# Poster Presentations

**[MS5-P29] Ruthenium Complexes Bind to DNA With Sequence Specificity and Directional Preference** James P. Hall[a,b], Kyra O'Sullivan[c], Hakan Niyazi[a], Graeme Winter[b], Thomas Sorensen[b], David Cardin[a], John M. Kelly[c] & Christine J. Cardin[a]

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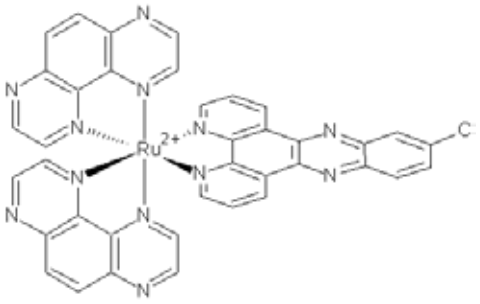
Since the 1980s, there has been great interest in how polypyridyl ruthenium complexes bind to DNA. This is due to their photoactive properties[1,2] which have great potential in photodynamic therapy as they are able to damage DNA upon photoirradiation. However, there has been significant debate over the precise binding sites of these complexes due to the lack of definitive structural information available. Presented here are several crystal structures showing how these complexes can bind to short DNA oligonucleotides. With each new structure we are able to answer questions about the binding geometry and step specificity which could explain the observations obtained from biophysical measurements. We have shown that the complexes bind by intercalation as well as confirming a previously proposed binding mode, semi- intercalation.[3] We have also shown that the complexes bind with a high level of sequence specificity,[4] preferring TA steps over AT and CG, and when single substitutions are made to the dipyridophenazine group the complexes bind with a directional preference.[5]

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