



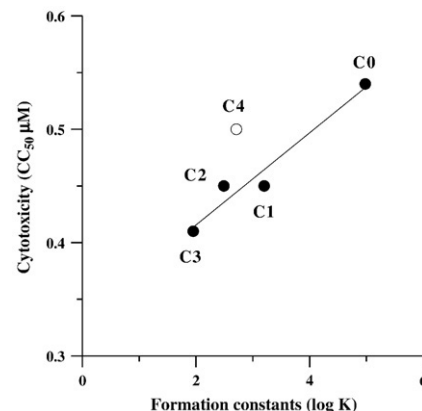
## Contents

**Tiziana Pivetta, Maria Dolores Cannas, Francesco Demartin, Carlo Castellano, Sarah Vascellari, Gaetano Verani, Francesco Isaia**

*Journal of Inorganic Biochemistry* 105 (2011) 329–338

Synthesis, structural characterization, formation constants and *in vitro* cytotoxicity of phenanthroline and imidazolidine-2-thione copper(II) complexes

The synthesis, structures and complex formation constants of **C1** = [Cu(phen)<sub>2</sub>(2-imidazolidinethione)](ClO<sub>4</sub>)<sub>2</sub>, **C2** = [Cu(phen)<sub>2</sub>(1-methyl-2-imidazolidinethione)](ClO<sub>4</sub>)<sub>2</sub>, **C3** = [Cu(phen)<sub>2</sub>(1,3-dimethyl-2-imidazolidinethione)](ClO<sub>4</sub>)<sub>2</sub>, **C4** = [Cu(phen)<sub>2</sub>(1-ethyl-2-imidazolidinethione)](ClO<sub>4</sub>)<sub>2</sub> and **C5** = [Cu(phen)<sub>2</sub>(1,3-diethyl-2-imidazolidinethione)](ClO<sub>4</sub>)<sub>2</sub> complexes have been studied. Testing complexes in mouse neuroblastoma infected with strain of scrapie prion protein (22L-N2a) resulted in high cytotoxicity. Correlation between cytotoxicity and formation constants has been evaluated. phen = 1,10-ortho-phenanthroline, **C0** = Cu(phen)<sub>2</sub>(ClO<sub>4</sub>)<sub>2</sub>.

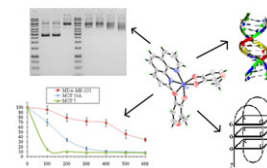


**Lee Fang Chin, Siew Ming Kong, Hoi Ling Seng, Kong Soo Khoo, Rajamurthy Vikneswaran, Siang Guan Teoh, Munirah Ahmad, Soo Beng Alan Khoo, Mohd Jamil Maah, Chew Hee Ng**

*Journal of Inorganic Biochemistry* 105 (2011) 339–347

Synthesis, characterization and biological properties of cobalt(II) complexes of 1,10-phenanthroline and maltol

Two cobalt(II) complexes of 1,10-phenanthroline and maltol have been synthesized and characterized. Their interaction with duplex and G-4 DNA, inhibition of Topoisomerase I and antiproliferative property against MDA-MB-231, MCF7 and MCF10A are reported herein.

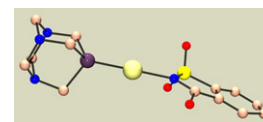


**Laura Maiore, Maria Agostina Cinellu, Elena Michelucci, Gloriano Moneti, Stefania Nobili, Ida Landini, Enrico Mini, Annalisa Guerri, Chiara Gabbiani, Luigi Messori**

*Journal of Inorganic Biochemistry* 105 (2011) 348–355

Structural and solution chemistry, protein binding and antiproliferative profiles of gold(I)/(III) complexes bearing the saccharinato ligand

A series of gold(I) and gold(III) complexes with potential anticancer activity have been developed. The use of saccharinato ligand confers both an appreciable solubility in water and favourable safety profile. Structural characterizations and results of biological studies are here reported.

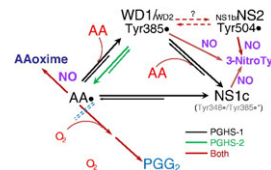


**Jian-Ming Lü, Corina E. Rogge, Gang Wu, Richard J. Kulmacz, Wilfred A. van der Donk, Ah-lim Tsai**

*Journal of Inorganic Biochemistry* 105 (2011) 356–365

Cyclooxygenase reaction mechanism of PGHS – Evidence for a reversible transition between a pentadienyl radical and a new tyrosyl radical by nitric oxide trapping

Nitric oxide traps both tyrosyl radicals and AA-based radicals in PGHS-1 and -2. NO, and perhaps O<sub>2</sub>, are the major modulators to shift the radical equilibrium towards AA pentadienyl radical formation.

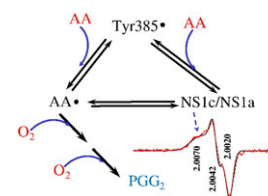


**Ah-lim Tsai, Gang Wu, Corina E. Rogge, Jian-Ming Lü, Sheng Peng, Wilfred A. van der Donk, Graham Palmer, Gary J. Gerfen, Richard J. Kulmacz**

*Journal of Inorganic Biochemistry* 105 (2011) 366–374

Structural comparisons of arachidonic acid-induced radicals formed by prostaglandin H synthase-1 and -2

Dynamics of AA-induced radical intermediates in PGHS-1 and -2. A rapid equilibrium between a new tyrosyl radical, NS1c and AA pentadienyl radical occurs in both isoforms of PGHS with PGHS-1 favors NS1c and PGHS-2 favors AA pentadienyl radical.

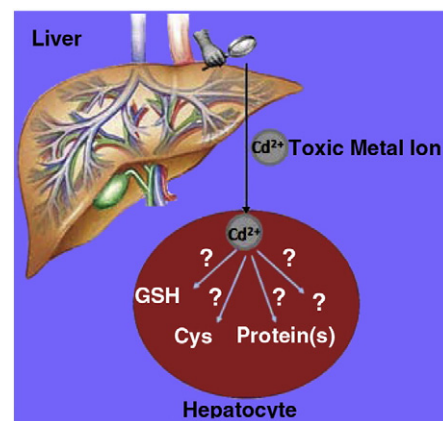


**Katie L. Pei, Melani Sooriyaarachchi, Darren A. Sherrell, Graham N. George, Jürgen Gailer**

*Journal of Inorganic Biochemistry* 105 (2011) 375–381

Probing the coordination behavior of Hg<sup>2+</sup>, CH<sub>3</sub>Hg<sup>+</sup>, and Cd<sup>2+</sup> towards mixtures of two biological thiols by HPLC-ICP-AES

A bioinorganic method is introduced which can determine metal-complexes that are formed when a metal ion encounters multiple ligands.

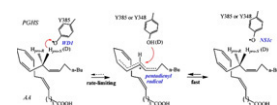


**Gang Wu, Jian-Ming Lü, Wilfred A. van der Donk, Richard J. Kulmacz, Ah-lim Tsai**

*Journal of Inorganic Biochemistry* 105 (2011) 382–390

Cyclooxygenase reaction mechanism of prostaglandin H synthase from deuterium kinetic isotope effects

The intrinsic rate of the 13-pro-(S) H-transfer from AA to the Tyr385 radical in cyclooxygenase catalysis was determined by deuterium kinetic isotope effect measurements and computer modeling involving a fast equilibrium between AA pentadienyl radical and a new tyrosyl radical, NS1c. KIE of this H-transfer was ~2, much smaller than the H-transfer in plant lipoxygenases, where a H-tunneling mechanism is involved.

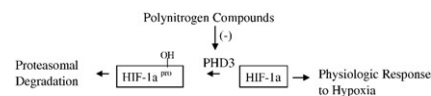


**Zhirong Geng, Jingshu Zhu, Jing Cao,  
Jinlong Geng, Xiaoli Song, Zhong Zhang,  
Ningsheng Bian, Zhilin Wang**

*Journal of Inorganic Biochemistry* 105 (2011)  
391–399

Effects of polynitrogen compounds on the activity of recombinant human HIF-1 $\alpha$  prolyl hydroxylase 3 in *E. coli*

Polynitrogen compounds (1–4) modulate the activity of PHD3 (Fe<sup>2+</sup>-dependent redox enzyme) due to their binding to iron to form stable coordination complexes. PHD3 hydroxylates human HIF-1 $\alpha$  at Pro-564, and the hydroxylated protein is subject to ubiquitination and proteasomal degradation. On the contrary, inhibitors of PHD3 can effectively stabilize HIF-1 $\alpha$  and activate HIF mediated gene expression.

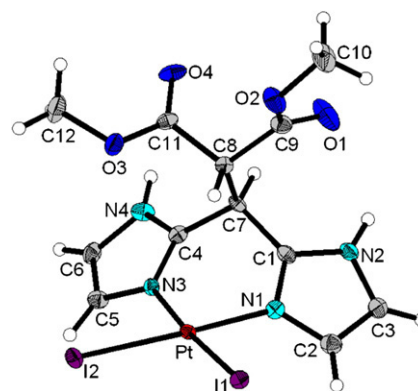


**Mauro Ravera, Elisabetta Gabano,  
Manuele Sardi, Giuseppe Ermondi,  
Giulia Caron, Michael J. McGlinchey,  
Helge Müller-Bunz, Elena Monti,  
Marzia B. Gariboldi, Domenico Osella**

*Journal of Inorganic Biochemistry* 105 (2011)  
400–409

Synthesis, characterization, structure, molecular modeling studies and biological activity of sterically crowded Pt(II) complexes containing bis(imidazole) ligands

A panel of seven cisplatin-like complexes containing bis(imidazole) derivatives were designed and synthesized. Their physico-chemical properties and in vitro biological activity were experimentally evaluated and studied in silico.

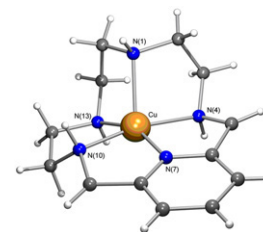


**Ana S. Fernandes, M. Fátima Cabral,  
Judite Costa, Matilde Castro, Rita Delgado,  
Michael G.B. Drew, Vítor Félix**

*Journal of Inorganic Biochemistry* 105 (2011)  
410–419

Two macrocyclic pentaaza compounds containing pyridine evaluated as novel chelating agents in copper(II) and nickel(II) overload

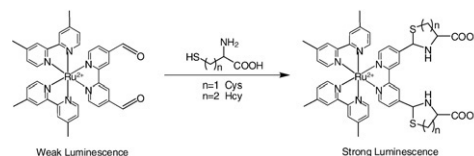
The synthesis and characterization of two pentaaza macrocyclic compounds containing pyridine in the backbone, [15]pyN<sub>5</sub> and [16]pyN<sub>5</sub>, as well as the study of their copper(II) and nickel(II) complexes, are reported in order to evaluate their possible use as chelating agents.



**Mei-Jin Li, Chong-Qing Zhan,  
Mei-Juan Nie, Guo-Nan Chen, Xi Chen**

*Journal of Inorganic Biochemistry* 105 (2011)  
420–425

Selective recognition of homocysteine and cysteine based on new ruthenium(II) complexes

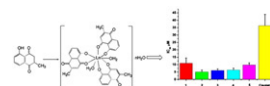


**Zhen-Feng Chen, Ming-Xiong Tan,  
Yan-Cheng Liu, Yan Peng,  
Hong-Hong Wang, Hua-Gang Liu,  
Hong Liang**

*Journal of Inorganic Biochemistry* 105 (2011)  
426–434

Synthesis, characterization and preliminary cytotoxicity evaluation of five Lanthanide(III)–Plumbagin complexes

Five new lanthanide(III) complexes with plumbagin (H-PLN): [Y(PLN)<sub>3</sub>(H<sub>2</sub>O)<sub>2</sub>] (**1**) [La(PLN)<sub>3</sub>(H<sub>2</sub>O)<sub>2</sub>] (**2**), [Sm(PLN)<sub>3</sub>(H<sub>2</sub>O)<sub>2</sub>]·H<sub>2</sub>O (**3**), [Gd(PLN)<sub>3</sub>(H<sub>2</sub>O)<sub>2</sub>] (**4**), and [Dy(PLN)<sub>3</sub>(H<sub>2</sub>O)<sub>2</sub>] (**5**) were synthesized and characterized. These lanthanide complexes exhibit significantly enhanced cytotoxicity to BEL7404 vs. free plumbagin, and the interactions with DNA were studied.

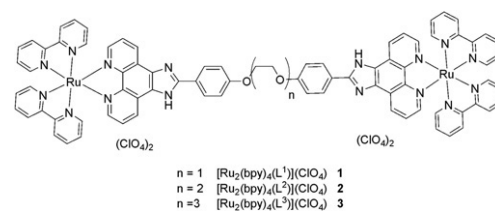


**Chuan-Chuan Ju, An-Guo Zhang,  
Chui-Li Yuan, Xiao-Long Zhao,  
Ke-Zhi Wang**

*Journal of Inorganic Biochemistry* 105 (2011)  
435–443

The interesting DNA-binding properties of three novel dinuclear Ru(II) complexes with varied lengths of flexible bridges

UV-visible and emission spectroscopy studies, viscosity measurements, and density functional calculations indicated that the three complexes bound to calf thymus DNA most probably in a threading intercalation binding mode with high DNA binding constant values three orders of magnitude greater than the DNA binding constant value reported for proven DNA intercalator, mononuclear counterpart [Ru(bpy)<sub>2</sub>(p-mopip)]<sup>2+</sup> {p-mopip = 2-(4-methoxyphenyl)imidazo[4,5-f][1,10]phenanthroline}.

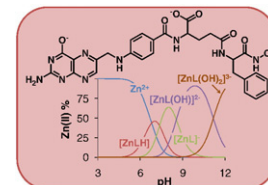


**Éva A. Enyedy, Etelka Farkas,  
Orsolya Dömötör, M. Amélia Santos**

*Journal of Inorganic Biochemistry* 105 (2011)  
444–453

Interaction of folic acid and some matrix metalloproteinase (MMP) inhibitor folate-γ-hydroxamate derivatives with Zn(II) and human serum albumin

Complex formation of folic acid and its γ-hydroxamate/carboxylate derivatives with Zn(II) is studied in aqueous solution by various methods (pH-potentiometry, <sup>1</sup>H NMR and ESI-MS). Binding properties to human serum albumin of the folate ligands are investigated by ultrafiltration and spectrofluorimetry.

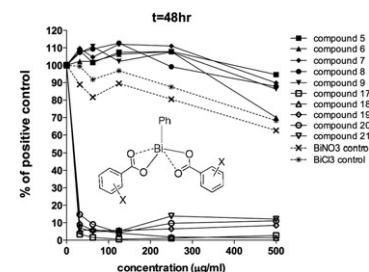


**Philip C. Andrews, Rene Frank,  
Peter C. Junk, Lukasz Kedzierski,  
Ish Kumar, Jonathan G. MacLellan**

*Journal of Inorganic Biochemistry* 105 (2011)  
454–461

Anti-Leishmanial activity of homo- and heteroleptic bismuth(III) carboxylates

Bismuth(III) carboxylates, general formulae [PhBiL<sub>2</sub>] and [BiL<sub>3</sub>], have been synthesised and characterised, and their toxicity towards the *Leishmania* parasite established.

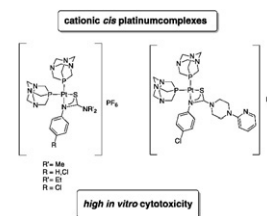


**Patrick Bippus, Matthias Skocic,  
Michael A. Jakupec, Bernhard K. Keppler,  
Fabian Mohr**

*Journal of Inorganic Biochemistry* 105 (2011)  
462–466

Synthesis, structures and *in vitro* cytotoxicity  
of some cationic *cis*-platinum(II) complexes  
containing chelating thiocarbamates

The monocationic platinum(II) complexes  $cis\text{-[Pt}\{\text{SC}(\text{NR}_2')=\text{NC}_6\text{H}_4\text{R}\}(\text{PTA})_2\text{]}^+$  ( $\text{R}=\text{H}$ ,  $\text{Cl}$ ;  $\text{R}'=\text{Me}$ ,  $\text{Et}$ ) and  $cis\text{-[Pt}\{\text{SC}(\text{NR})=\text{NC}_6\text{H}_4\text{Cl}\}(\text{PTA})_2\text{]}^+$  ( $\text{NR}=\text{2-pyridylpiperazine}$ ) containing the cage phosphine PTA (1,3,5-triaza-7-phosphaadamantane) were prepared and their *in vitro* cytotoxicity was studied.

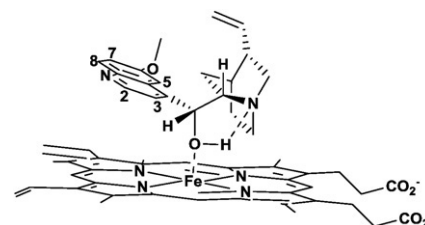


**John N. Alumasa, Alexander P. Gorka,  
Leah B. Casabianca, Erica Comstock,  
Angel C. de Dios, Paul D. Roepe**

*Journal of Inorganic Biochemistry* 105 (2011)  
467–475

The hydroxyl functionality and a rigid proximal  
N are required for forming a novel non-  
covalent quinine-heme complex

Proposed QN-FPIX adduct structure  
involving coordination between the –OH  
group of QN and Fe of FPIX, aided by the  
formation of a five-membered ring con-  
taining a strong hydrogen bond between  
the –OH proton and the quinuclidyl  
nitrogen.

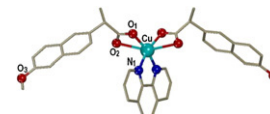


**Filitsa Dimiza, Franc Perdih,  
Vassilis Tangoulis, Iztok Turel,  
Dimitris P. Kessissoglou, George Psomas**

*Journal of Inorganic Biochemistry* 105 (2011)  
476–489

Interaction of copper(II) with the non-steroidal  
anti-inflammatory drugs naproxen and  
diclofenac: Synthesis, structure, DNA- and  
albumin-binding

Interaction of copper(II) with the non-  
steroidal anti-inflammatory drugs naproxen  
and diclofenac in the presence of diverse  
nitrogen donor ligands leads to the formation  
of mono- and binuclear complexes. The  
ability of the complexes to bind to DNA and  
to human or bovine serum albumin proteins  
has been also studied.

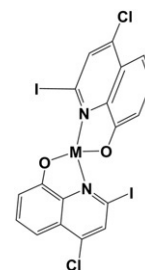


**Ana Budimir, Nicholas Humbert,  
Mourad Elhabiri, Iwona Osinska,  
Mladen Biruš, Anne-Marie Albrecht-Gary**

*Journal of Inorganic Biochemistry* 105 (2011)  
490–496

Hydroxyquinoline based binders: Promising  
ligands for chelatotherapy?

The ionic recognition properties of Clioquinol  
have been re-investigated. Independently  
of the nature of the metal ion ( $\text{Mn}(\text{II})$ ,  $\text{Co}(\text{II})$ ,  
 $\text{Ni}(\text{II})$ ,  $\text{Cu}(\text{II})$  and  $\text{Zn}(\text{II})$ ), mono- and bis-  
chelate species in solution were characterized.



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