Biphenyl-gold(III) scaffold: a new field of investigations for anticancer drug candidates

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Organometallic gold(III) complexes have attracted a large attention as potential anticancer agents in the last decades. The main advantage of organometallic complexes is their high redox stability in physiological media due to the presence of Au-C bounds. In this respect, bis-cyclometalated $[(C\text{^}N\text{^}C)AuL]^+$ and $[(C\text{^}N\text{^}N\text{^}C)Au]^+$ complexes have demontrated great potential.[1,2] However, their main limitations are the large number of coordination site occupied by the pincer ligands leaving only one or no coordination sites for available for other ligands. Moreover, the amount of substitution tolerated on the pincer ligands are quite narrow meaning the possibility of variation of these scaffolds are quite limited. To enlarge the the scope of structures that can be tested and potentially explore new modes of actions while preserving the high redox stability of bis-cyclometalated complexes, a reorganization of their coordination sphere appeared as a promising potential. Using a biphenyl ligand giving two Au-C bounds would preserve the high redox stability of bis-cyclometalated complexes while offering two coordination sites available for various ligands to optimize the anticancer properties of the complexes. Our results on the synthesis and anticancer activity of biphenyl-Au(III) complexes presenting N- donor[3] and NHC ligands as anticancer agents will be presented.

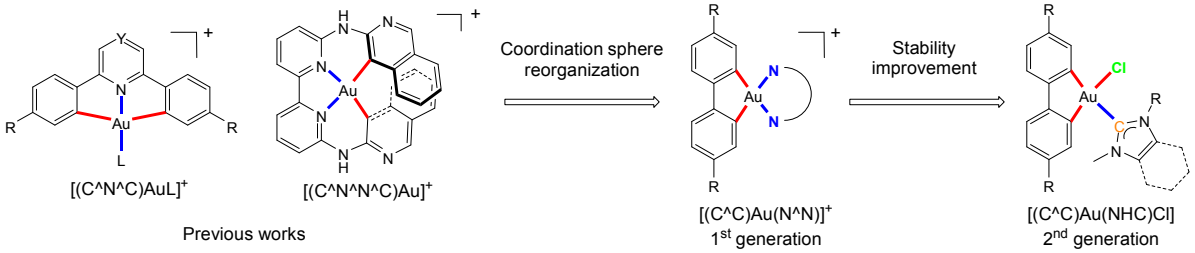

Figure 1: Structures of the $[(C\text{^}C)Au(N\text{^}N)]^+$ and $[(C\text{^}C)Au(NHC)Cl]$ complexes and the related $[(C\text{^}N\text{^}C)AuL]^+$ and $[(C\text{^}N\text{^}N\text{^}C)Au]^+$ complexes.

References

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