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Light-stable polypyridine silver(i) complexes of 1,3,5-triaza-7-phosphaadamantane (PTA) and 1,3,5-triaza-7-phosphaadamantane-7-sulfide (PTA=S): significant antiproliferative activity of representative examples in aqueous media.

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Streszczenie

A series of novel silver(I) 2,2′:6′,2″-terpyridine (tpy), 4′-(4-methylphenyl)-2,2′:6′:2″-terpyridine (tpy-Ph-Me) and 1,10-phenanthroline-5,6-dione (dione) derivatives containing PTA (1,3,5-triaza-7-phosphaadamantane) or 1,3,5-triaza-7-phosphaadamantane-7-sulfide (PTAS) have been synthesized and fully characterized. Two types of complexes have been obtained, monocationic [Ag(tpy)(PTA)](NO_3) (**1**), [Ag(tpy-Ph-Me)(PTA)](NO_3) (**2**), [Ag(dione)(PTAS)](BF_4) (**4**) and [Ag(dione)$_2$](PF_6) (**5**) and neutral [Ag(dione)(PTAS)(NO_3)] (**3**). The solid-state structures of four complexes have been determined by single-crystal X-ray diffraction. Complexes **1** and **2** are luminescent at room temperature and 77 K while **5** shows emission only at 77 K. Compounds **3** and **4** are not emissive. Furthermore, representative light-stable and water-soluble **1** and **3** were evaluated for their cytotoxic activities on the normal human dermal fibroblast (NHDF) cell line and their antitumor activity using the human lung carcinoma (A549), epithelioid cervix carcinoma (HeLa) and human breast adenocarcinoma (MCF-7) cell lines. Interactions between the complexes and human serum albumin (HSA) using UV-Vis, fluorescence and circular dichroism spectroscopy (CD) were also investigated.

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