

Bioinorganic and Medicinal Chemistry Laboratory at the Institute of Chemistry-UNICAMP: Synthesis and Biological Assays of New Complexes of Silver(I), Gold(I), Platinum(II), Palladium(II) and Copper(II) with Bioactive Ligands



Prof. Dr. Pedro Paulo Corbi
Associate Professor II
Institute of Chemistry, University of Campinas. Campinas-SP 13083-970, Brazil
E-mail: ppcorbi@unicamp.br <https://corbi.iqm.unicamp.br/index.html>



Introduction

The Bioinorganic and Medicinal Chemistry Group (LQBM) was founded in 2009 at the University of Campinas – UNICAMP, Brazil, and is focused on the synthesis, characterization and biological applications in pharmacology and medicine of new metal complexes. More specifically, the group has worked on the synthesis of silver, gold, platinum, palladium and copper complexes with ligands which already possess antibacterial, anti-inflammatory, antiviral and anticancer activities.

Some of our recent results about the synthesis, characterization, and antibacterial, antiviral and antitumor assays of silver, platinum and palladium complexes with nucleobases, aminoadamantanes and sulfa drugs are presented in this poster. Furthermore, we have developed some projects in collaboration with other research groups during the last decade. The projects include the development of novel devices for sustained release of metallopharmaceutical agents (UNIARA, Brazil), and studies about novel anticancer drugs for treatment of non-melanoma skin cancer in (Faculty of Medicinal Sciences and Faculty of Pharmaceutical Sciences – UNICAMP, Brazil) Novel antiviral agents focused on arboviruses have also been developed in collaboration researchers from Federal University of Uberlandia – UFU, Brazil.

Recent publications

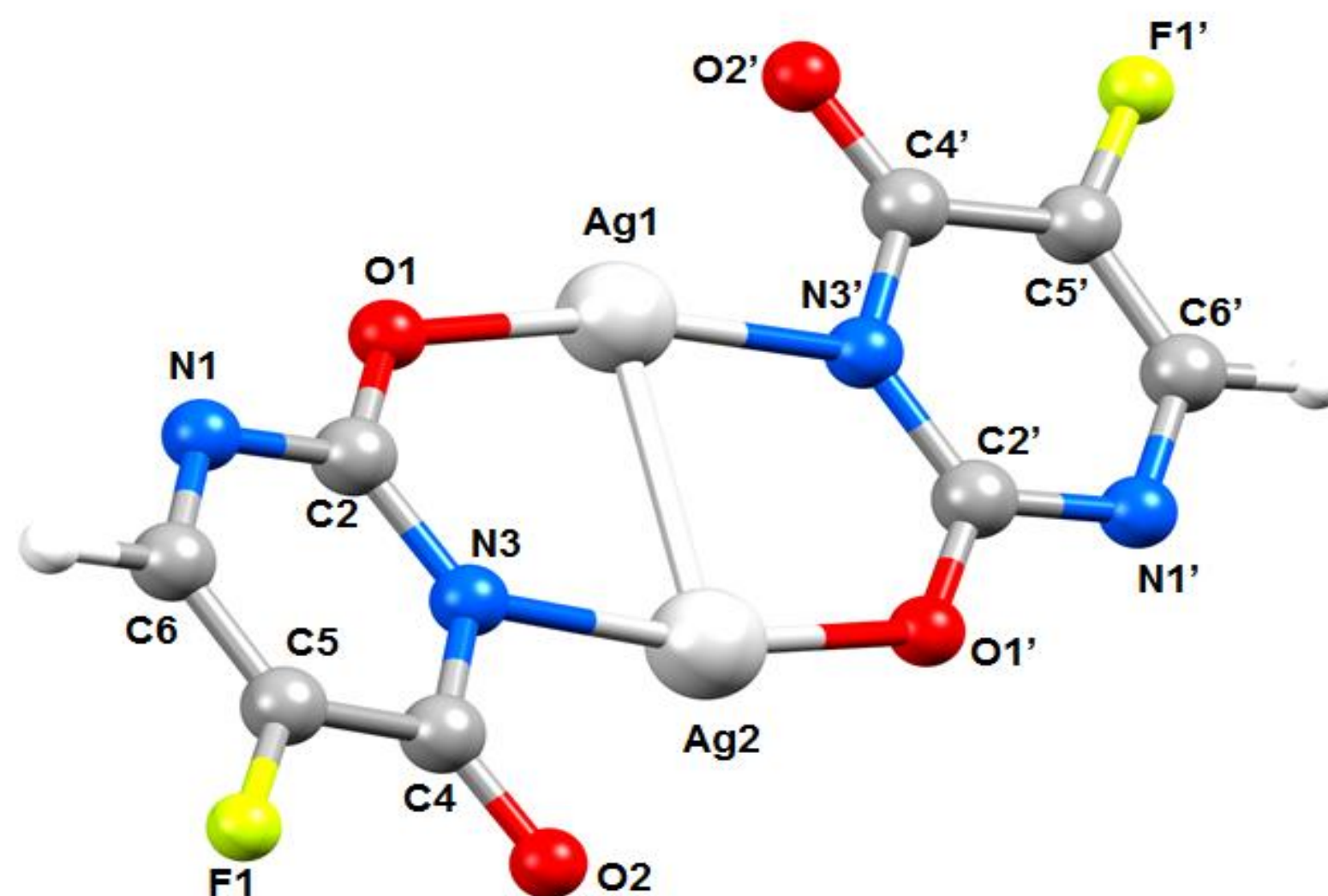
- PEREIRA, A.K.S.; SANTOS, I.A.; DA SILVA, W.W.; NOGUEIRA, F.A. R.; BERGAMINI, F.R.G.; JARDIM, A.C.G.; CORBI, P.P. Memantine hydrochloride: a drug to be repurposed against Chikungunya virus? *Pharmacological Reports*, 73 (2021) 954-961. <https://doi.org/10.1007/s43440-021-00216-4>
- SANTOS, I.A.; PEREIRA, A.K.S.; GUEVARA-VEGA, M.; DE PAIVA, R.E.F.; SABINO-SILVA, R.; BERGAMINI, F.R.G.; CORBI, P.P.; JARDIM, A.C.G. Repurposing potential of rimantadine hydrochloride and development of a promising platinum(II)-rimantadine metaldrug for the treatment of Chikungunya virus infection. *Acta Tropica*, 227 (2022) 106300. <https://doi.org/10.1016/j.actatropica.2021.106300>
- CANDIDO, T.Z.; DE PAIVA, R.E.F.; FIGUEIREDO, M.C.; COSER, L.O.; FRAJÁCOMO, S.C.L.; ABBEHAUSEN, CAMILLA ; CARDINALLI, I.A.; LUSTRI, W.R.; CARVALHO, J.E.; RUIZ, A.L.TG.; CORBI, P.P.; LIMA, C.S.P. Silver Nimesulide Complex in Bacterial Cellulose Membranes as an Innovative Therapeutic Method for Topical Treatment of Skin Squamous Cell Carcinoma. *Pharmaceutics*, 14 (2022) 462- <https://doi.org/10.3390/pharmaceutics14020462>

Acknowledgements



A Silver(I) complex with 5-fluorouracil

Antiproliferative activity over a panel of tumor cells

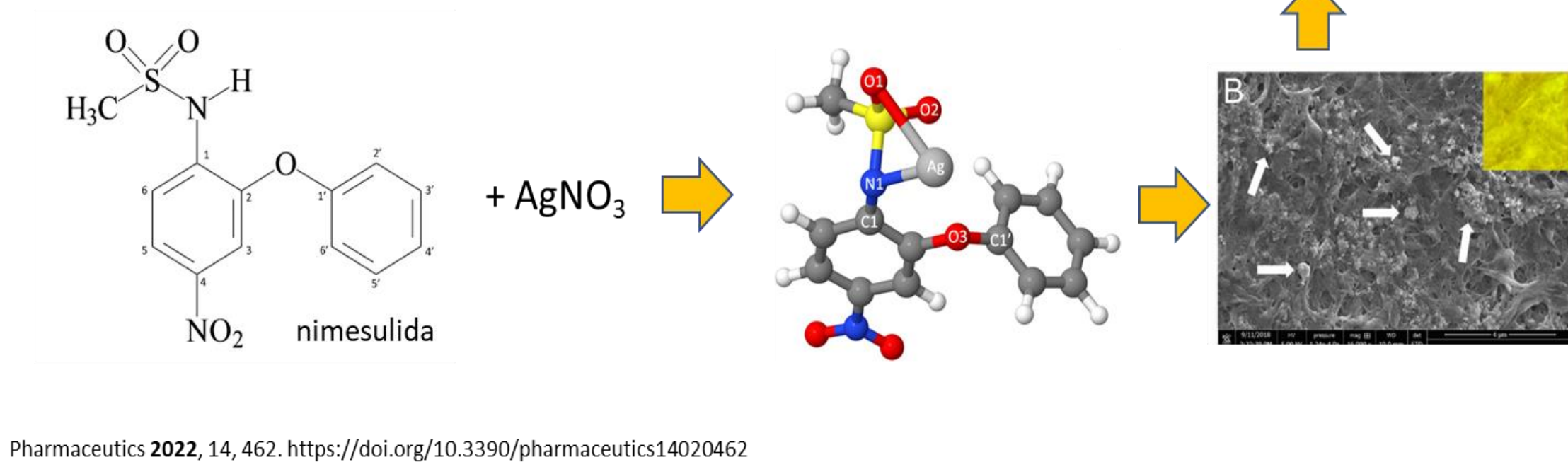
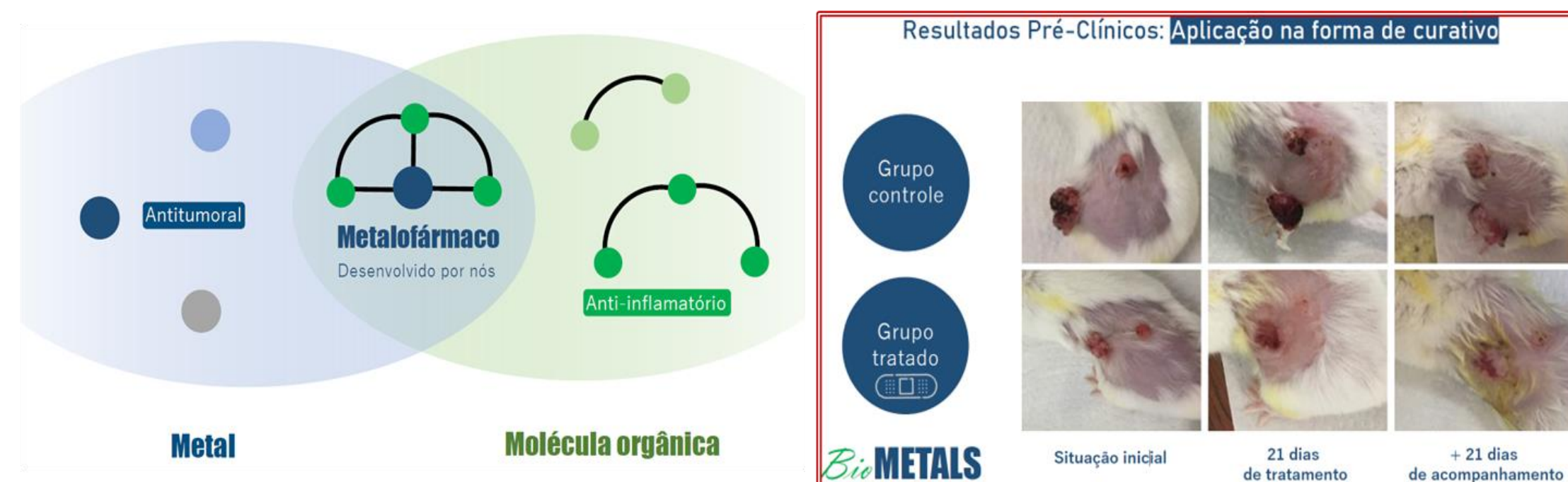


Samples	Cells, GI ₅₀ (µg mL ⁻¹)									
	2	m	a	7	4	p	o	h	k	q
5fu	0.78	0.061	2.3	0.17	0.085	0.51	0.091	0.42	0.19	0.087
Ag-5fu	1.13	<0.25	0.36	0.29	0.46	2.28	0.39	0.34	0.25	<0.25
AgNO ₃	3.37	1.66	3.21	3.56	5.75	2.99	2.88	2.87	0.48	2.7

2: U251, glioma; m: MCF-7, breast; a: NCI-ADR/RES, ovarian resistant; 7: 786-0, renal; 4: NCI-H460, lung; p: PC-3, prostate; o: OVCAR-3, ovarian; h: HT29, colon; k: K562, leukemia; q: HaCat, immortal keratinocyte

A Silver(I) complex with nimesulide

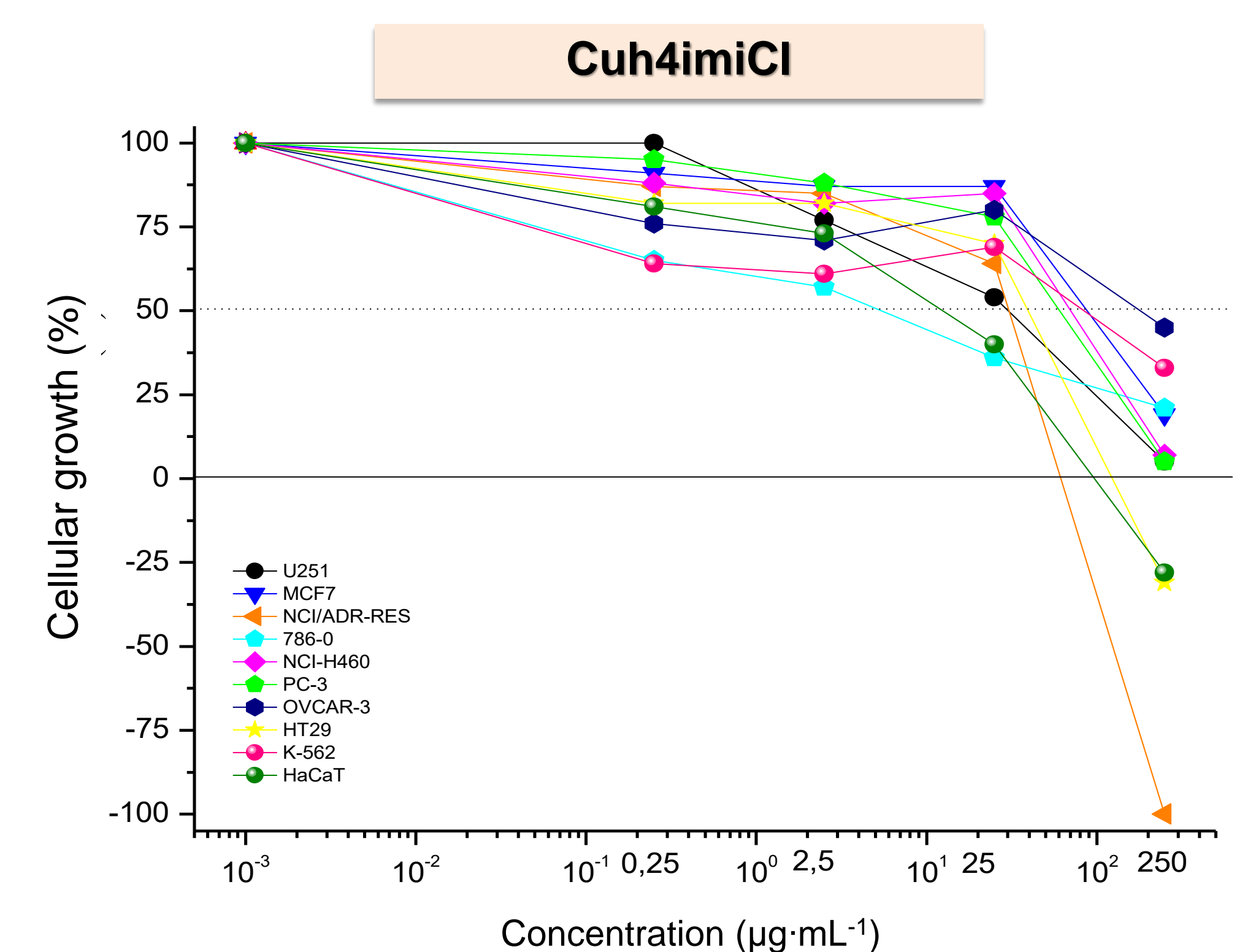
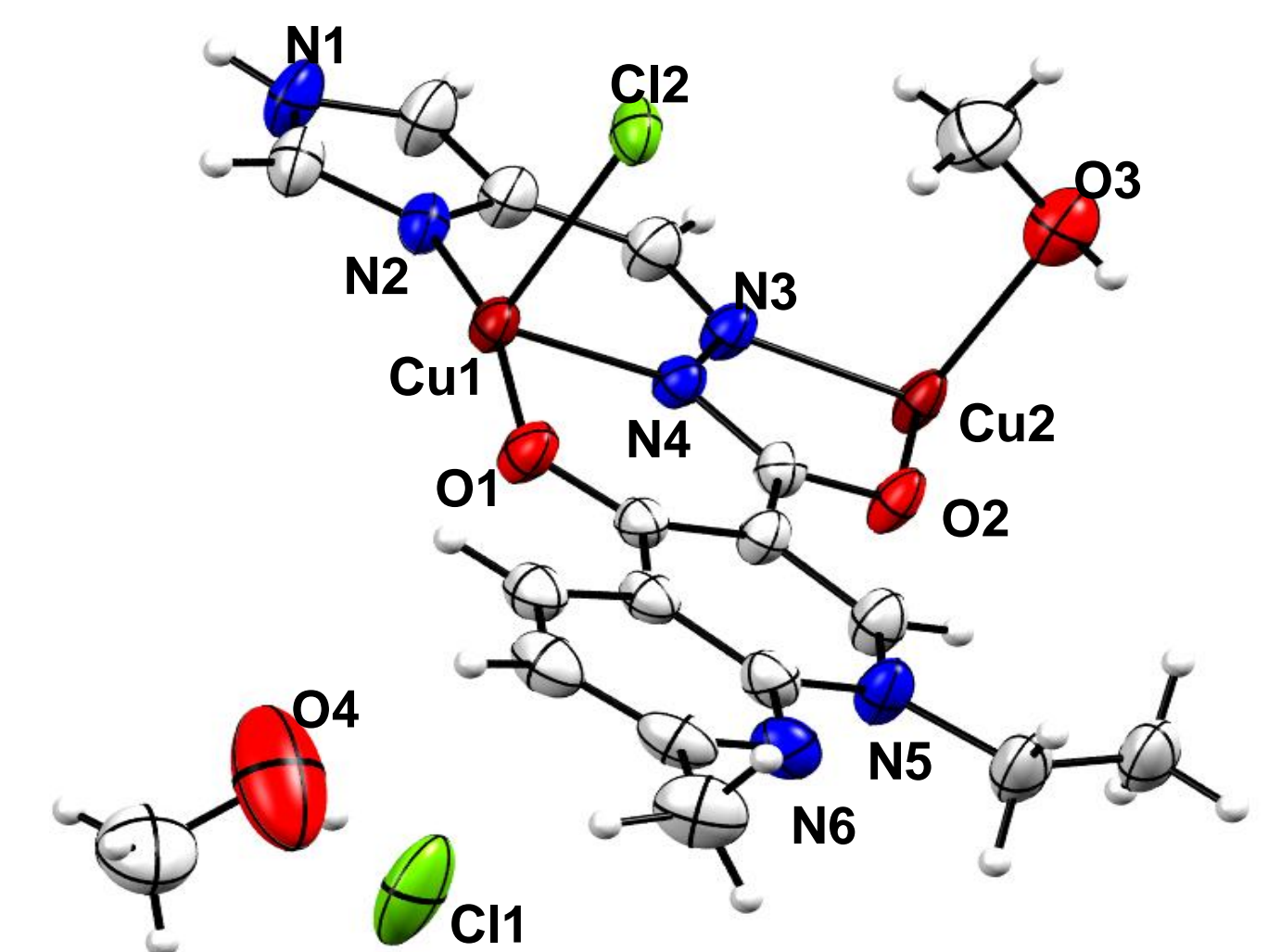
In vitro and in vivo activities over skin cell carcinoma



Pharmaceutics 2022, 14, 462. <https://doi.org/10.3390/pharmaceutics14020462>

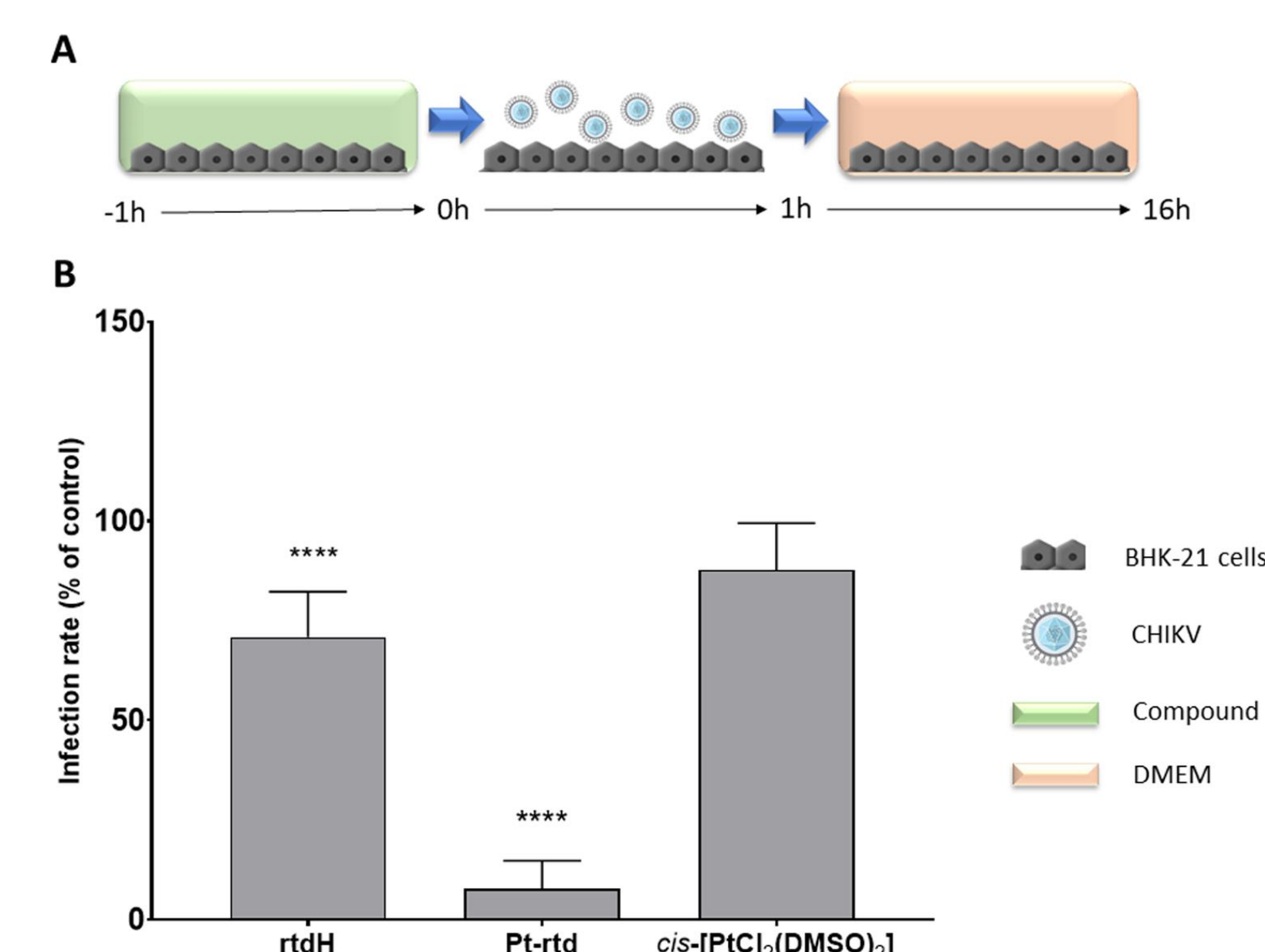
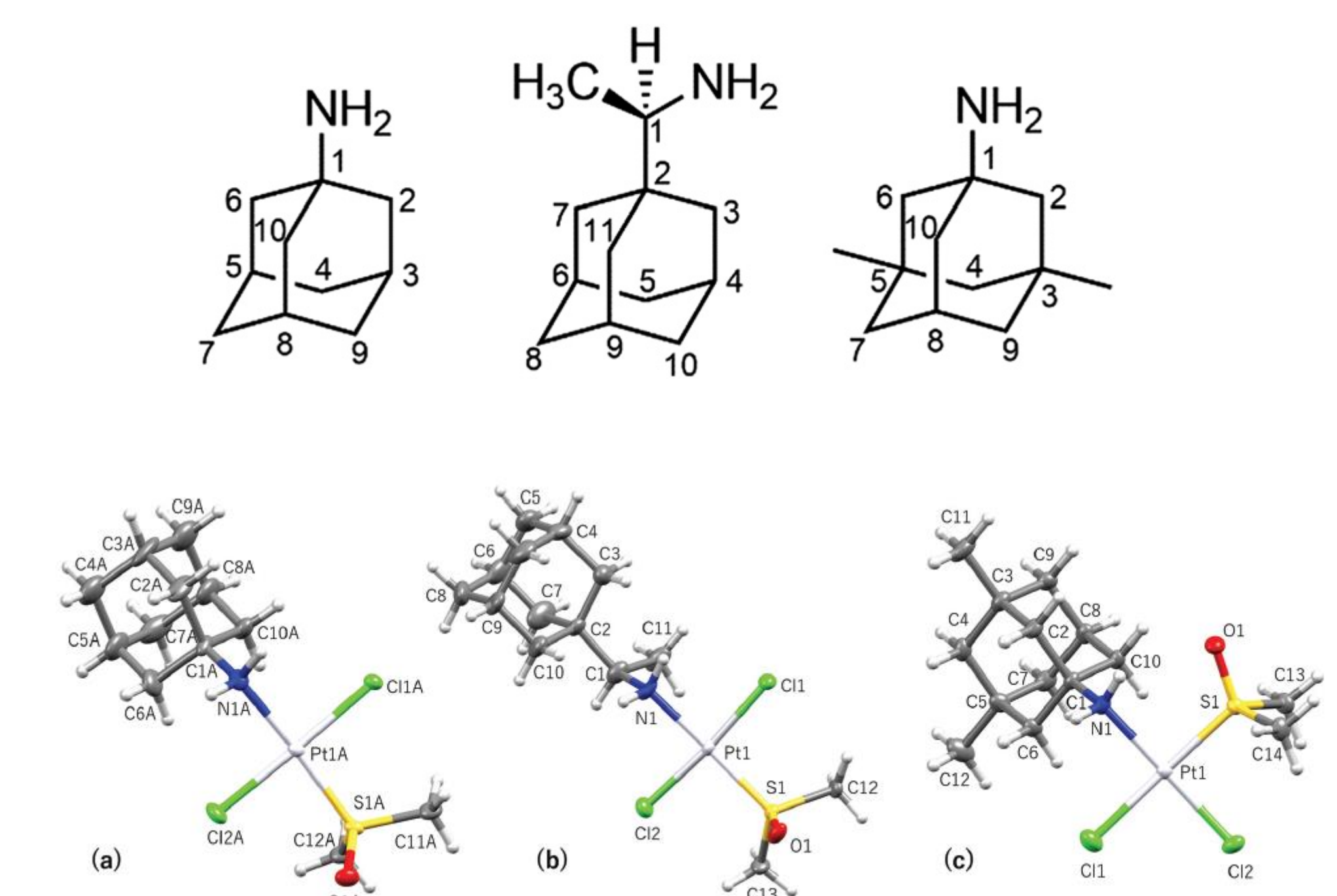


Copper(II) complexes with nalidixic acid derivatives



Silver, Platinum and Palladium complexes with aminoadamantanes

Antiviral activities over Chikungunya virus



CONTATOS
Prof. Dr. Pedro P. Corbi
Departamento de Química Inorgânica
Laboratório de Química Bioinorgânica e Medicinal
Instituto de Química - UNICAMP
Laboratório I-102 / Sala I-103
ppcorbi@unicamp.br