

Title: Biological activity and cellular uptake of [Ru(eta(5)-C5H5)(PPh3)(Me(2)bpy)][CF3SO3] complex

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Abstract: Anticancer activity of the new [Ru(eta(5)-C5H5)(PPh3)(Me(2)bpy)][CF3SO3] (Me(2)bpy = 4,4'-dimethyl-2,2'-bipyridine) complex was evaluated in vitro against several human cancer cell lines, namely A2780, A2780CisR, HT29, MCF7, MDAMB231 and PC3. Remarkably, the IC50 values, placed in the nanomolar and sub-micromolar range, largely exceeded the activity of cisplatin. Binding to human serum albumin, either HSA (human serum albumin) or HSA(faf) (fatty acid-free human serum albumin) does not affect the complex activity. Fluorescence studies revealed that the present ruthenium complex strongly quench the intrinsic fluorescence of albumin. Cell death by the [Ru(eta(5)-C5H5)(PPh3)(Me(2)bpy)][CF3SO3] complex was reduced in the presence of endocytosis modulators and at low temperature, suggesting an energy-dependent mechanism consistent with endocytosis. On the whole, the biological activity evaluated herein suggests that the complex could be a promising anticancer agent. (C) 2013 Elsevier Inc. All rights reserved.

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