








**16th International Symposium
on Applied Bioinorganic Chemistry
(16-ISABC)
11-14th June
University of Ioannina
Greece**

**BOOK OF
ABSTRACT**



Sessions

-  Metals in Medicine and Biology
-  Metallomics, Metalloproteins Structures
-  Metals Complexes Interaction with RNA, DNA or Proteins
-  Bioinorganic Biomaterials
-  Biomimetic and Bioinspired Bioinorganic Chemistry and Energy Conversion
-  Metal Toxicology and Metals in Environment
-  Biophysical, Biochemical and Spectroscopic Methods in Bioinorganic Chemistry

The Chairman of the Organizing Committee
16th ISABC
Dr. Sotiris K Hadjikakou,
Professor
Department of Chemistry
University of Ioannina Greece

**ISABC 16
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Ioannina**

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Oxorhenium(V) complexes with N,O ligands – synthesis and biological studies

Tamara Petrović¹, Nevenka Gligorijević², Ferdinand Belaj³, Jelena Poljarević¹, Ljiljana E. Mihajlović-Lalić⁴, Sandra Arandelović², Stefan Nikolić⁴, Sanja Grgurić-Šipka¹

¹ University of Belgrade-Faculty of Chemistry, 11000 Belgrade, Serbia

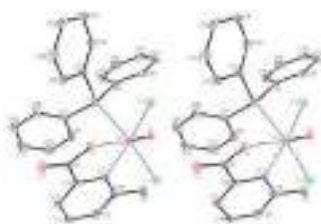
² Institute for Oncology and Radiology of Serbia, 11000 Belgrade, Serbia

³ Institute of Chemistry, University of Graz, 8010 Graz (Austria)

⁴ Innovative Centre, Faculty of Chemistry, 11000 Belgrade, Serbia

tamara28petrovic@gmail.com

Rhenium complexes merit particular attention in the area of metaldrug design due to rhenium's broad spectrum of oxidation states and consequently, the possibility to design compounds of great structural diversity [1,2]. Thus, the synthesis, chemical characterization, and antitumor activity in vitro of the six Re(V) complexes are described. Novel compounds were obtained via reaction of $[\text{ReOCl}_3(\text{PPh}_3)_2]$ with corresponding ligands (pyridine-2-carboxylic acid, 3-methylpyridine-2-carboxylic acid, 6-methylpyridine-2-carboxylic acid, 2,3-pyridinedicarboxylic acid, 2,5-pyridinedicarboxylic acid, and 2,6-pyridinedicarboxylic acid) in acetonitrile or dichloromethane/methanol at 78 °C for 3h. The complexes were fully characterized using NMR, IR, MS, and elemental analysis. Results of X-ray diffraction analysis for three of these compounds confirmed the proposed octahedral geometry with bidentate coordinated ligands, *via* both oxygen and nitrogen atoms. The antiproliferative effect was determined by MTT assay. All complexes expressed moderate to low cytotoxic potential. Complex with pyridine-2-carboxylic acid showed dose-dependent cytotoxic potential, particularly toward triple-negative breast adenocarcinoma cells MDA-MB-231 and pancreatic adenocarcinoma cells PANC-1. Drug combination studies in PANC-1 cells with that complex and Verapamil hydrochloride (VRP) showed a slight arrest of the cell cycle in the S phase and also increase its antiproliferative potential.



Stereoscopic ORTEP plot of complex with 3-methylpyridine-2-carboxylic ligand

Acknowledgments

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References

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