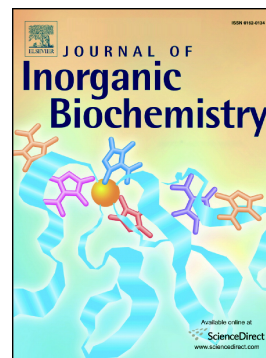


Accepted Manuscript

CuI and CuII complexes with phosphine derivatives of fluoroquinolone antibiotics – A comparative study on the cytotoxic mode of action

Aleksandra Bykowska, Urszula K. Komarnicka, Małgorzata Jeżowska-Bojczuk, Agnieszka Kyzioł



PII: S0162-0134(17)30672-4
DOI: <https://doi.org/10.1016/j.jinorgbio.2018.01.008>
Reference: JIB 10414

To appear in: *Journal of Inorganic Biochemistry*

Received date: 27 September 2017

Revised date: 7 January 2018

Accepted date: 8 January 2018

Please cite this article as: Aleksandra Bykowska, Urszula K. Komarnicka, Małgorzata Jeżowska-Bojczuk, Agnieszka Kyzioł, CuI and CuII complexes with phosphine derivatives of fluoroquinolone antibiotics – A comparative study on the cytotoxic mode of action. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Jib(2017), <https://doi.org/10.1016/j.jinorgbio.2018.01.008>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Cu^I and Cu^{II} complexes with phosphine derivatives of fluoroquinolone antibiotics – a comparative study on the cytotoxic mode of action

Aleksandra Bykowska¹, Urszula K. Komarnicka^{1*}, Małgorzata Jeżowska-Bojczuk¹ and Agnieszka Kyzioł^{2*}

¹ Faculty of Chemistry, University of Wrocław, Joliot-Curie 14, 50-383 Wrocław, Poland

² Faculty of Chemistry, Jagiellonian University, Gronostajowa 2, 30-387 Kraków, Poland

* Correspondence: kyzioł@chemia.uj.edu.pl; Tel.: +48-12-686-2484,
urszula.komarnicka@chem.uni.wroc.pl Tel.: +48-71-375-7273

ABSTRACT

In this paper, we present a comparative study on the cytotoxic mode of action of copper(I) and copper(II) complexes with phosphine derivatives of fluoroquinolone antibiotics (ciprofloxacin **HCp** and norfloxacin **HNr**). The *in vitro* cytotoxic activity of four new compounds was tested against two selected cancer cell lines. All complexes exhibited much better cytotoxicity against both cell lines than unmodified fluoroquinolone antibiotics, their phosphines (**PCp**, **PNr**), chalcogenide derivatives (oxides: **OPCp**, **OPNr**; sulfides: **SPCp**, **SPNr** and selenides: **SePCp**, **SePNr**) and previously described by us complexes with phosphines derived from different fluoroquinolones: lomefloxacin (**HLm**) and sparfloxacin (**HSf**) as well as cisplatin. Apoptosis, observed at a great predominance, was induced by all studied complexes. Importantly, it was concluded that coordination compounds with Cu(I) ion ([Cu^I-**PNr**] and [Cu^I-**PCp**]) were much more active than those with Cu(II) ion ([**OPNr**-Cu^{II}], [**OPCp**-Cu^{II}]), even though the highest efficacy to produce reactive oxygen species, participating in overall cytotoxicity, was proved for copper(II) complexes among all studied compounds. Herein, we discuss not only results obtained for copper(I)/(II) complexes with phosphines derived from **HNr** and **HCp** but we also compare them to previously described data for **HLm** and **HSf** derivatives. This is the first insight into a structure-activity relationship of copper complexes with phosphine derivatives of fluoroquinolone antibiotics.

Keywords: copper complexes, fluoroquinolones, ROS production, apoptosis

1. Introduction

Download English Version:

<https://daneshyari.com/en/article/7753894>

Download Persian Version:

<https://daneshyari.com/article/7753894>

[Daneshyari.com](https://daneshyari.com)