

Synthesis, structural characterization, and biological evaluation of oxorhenium(V) complexes with a novel type of thiosemicarbazones derived from N-[N',N'-dialkylamino(thiocarbonyl)]benzimidoyl chlorides

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Abstract: Reactions of N-[N',N'-dialkylamino(thiocarbonyl)]benzimidoyl chloride with 4,4-dialkylthiosemicarbazides give a novel class of thiosemicarbazides/thiosemicarbazones, H₂L, which causes a remarkable reduction of cell growth in in vitro experiments. These strong antiproliferative effects are also observed for oxorhenium(V) complexes of the general composition [ReOCl(L)], which are formed by reactions of the potentially tridentate ligands with (NBu₄)[ReOCl₄]. A systematic substitution of the alkyl groups in the thiosemicarbazone building blocks of the ligands do not significantly influence the biological activity of the metal complexes, while the replacement of the chloro ligand by a PPh₃ ligand (by the replacement of the oxo unit by a nitrido ligand) completely terminated the cytotoxicity of the metal complexes. © 2009 American Chemical Society.

Index Keywords: chloride; ligand; perrhenic acid; rhenium; technetium complex; thiosemicarbazone derivative; article; chemical structure; chemistry; drug screening; human; microbiological examination; structure activity relation; synthesis; tumor cell line; Cell Line, Tumor; Chlorides; Drug Screening Assays, Antitumor; Humans; Ligands; Microbial Sensitivity Tests; Molecular Structure; Organotechnetium Compounds; Rhenium; Structure-Activity Relationship; Thiosemicarbazones

Year: 2009

Source title: Inorganic Chemistry

Volume: 48

Issue: 19

Page : 9356-9364

Cited by: 4

Link: Scopus Link

Chemicals/CAS: chloride, 16887-00-6; rhenium, 7440-15-5; Chlorides; Ligands; Organotechnetium Compounds; Rhenium, 7440-15-5; Thiosemicarbazones; perrhenate, 14333-24-5

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ISSN: 201669

CODEN: INOCA

DOI: 10.1021/ic901160v

PubMed ID: 19736964

Language of Original Document: English

Abbreviated Source Title: Inorganic Chemistry

Document Type: Article

Source: Scopus

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