor or antimetastatic properties. Utilizing a more abundant, less expensive cobalt metal center in place of ruthenium(III), we hypothesize that similar cobalt(III) complexes can be synthesized. A new solid, isolable complex was achieved using a ligand substitution reaction. The new product is an octahedral Co(III) coordination complex that contains indazole and labile dimethylsulfoxide ligands. The proposed structure of the Co(III) complex is supported by a variety of solid-state and solution characterization studies. This complex displays promise in utilizing a new metal center for expanding metal-containing pro-drugs. Further studies are in progress to determine the exact speciation in the solid-state and in solution, as well as investigating the efficacy of this new compound on cancer cell lines.