Title:	C–H functionalization of alkanes, bactericidal and antiproliferative studies of a gold(III)-phenanthroline complex
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Abstract:	This research article demonstrates the synthesis, structural characterization, C–H functionalization, bactericidal activity and anti-proliferative studies of a mononuclear Au(III) complex, [Au(phen)Cl2]NO3 (1) [phen = 1,10-phenanthroline]. X-ray structural analysis of 1 reveals that the Au(III) complex crystallises in a monoclinic system with P21/c space group and adopts a perfect square planar geometry. The Au(III) complex has been evaluated as an efficient catalytic system towards C–H activation of a series of alkane molecules in presence of TBHP. The catalyst exhibits moderate to excellent reactivity with good selectivity toward aldehyde or ketone when aryl alkanes are used, and ketone is formed when cyclic alkanes are tested. This catalytic reaction recommends the involvement of freely diffusing hydroxyl radicals rather than metal-based oxidant for this course of catalysis. The cytotoxic activity of the Au(III) complex have been investigated against the A549 human lung cancer cell line that induces apoptosis mode of cell death and loss of mitochondrial membrane potential are prominent characteristics as an anti cancer drug as well as antibacterial activity against Staphylococcus aureus
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