

Prof. Enzo Alessio

*Publications, Patents,
Seminars and Invited Lectures*

Febbraio 2017

PUBLICATIONS

1) **E. Alessio**, G. Zassinovich, G. Mestroni

Catalytic reduction of nitroaromatic compounds with carbon monoxide and water using 3,4,7,8 Me₄phen - carbonyl cluster systems as catalyst precursors: the role of the chelating effect.

J. Mol. Cat., **1983**, 18, 113-116.

2) **E. Alessio**, F. Vinzi, G. Mestroni

Activation of Rh₆(CO)₁₆ with 1,10-phenanthroline and substituted derivatives in the catalytic reduction of nitrobenzene to aniline with carbon monoxide and water.

J. Mol. Cat., **1984**, 22, 327-339.

3) **E. Alessio**, G. Mestroni

Catalytic synthesis of aromatic urethanes from nitroaromatic compounds and carbon monoxide, using palladium + 1,10-phenanthroline derivatives as catalyst precursors.

J. Mol. Cat., **1984**, 26, 337-340.

4) **E. Alessio**, G. Clauti, G. Mestroni

Activation of carbonyl clusters with 1,10-phenanthroline and related ligands: the reduction of nitrobenzene as a model reaction for M_X(CO)_Y (M = Ru, Os, Ir) + Phen systems as catalyst precursors.

J. Mol. Cat. **1985**, 29, 77-98.

5) **E. Alessio**, G. Mestroni

The catalytic reductive carbonylation of nitroaromatic compounds to urethanes promoted by supported Pd activated with 1,10-phenanthroline derivatives.

J. Organometal. Chem., **1985**, 291, 117-127.

6) M. Calligaris, L. Campana, G. Mestroni, M. Tornatore, **E. Alessio**

Synthesis and crystal structure of dinuclear Rh(II) complexes with 1,10-phenanthroline and its 4,7 and 3,4,7,8 methyl derivatives.

Inorg. Chim. Acta, **1987**, 127, 103-112.

7) A. Bontempi, **E. Alessio**, G. Chanos, G. Mestroni

Reductive carbonylation of nitroaromatic compounds to urethanes catalyzed by [Pd (1,10-phenanthroline)₂][PF₆]₂ and related complexes.

J. Mol. Cat., **1987**, 42, 67-80.

8) G. Mestroni, G. Zassinovich, **E. Alessio**, A. Bontempi

Chemical properties of rare platinum metal complexes having antitumor activity.

Inorg. Chim. Acta, **1987**, 137, 63-67.

9) S. Cauci, **E. Alessio**, G. Mestroni, F. Quadrifoglio

Reaction of *cis*-RuCl₂(DMSO)₄ with DNA and with some of its bases in aqueous solution.

Inorg. Chim. Acta, **1987**, 37, 19-24.

10) S. Cauci, F. Quadrifoglio, **E. Alessio**, G. Mestroni

Interaction of *cis*-RuCl₂(DMSO)₄ with DNA in aqueous solution.

"*Exp. Biology and Medicine: Macromolecular Biorecognition Principles and Methods*"; I. Chaiken, E. Chiancone, A. Fontana, P. Neri eds.; Humana Press: Clifton, New Jersey. **1987**, 199-212.

11) **E. Alessio**, G. Mestroni, G. Nardin, W.M. Attia, M. Calligaris, G. Sava, S. Zorzet

Cis- and *trans*-dihalotetrakis(dimethylsulfoxide)Ruthenium(II) Complexes (RuX₂(Me₂SO)₄; X = Cl, Br): Synthesis, Structure and Antitumor Activity.

Inorg. Chem., **1988**, 27, 4099-4106.

12) **E. Alessio**, W. Attia, M. Calligaris, S. Cauci, L. Dolzani, G. Mestroni, C. Monti-Bragadin, G. Nardin, F. Quadrifoglio, G. Sava, M. Tamaro, S. Zorzet.

Metal complexes of platinum group: the promising antitumor features of *cis*-dichlorotetrakis(dimethylsulfoxide)Ru(II) (*cis*- RuCl₂(DMSO)₄) and related complexes.

Platinum and Other Metal Coordination Compounds in Cancer Chemotherapy, Nicolini, M. ed.; Martinus Nijhoff: Boston. **1988**, 617-633.

13) G. Mestroni, G. Zassinovich, **E. Alessio**, M. Tornatore

Selective hydrogen transfer reactions from alcohols to ketones promoted by rhodium complexes with 1,10-phenanthroline and related ligands.

J. Mol. Cat., **1989**, 49, 175-185.

14) G. Mestroni, **E. Alessio**, M. Calligaris, W.M. Attia, F. Quadrifoglio, S. Cauci, G. Sava, S. Zorzet, S. Pacor, C. Monti- Bragadin, M. Tamaro, L. Dolzani.

Chemical, biological and antitumor properties of ruthenium- dimethylsulfoxide complexes.

Progress in clinical biochemistry and medicine, Vol. 10, Springer-Verlag: Berlin, Heidelberg. **1989**, 71-87.

15) G. Sava, S. Pacor, V. Ceschia, **E. Alessio**, G. Mestroni

trans-Ru(II)dimethylsulfoxides: antineoplastic action on mouse tumors.

Pharmacol. Res., **1989**, 21, 453-454.

16) G. Sava, S. Pacor, S. Zorzet, **E. Alessio**, G. Mestroni

Antitumor properties of ruthenium(II)-dimethylsulfoxide complexes in the Lewis lung carcinoma system.

Pharmacol. Res., **1989**, 21, 617-628.

17) **E. Alessio**, Y. Xu, S. Cauci, G. Mestroni, F. Quadrifoglio, P. Viglino, L.G. Marzilli

Novel diastereoisomers with opposite chirality at ruthenium formed by N7,α-PO₄ chelation of 5'-dGMP to the antimetastatic agent, *trans*-RuCl₂(DMSO)₄: NMR and CD evidence.

J. Am. Chem. Soc., **1989**, 111, 7068-7071.

18) G. Costa, G. Balducci, **E. Alessio**, C. Tavagnacco, and G. Mestroni

Electrochemistry of sodium *trans*-bis(dimethyl sulfoxide)tetrachlororutenate(III) and *mer*-trichlorotris(dimethyl sulfoxide)ruthenium(III): the first and complete electrochemical characterization of chloro-dimethyl sulfoxide ruthenium(III) complexes.

J. Electroanal. Chem., **1990**, 296, 57-76.

19) S. Pacor, G. Sava, F. Bregant, V. Ceschia, **E. Alessio**, G. Mestroni

Antitumor action of *mer*-trichlorobis(dimethyl sulfoxide)aminoruthenium(III) (BBR2382) in mice bearing Lewis lung carcinoma.

Metal Ions in Biology and Medicine, Ph. Collery, L.A. Poirier, M. Manfait, J.C. Etienne eds.; John Libbey Eurotext: Paris. **1990**, 482-484.

20) **E. Alessio**, B. Milani, G. Mestroni, M. Calligaris, P. Faleschini, W.M. Attia

Synthesis and characterization of new halogen-tetramethylenesulfoxide-ruthenium(II) and ruthenium(III) complexes: crystal structure of *cis*-dichlorotetrakis(tetramethylene sulfoxide)ruthenium(II) and hydrogen *trans*-bis(tetramethylenesulfoxide) tetrachlororuthenate(III).

Inorg. Chim. Acta, **1990**, 177, 255-265.

21) G. Sava, S. Pacor, F. Bregant, V. Ceschia, E. Luxich, **E. Alessio**, G. Mestroni.

Mechanism of tumor inhibition by the metal complex *trans*-RuCl₂(DMSO)₄.

Pharmacol. (Life Sci. Adv.), **1990**, 9, 79-84.

22) S. Pacor, G. Sava, V. Ceschia, F. Bregant, G. Mestroni, **E. Alessio**

Antineoplastic effects of *mer*-RuCl₃(DMSO)₂(NH₃) against murine tumors: comparison with cisplatin and with ImH[RuIm₂Cl₄].

Chem.-Biol. Interactions, **1991**, 78, 223-234.

23) G. Mestroni, **E. Alessio**, G. Zassinovich and L.G. Marzilli

The concept of prochirality applied to coordination compounds.

Comments Inorg. Chem., **1991**, 12, 67-91.

24) S. Cenini, F. Ragaini, M. Pizzotti, F. Porta, G. Mestroni, **E. Alessio**

Carbonylation of nitrobenzene to phenyl isocyanate and methyl carbamate catalyzed by palladium and rhodium activated by chelating nitrogen donor ligands.

J. Mol. Cat., **1991**, 64, 179-190.

25) M. Calligaris, P. Faleschini, **E. Alessio**

Structure of *trans*-dichlorotetrakis(dimethyl sulfoxide)rhodium(III) tetrafluoroborate.

Acta Cryst., **1991**, C47, 747-750.

26) **E. Alessio**, G. Balducci, M. Calligaris, G. Costa, W.M. Attia and G. Mestroni.

Synthesis, molecular structure and chemical behavior of hydrogen *trans*-bis(dimethyl sulfoxide)tetrachlororutenate(III) and *mer*-trichlorotris(dimethyl sulfoxide)ruthenium(III): the first fully characterized chloro-dimethyl sulfoxide-ruthenium(III) complexes.

Inorg. Chem., **1991**, 30, 609-618.

- 27)** M. Henn, **E. Alessio**, G. Mestroni, M. Calligaris, W.M. Attia.
Ruthenium(II)-dimethyl sulfoxide complexes with nitrogen ligands: synthesis, characterization and solution chemistry. The crystal structure of *cis, fac*-RuCl₂(DMSO)₃(NH₃) and *trans, cis, cis*-RuCl₂(DMSO)₂(NH₃)₂·H₂O.
Inorg. Chim. Acta, **1991**, *187*, 39-50.
- 28)** F. Loseto, **E. Alessio**, G. Mestroni, G. Lacidogna, A. Nassi, D. Giordano, M. Coluccia.
Interaction of RuCl₂(DMSO)₄ isomers with DNA.
Anticancer Res., **1991**, *11*, 1549-1554.
- 29)** G. Mestroni, **E. Alessio**
Interactions of RuCl₂(DMSO)₄ complexes with DNA and related molecules.
Lectures in Bioinorganic Chemistry, M. Nicolini and L. Sindellari eds.; Cortina International: Verona; Raven Press: New York. **1991**, 25-40.
- 30)** **E. Alessio**,* B. Milani, M. Calligaris,* N. Bresciani-Pahor.
The synthesis of RuBr₂(DMSO)₃ revisited: a mixture of Li[*fac*-RuCl_nBr_{3-n}(DMSO)₃] isomers (n = 0-3) is the reaction product.
Inorg. Chim. Acta, **1992**, *194*, 85-91.
- 31)** G. Sava, S. Pacor, G. Mestroni, **E. Alessio**.
Effects of the Ru(III) complexes *mer*-RuCl₃(DMSO)₂Im and Na[*trans*-RuCl₄(DMSO)Im] on solid mouse tumors.
Anti-Cancer Drugs, **1992**, *3*, 25-31.
- 32)** R.S. Srivastava, B. Milani, **E. Alessio**, G. Mestroni.
Novel Ru(III)-dimethyl sulfoxide catalysts for the selective oxidation of thioethers to sulfoxides with molecular oxygen.
Inorg. Chim. Acta, **1992**, *191*, 15-17.
- 33)** G. Sava, S. Pacor, G. Mestroni, **E. Alessio**
Na[*trans*-RuCl₄(DMSO)Im], a metal complex of ruthenium with antimetastatic properties.
Clin. Exp. Metastasis **1992**, *10*, 273-280.
- 34)** G. Esposito, S. Cauci, F. Fogolari, **E. Alessio**, M. Scocchi, F. Quadrifoglio, P. Viglino
NMR structural characterization of the reaction product between d(GpG) and the octahedral antitumor complex *trans*-RuCl₂(DMSO)₄.
Biochemistry, **1992**, *31*, 7094-7103.
- 35)** **E. Alessio**,* G. Balducci, A. Lutman, G. Mestroni, M. Calligaris and W.M. Attia.
Synthesis and characterization of two new classes of ruthenium(III)-sulfoxide complexes with nitrogen donor ligands (L): Na[*trans*-RuCl₄(R₂SO)(L)] and *mer, cis*-RuCl₃(R₂SO)(R₂SO)(L). The crystal structure of Na[*trans*-RuCl₄(DMSO)(NH₃)]·2DMSO, Na[*trans*-RuCl₄(DMSO)(Im)]·H₂O·Me₂CO (Im = imidazole) and *mer, cis*-RuCl₃(DMSO)(DMSO)(NH₃).
Inorg. Chim. Acta, **1993**, *203*, 205-217.

- 36)** G. Mestroni, **E. Alessio**, G. Sava, S. Pacor, M. Coluccia.
The development of tumor-inhibiting ruthenium dimethylsulfoxide complexes.
Metal Complexes in Cancer Chemotherapy, B.K. Keppler ed.; VCH Verlag: Weinheim. **1993**, 159-185.
- 37)** M. Colucci, M. Coluccia, P. Montemurro, M. Conese, A. Nassi, F. Loseto, **E. Alessio**, G. Mestroni, N. Semeraro.
Reduction of tumor-associated fibrinolytic activity by antimetastatic dosages of two Ru(II)-DMSO complexes in mice bearing Lewis lung carcinoma.
Int. J. Oncol., **1993**, 2, 527-529.
- 38)** M. Calligaris,* P. Faleschini, **E. Alessio**.
Crystal structure of $[\text{Ru}_2\text{Cl}_4(\text{DMSO})_5]$
Acta Cryst., **1993**, C49, 663-666.
- 39)** M. Coluccia, G. Sava, F. Loseto, A. Nassi, A. Boccarelli, D. Giordano, **E. Alessio**, G. Mestroni.
Antileukemic action of $\text{RuCl}_2(\text{DMSO})_4$ isomers and prevention of brain involvement on P388 leukemia and on P388/DDP subline.
Eur. J. Cancer, **1993**, 29A, 1873-1879.
- 40)** **E. Alessio**,* P. Faleschini, A. Sessanta o Santi, M. Calligaris, G. Mestroni
A new linkage isomer of $\text{RhCl}_3(\text{DMSO})_3$: photochemical synthesis, crystal structure and reactivity of *mer,trans*- $\text{RhCl}_3(\text{DMSO})_2(\text{DMSO})$.
Inorg. Chem., **1993**, 32, 5756-5761.
- 41)** G. Sava, S. Pacor, **E. Alessio**, G. Mestroni, R. Gagliardi, M. Cocchietto, M. Coluccia
 $\text{Na}[\text{trans-RuCl}_4(\text{DMSO})(\text{Im})]\cdot 2\text{DMSO}$ - antimetastatic ruthenium agent.
Drugs of the Future, **1993**, 18, 894-900.
- 42)** G. Balducci, G. Mestroni, **E. Alessio**
Recent developments in the electrochemistry of ruthenium-sulfoxide complexes.
Current Topics in Electrochemistry, **1993**, 2, 323-344.
- 43)** R. Gagliardi,* G. Sava, S. Pacor, G. Mestroni, **E. Alessio**
Antimetastatic action and toxicity on healthy tissues of $\text{Na}[\text{trans-RuCl}_4(\text{DMSO})(\text{Im})]$ in the mouse.
Clin. Exp. Metastasis, **1994**, 12, 93-100.
- 44)** B. Milani, **E. Alessio**, G. Mestroni,* A. Sommazzi, F. Garbassi, E. Zangrando, N. Bresciani-Pahor, L. Randaccio*
Synthesis and characterization of monochelated carboxylato palladium(II) complexes with nitrogen-donor chelating ligands. Crystal structure of diacetate(1,10-phenanthroline)palladium(II) and diacetate(2,9-dimethyl-1,10-phenanthroline)palladium(II).
J. Chem. Soc. Dalton Trans., **1994**, 1903-1911.

- 45) E. Alessio,*** A. Sessanta o Santi, P. Faleschini, M. Calligaris, G. Mestroni
New aspects of Rh(III)-dimethyl sulfoxide chemistry: synthesis and molecular structure of $[\text{NEt}_4][\text{cis-RhCl}_4(\text{DMSO})_2]$ and chemical behaviour in aqueous solution of $[\text{RhCl}_n(\text{DMSO})_{6-n}]^{(3-n)}$ (n = 3, 4) complexes.
J. Chem. Soc. Dalton Trans., **1994**, 1849-1855.
- 46) G. Mestroni, E. Alessio,** G. Sava, S. Pacor, M. Coluccia, A. Boccarelli
Water soluble ruthenium(III)-dimethyl sulfoxide complexes: chemical behaviour and pharmacological properties.
Metal Based Drugs, **1994**, *1*, 41-63.
- 47) G. Sava,*** S. Pacor, M. Coluccia, M. Mariggio, M. Cocchietto, **E. Alessio,** G. Mestroni
Response of MCA mammary carcinoma to cisplatin and to $\text{Na}[\text{trans-RuCl}_4(\text{DMSO})(\text{Im})]$.
Drug Invest., **1994**, *8*, 150-161.
- 48) L. G. Marzilli,*** M. Iwamoto, **E. Alessio,** L. Hansen, M. Calligaris
The rare head-to-head conformation of untethered lopsided ligands discovered in both solution and solid states of 1,5,6-trimethylbenzimidazole Re(V) and Ru(II) complexes.
J. Am. Chem. Soc., **1994**, *116*, 815-816.
- 49) G. Sava,*** S. Pacor, A. Bergamo, M. Cocchietto, G. Mestroni, **E. Alessio**
Effects of ruthenium complexes on experimental tumors: irrelevance of cytotoxicity for metastasis inhibition.
Chem.-Biol. Interact., **1995**, *95*, 109-126.
- 50) M. Calligaris,*** P. Faleschini, F. Todone, **E. Alessio,** S. Geremia
Steric properties of sulfoxide ligands. Synthesis and crystal structure of *mer*- $\text{RuCl}_3(\text{diphenyl sulfoxide})_3$.
J. Chem. Soc. Dalton Trans., **1995**, 1653-1661.
- 51) E. Alessio,*** M. Bolle, B. Milani, G. Mestroni, P. Faleschini, S. Geremia, M. Calligaris*
Carbonyl derivatives of chloride-dimethyl sulfoxide-ruthenium(III) complexes: synthesis, crystal structure and reactivity of $[(\text{DMSO})_2\text{H}][\text{trans-RuCl}_4(\text{DMSO})(\text{CO})]$ and *mer,cis*- $\text{RuCl}_3(\text{DMSO})_2(\text{CO})$.
Inorg. Chem. **1995**, *34*, 4716-4721.
- 52) E. Alessio,*** B. Milani, M. Bolle, G. Mestroni, P. Faleschini, F. Todone, S. Geremia, M. Calligaris*
Carbonyl derivatives of chloride-dimethyl sulfoxide-ruthenium(II) complexes: synthesis, structural characterization and reactivity of $\text{Ru}(\text{CO})_X(\text{DMSO})_{4-X}\text{Cl}_2$ complexes (X = 1-3).
Inorg. Chem. **1995**, *34*, 4722-4734.
- 53) L. Hansen, E. Alessio,** M. Iwamoto, P. A. Marzilli, L. G. Marzilli*
Mixed-ligand rhenium(V) oxo monomers with triphenylphosphine oxide and lopsided and symmetrical heterocyclic ligands. Putative intermediates in rhenium(V) oxo synthetic chemistry.

Inorg. Chim. Acta, **1995**, 240, 413-417.

54) M. Coluccia, G. Sava, G. Salerno, A. Bergamo, S. Pacor, G. Mestroni, **E. Alessio**.

Efficacy of 5-FU combined to Na[*trans*-RuCl₄(DMSO)(Im)], a novel selective antimetastatic agent, on the survival time of mice with P388 leukemia, P388/DDP subline and MCA mammary carcinoma. *Metal-Based Drugs* **1995**, 2, 195-199.

55) **E. Alessio**,* B. Milani, M. Bolle, G. Mestroni, P. Faleschini, F. Todone, M. Calligaris, S. Geremia.

New carbonyl derivatives of chloride-dimethyl sulfoxide-ruthenium(III) and ruthenium(II) complexes.

Syntheses and Methodologies in Inorganic Chemistry; S. Daolio, E. Tondello, P. A. Vigato eds.; Vol. 5, **1995**, 283-288.

56) B. Milani, **E. Alessio**, G. Mestroni,* E. Zangrando, L. Randaccio, G. Consiglio*

New atropoisomeric bidentate nitrogen-donor ligand as potential stereocontrollers in mild CO-styrene copolymerization catalysed by palladium(II) salts.

J. Chem. Soc., Dalton Trans. **1996**, 1021-1029.

57) L. Messori, F. Kratz, **E. Alessio**

The interaction of the antitumor complexes Na[*trans*-RuCl₄(DMSO)(Im)] and Na[*trans*-RuCl₄(DMSO)(Ind)] with apotransferrin: a spectroscopic study.

Metal-Based Drugs, **1996**, 3, 1-9.

58) M. Iwamoto, **E. Alessio**, L. G. Marzilli*

Observation of an unusual molecular switching device. The position of one 1,2-dimethylimidazole switched "on" or "off" the rotation of the other 1,2-dimethylimidazole in *cis,cis,cis*-Ru(II)Cl₂(Me₂SO)₂(1,2-dimethylimidazole)₂.

Inorg. Chem., **1996**, 35, 2384-2389.

59) **E. Alessio**, M. Calligaris, M. Iwamoto, L.G. Marzilli*

Orientation and restricted rotation of lopsided aromatic ligands. Octahedral complexes derived from *cis*-RuCl₂(Me₂SO)₄.

Inorg. Chem., **1996**, 35, 2538-2545.

60) S. Geremia, **E. Alessio**,* F. Todone

Synthesis and crystal structure of new Ru(III)-sulfoxide complexes containing planar N-ligands: *mer,cis*-RuCl₃(1Me-Im)₂(S-dmsO) and [4Et-PyH][*trans*-RuCl₄(4Et-Py)(S-dmsO)].

Inorg. Chim. Acta, **1996**, 253, 87-90.

61) **E. Alessio**, L. Hansen, M. Iwamoto, L. G. Marzilli*

Dynamic pathways for fluxional molecules defined using exchange-NOEs peaks.

J. Am. Chem. Soc. **1996**, 118, 7593-7600.

62) E. Alessio, M. Macchi, S. Heath, L. G. Marzilli*

A novel open-box shaped pentamer of vertically linked porphyrins that selectively recognizes S-bonded Me₂SO complexes.

Chem. Commun., **1996**, 1411-1412.

63) G. Sava,* G. Salerno, A. Bergamo, M. Cocchietto, R. Gagliardi, **E. Alessio**, G. Mestroni

Reduction of lung metastases by Na[*trans*-RuCl₄(DMSO)Im] is not coupled with the induction of chemical xenogenization.

Metal-Based Drugs, **1996**, 3, 67-73.

64) G. Sava,* I. Capozzi, A. Bergamo, R. Gagliardi, M. Cocchietto, L. Masiero, M. Onisto, **E. Alessio**, G. Mestroni, S. Garbisa

Down-regulation of tumor gelatinase/inhibitor balance and preservation of tumor endothelium by an anti-metastatic ruthenium complex.

Int. J. Cancer, **1996**, 68, 60-66.

65) A. Bergamo, M. Cocchietto, I. Capozzi, G. Mestroni, **E. Alessio**, G. Sava*

Treatment of residual metastases with Na[*trans*-RuCl₄(DMSO)(Im)] and ruthenium uptake by tumor cells.

Anti-Cancer Drugs, **1996**, 7, 697-702.

66) E. Alessio, G. Mestroni, G. Sava, A. Bergamo, M. Coluccia, L. Messori

Ruthenium-sulfoxide complexes with a specific antimetastatic activity.

NATO-ASI Series Book "Cytotoxic, Mutagenic and Carcinogenic Potential of Heavy Metals Related to Human Environment," N. Hadjiliadis ed., **1997**, 457-466.

67) E. Alessio,* M. Macchi, S. L. Heath, L. G. Marzilli

Ordered supramolecular porphyrin arrays from a building block approach utilizing pyridylporphyrins and peripheral ruthenium complexes and identification of a new type of mixed-metal building block.

Inorg. Chem. **1997**, 36, 5614-5623.

68) E. Alessio,* E. Zangrando, R. Roppa, L. G. Marzilli

Crystals containing conformers: a rare case in which a solid closely reflects a solution equilibrium mixture.

Inorg. Chem. **1998**, 37, 2458-2463.

69) G. Mestroni,* **E. Alessio**, A. Sessanta o Santi, S. Geremia, A. Bergamo, G. Sava, A. Boccarelli, A. Schettino and M. Coluccia

Rhodium(III) analogs of antitumor active ruthenium(III) compounds. The crystal structure of [ImH][*trans*-RhCl₄(Im)₂] (Im = imidazole)

Inorg. Chim. Acta, **1998**, 273, 62-71.

70) L. G. Marzilli,* P. A. Marzilli, **E. Alessio**

Complexes of lopsided N-donor heterocyclic bioligands: has the electrostatic effect of the N₂CH proton been overlooked in metallobiochemistry?

Pure & Appl. Chem. **1998**, *70*, 961-968.

71) G. Sava,* I Capozzi, K. Clerici, G. Gagliardi, **E. Alessio**, G. Mestroni
Pharmacological control of lung metastases of solid tumors by a novel ruthenium complex.
Clin. Exp. Metastasis **1998**, *16*, 371-379.

72) G. Sava,* R. Gagliardi, M. Cocchietto, K. Clerici, I Capozzi, M. Marrella, **E. Alessio**, G. Mestroni, R. Milanino
Comparison of the effects of the antimetastatic compound ImH[*trans*-RuCl₄(DMSO)(Im)] (NAMI-A) on the arthritic rat and on Mca mammary carcinoma in mice.
Pathol. Oncol. Res. **1998**, *4*, 30-36.

73) S. Geremia, S. Mestroni, M. Calligaris, **E. Alessio***
The first example of a double bridged diruthenium(II) complex containing the rare bridging S,O bidentate dimethyl sulfoxide ligand which defines a stable **Ru-Cl-Ru-S-O** five-membered ring.
J. Chem. Soc., Dalton Trans. **1998**, 2447-2448.

74) **E. Alessio**,* S. Geremia, S. Mestroni, E. Iengo, I. Srnova, M. Slouf
Solution and solid state structure of a canted, side-to-face, bis-porphyrin adduct
Inorg. Chem. **1999**, *38*, 869-875.

75) G. Sava,* K. Clerici, I Capozzi, M. Cocchietto, R. Gagliardi, **E. Alessio**, G. Mestroni, A. Perbellini
Reduction of lung metastasis by ImH[*trans*-RuCl₄(DMSO)(Im)]: mechanism of the selective action investigated on mouse tumors.
Anti-Cancer Drugs **1999**, *10*, 129-138.

76) A. Bergamo, R. Gagliardi, V. Scarcia, A. Furlani, **E. Alessio**, G. Mestroni, G. Sava*
In vitro cell cycle arrest, *in vivo* action on solid metastasizing tumors and host toxicity of the antimetastatic drug NAMI-A and of cisplatin.
J. Pharmacol. Exp. Ther. **1999**, *298*, 559-564.

77) G. Sava, **E. Alessio**, A. Bergamo, G. Mestroni
Sulfoxide ruthenium complexes: non toxic tools for the selective treatment of solid tumour metastases.
Topics in Biological Inorganic Chemistry, Volume 1 “*Metallo-pharmaceuticals*”, M. J. Clarke and P. J. Sadler eds., Springer, Berlin, **1999**, pp. 143-169.

78) T. Da Ros, M. Prato,* D. Guldi,* **E. Alessio**, M. Ruzzi, L. Pasimeni
A noncovalently linked, dynamic fullerene porphyrin dyad. Efficient formation of long-lived charge separated states through complex dissociation.
Chem. Commun. **1999**, 635-636.

79) **E. Alessio**,* S. Geremia, S. Mestroni, I. Srnova, M. Slouf, T. Gianferrara, A. Prodi

Porphyrin “flying saucers”: solid state and solution structure of a novel pentameric array of axially-ligated canted porphyrins.

Inorg. Chem., **1999**, *38*, 2527-2529.

80) A. Prodi, M. T. Indelli, C. J. Kleverlaan, F. Scandola, * **E. Alessio**, T. Gianferrara, L. G. Marzilli
Side-to-face ruthenium porphyrin arrays. Photophysical behavior of dimeric and pentameric systems.
Chem. Eur. J. **1999**, *5*, 2668-2679.

81) E. Iengo, G. Mestroni, S. Geremia, M. Calligaris, **E. Alessio***
Novel Ru(III) dimers $[\text{Na}]_2\{[\textit{trans}\text{-RuCl}_4(\text{Me}_2\text{SO}\text{-}S)]_2(\mu\text{-L})\}$ and $\{[\textit{mer,cis}\text{-RuCl}_3(\text{Me}_2\text{SO}\text{-}S)(\text{Me}_2\text{SO}\text{-}O)]_2(\mu\text{-L})\}$ (L = bridging heterocyclic N-donor ligand) closely related to the antimetastatic complex $\text{Na}[\textit{trans}\text{-RuCl}_4(\text{Me}_2\text{SO}\text{-}S)(\text{Him})]$.
J. Chem. Soc., Dalton Trans. **1999**, 3361-3371.

82) G. Sava,* R. Gagliardi, A. Bergamo, **E. Alessio**, G. Mestroni
Treatment of metastases of solid mouse tumours by NAMI-A: comparison with cisplatin, cyclophosphamide and dacarbazine.
Anticancer Res. **1999**, *19*, 969-972.

83) **E. Alessio**,* E. Iengo, S. Zorzet, A. Bergamo, M. Coluccia, A. Boccarelli, G. Sava
Antimetastatic properties and DNA interactions of the novel class of dimeric Ru(III) compounds $[\text{Na}]_2\{\textit{trans}\text{-RuCl}_4(\text{Me}_2\text{SO})\}_2(\mu\text{-L})\}$ (L = ditopic, non-chelating aromatic N-ligand). A preliminary investigation.
J. Inorg. Biochem. **2000**, *79*, 173-177.

84) **E. Alessio**,* E. Zangrando, E. Iengo, M. Macchi, P. A. Marzilli, L. G. Marzilli
Understanding Orientation and Dynamic Motion of Planar Heterocyclic N-Donor Ligands by Exploiting the Symmetry Properties of Mixed-Ligand μ -oxo Rhenium(V) Dimers $[\text{ReOCl}_2(\text{L})(\text{L}')]\text{-O-}[\text{ReOCl}_2(\text{L})(\text{L}')]$: a Combined X-ray Structural and Dynamic NMR Investigation.
Inorg. Chem. **2000**, *39*, 294-303.

85) E. Iengo, B. Milani, E. Zangrando, S. Geremia, **E. Alessio***
Novel Ruthenium Building Blocks for the Efficient Modular Construction of Heterobimetallic Molecular Squares of Porphyrins.
Angew. Chem. Int. Ed. **2000**, *39*, 1096-1099.

86) **E. Alessio**,* E. Ciani, E. Iengo, V. Yu. Kukushkin, L. G. Marzilli
Stepwise Assembly of Unsymmetrical Supramolecular Arrays Containing Porphyrins and Coordination Compounds.
Inorg. Chem. **2000**, *39*, 1434-1443.

87) L. Messori, P. Orioli,* D. Vullo, **E. Alessio**, E. Iengo
A spectroscopic study of the reaction of NAMI, a novel ruthenium(III) anti-neoplastic complex, with bovine serum albumin
Eur. J. Biochem. **2000**, *267*, 1206-1213.

- 88)** E. Gallori, C. Vettori, **E. Alessio**, F. Gonzalez-Vilchez, R. Vilaplana, P. Orioli,* A. Casini,* L. Messori*
DNA as a possible target for antitumor Ruthenium(III) complexes.
Arch. Biochem. Biophys. **2000**, *376*, 156-162.
- 89)** M. Cocchietto, G. Salerno, **E. Alessio**, G. Mestroni, G. Sava*
Fate of the antimetastatic ruthenium complex ImH[*trans*-RuCl₄(DMSO)Im] after acute i.v. treatment in mice.
Anticancer Res., **2000**, *20*, 197-200.
- 90)** **E. Alessio**,* E. Iengo, E. Zangrando, S. Geremia, P. A. Marzilli, M. Calligaris
Orientation and Restricted Rotation of Lopsided N-donor Heterocyclic Bioligands in Octahedral Ruthenium Complexes.
Eur. J. Inorg. Chem. **2000**, 2207-2219.
- 91)** S. Zorzet, A. Bergamo, M. Cocchietto, A. Sorc, B. Gava, **E. Alessio**, E. Iengo, G. Sava*
Lack of in vitro cytotoxicity, associated to increased G2-M cell fraction and inhibition of matrigel invasion, may predict in vivo-selective antimetastasis activity of ruthenium complexes.
J. Pharmacol. Expl. Ther., **2000**, *295*, 927-933.
- 92)** L. Messori, F. Gonzalez-Vilchez, R. Vilaplana, F. Piccioli, **E. Alessio**, B. K. Keppler.
Binding of antitumor ruthenium(III) complexes to plasma proteins.
Metal Based Drugs, **2000**, *7*, 335-342.
- 92bis)** A. Bergamo, S. Zorzet, B. Gava, A. Sorc, E. Alessio, E. Iengo, G. Sava*
Effects of NAMI-A and some related ruthenium complexes on cell viability after short exposure of tumor cells.
Anti-Cancer Drugs, **2000**, *11*, 665-672.
- 93)** E. Iengo, R. Minatel, B. Milani, L. G. Marzilli, **E. Alessio***
Metal-mediated self-assembly of molecular squares of porphyrins rimmed with coordination compounds.
Eur. J. Inorg. Chem., **2001**, 609-612.
- 94)** E. Iengo, E. Zangrando, S. Mestroni, G. Fronzoni, M. Stener, **E Alessio***
Complexed bridging ligands: oxorhenium(V) compounds with mono-coordinated pyrazine or pyrimidine as possible building-blocks for the construction of polynuclear architectures.
J. Chem. Soc., Dalton Trans., **2001**, 1338-1346.
- 95)** B. Serli, E. Iengo, T. Gianferrara, E. Zangrando, **E. Alessio***
Novel unsymmetrical Ru(III) and mixed-valence Ru(III)/Ru(II) dinuclear compounds related to the antimetastatic Ru(III) drug NAMI-A.
Metal Based Drugs, **2001**, *8*, 9-18.

- 96)** J. Malina, O. Novákova, B. K. Keppler, **E. Alessio**, V. Brabec*
Biophysical analysis of natural, double-helical DNA modified by anticancer heterocyclic complexes of ruthenium(III) in cell-free media.
J. Biol. Inorg. Chem., **2001**, *6*, 435-445.
- 97)** A. Prodi, C. J. Kleverlaan, M. T. Indelli, F. Scandola,* **E. Alessio**, E. Iengo
Photophysics of Pyridylporphyrin Ru(II) Adducts. Heavy Atom Effects and Intramolecular Decay Pathways.
Inorg. Chem. **2001**, *40*, 3498-3504.
- 98)** G. Sava,* A. Bergamo, S. Zorzet, B. Gava, C. Casarsa, M. Cocchietto, A. Furlani, V. Scarcia, B. Serli, E. Iengo, **E. Alessio**, G. Mestroni
Influence of chemical stability on the activity of the antimetastasis ruthenium compound NAMI-A.
Eur. J. Cancer, **2002**, *38*, 427-435.
- 99)** **E. Alessio**,* E. Iengo, L. G. Marzilli
Metal-mediated discrete supramolecular assemblies of porphyrins.
Supramol. Chem., **2002**, *14*, 103-120.
- 100)** E. Iengo, E. Zangrando, R. Minatel, **E. Alessio***
Metallacycles of porphyrins as building blocks in the construction of higher order assemblies through axial coordination of bridging ligands: solution and solid state characterization of molecular sandwiches and molecular wires.
J. Am. Chem. Soc. **2002**, *124*, 1003-1013.
- 101)** A. Prodi, M. T. Indelli, C. J. Kleverlaan, **E. Alessio**, F. Scandola*
Energy Transfer Pathways in Pyridylporphyrin Metal Adducts and Side-to-Face Arrays.
Coord. Chem. Rev., **2002**, *229*, 51-58.
- 102)** B. Serli, E. Zangrando, E. Iengo, **E. Alessio***
Novel mono- and dinuclear ruthenium nitrosyls with coordinated pyrazine.
Inorg. Chim. Acta, **2002**, *339*, 265-272.
- 103)** B. Serli, E. Zangrando, E. Iengo, G. Mestroni, L. Yellowlees, **E. Alessio***
Synthesis, Structural, Spectroscopic, and Electrochemical Characterization of Novel Ruthenium-Dimethylsulfoxide Nitrosyls.
Inorg. Chem., **2002**, *41*, 4033 - 4043.
- 104)** D. M. Guldi,* T. Da Ros, P. Braiuca, M. Prato,* **E. Alessio***
C₆₀ in the box. A supramolecular C₆₀ – porphyrin assembly.
J. Mater. Chem., **2002**, *12*, 2001-2008.
- 105)** I. Turel,* M. Pecanac, A. Golobic, **E. Alessio**, B. Serli
Novel Ru(III)-DMSO complexes of the antiherpes drug acyclovir.
Eur. J. Inorg. Chem., **2002**, 1928-1931.

- 106)** E. Iengo,* E. Zangrando,* S. Geremia, R. Graff, B. Kieffer, **E. Alessio**
Two-Point Self-Coordination of a Dizinc(II) Bis-Pyridylporphyrin Ruthenium Complex Leading Selectively to a Discrete Molecular Assembly: Solution and Solid State Characterization.
Chem. Eur. J., **2002**, *8*, 4670-4674.
- 107)** A. Bergamo, B. Gava, **E. Alessio**, G. Mestroni, B. Serli, M. Cocchietto, S. Zorzet, G. Sava*
Ruthenium-based NAMI-A type complexes with in vivo selective metastasis reduction and in vitro invasion inhibition unrelated to cell cytotoxicity.
Int. J. Oncol., **2002**, *21*, 1331-1338.
- 107b)** D. M. Guldi, T. Da Ros, M. Prato,* **E. Alessio**
C₆₀ in the box.
Fullerenes, Vol. 12, Electrochemical Society Proceedings, P. V. Kamat, D. M. Guldi, K. M. Kadish eds., **2002**, pp. 157-165.
- 108)** **E. Alessio**,* E. Iengo, S. Geremia, M. Calligaris
New geometrical and linkage isomers of the Ru(II) precursor *cis,cis,trans*-RuCl₂(dmsO)₂(dmsO-O)(CO): a spectroscopic and structural investigation.
Inorg. Chim. Acta **2003**, *344*, 183-189.
- 109)** B. Serli, E. Zangrando, T. Gianferrara, L. Yellowlees, **E. Alessio***
Coordination and release of NO by ruthenium-dimethylsulfoxide complexes – implications for anti-metastases activity.
Coord. Chem. Rev., **2003**, *245*, 73-83.
- 110)** E. Iengo,* E. Zangrando, **E. Alessio**, J.-C. Chambron, V. Heitz, L. Flamigni,* J.-P. Sauvage*
A functionalized non-covalent macrocyclic multiporphyrin assembly from a dizinc(II) bis-porphyrin receptor and a free base bis-pyridyl porphyrin.
Chem. Eur. J., **2003**, *9*, 5879-5887.
- 111)** E. Iengo, E. Zangrando, **E. Alessio***
Discrete Supramolecular Assemblies of Porphyrins Mediated by Coordination Compounds.
Eur. J. Inorg. Chem., **2003**, 2371-2384.
- 112)** **E. Alessio**,* B. Serli, E. Zangrando, M. Calligaris, N. S. Panina
Geometrical and linkage isomers of OsCl₂(dmsO)₄: the complete picture.
Eur. J. Inorg. Chem., **2003**, 3160-3166.
- 113)** E. Zangrando, B. Serli, L. Yellowlees, **E. Alessio***
The first examples of four and five O-bonded dmsO ligands on a ruthenium centre.
Dalton Trans., **2003**, 4391-4392.
- 114)** A. Bergamo,* G. Stocco, B. Gava, M. Cocchietto, **E. Alessio**, B. Serli, E. Iengo, G. Sava

Distinct effects of dinuclear ruthenium(III) complexes on cell proliferation and on cell cycle regulation in human and murine tumor cell lines.

J. Pharmacol. Exp. Ther. **2003**, *305*, 725-732.

115) A. Bergamo, G. Stocco, C. Casarsa, M. Cocchietto, **E. Alessio**, B. Serli, S. Zorzet, G. Sava*
Reduction of in vivo lung metastases by dinuclear ruthenium complexes is coupled to inhibition of in vitro humour invasion.

Int. J. Oncol., **2004**, *24*, 373-379.

116) I. Turel,* M. Pečanac, A. Golobič, **E. Alessio**, B. Serli, A. Bergamo, G. Sava
Solution, solid state and biological characterization of ruthenium(III)-DMSO complexes with purine base derivatives.

J. Inorg. Biochem., **2004**, *98*, 393-401.

117) **E. Alessio**, G. Mestroni, A. Bergamo, G. Sava
Ruthenium Anticancer Drugs
in "Metal Ions and Their Complexes in Medication and in Cancer Diagnosis and Therapy", Vol. 42 of *Metal Ions in Biological Systems*, A. Sigel and H. Sigel, eds., M. Dekker: New York, **2004**, pp. 323-351.

118) M. Bacac, A. C. G. Hotze, K. van der Schilden, J. G. Haasnoot, S. Pacor, **E. Alessio**, G. Sava, J. Reedijk*

The hydrolysis of the anti-cancer ruthenium complex NAMI-A affects its DNA binding and antimetastatic activity: an NMR evaluation.

J. Inorg. Biochem., **2004**, *98*, 402-412.

119) A. H. Velders,* A. Bergamo, **E. Alessio**, E. Zangrando, J. G. Haasnoot, C. Casarsa, M. Cocchietto, S. Zorzet, G. Sava

Synthesis and chemical-pharmacological characterization of the antimetastatic NAMI-A-type Ru(III) complexes (Hdmtp)[*trans*-RuCl₄(dmsso-S)(dmtp)], (Na)[*trans*-RuCl₄(dmsso-S)(dmtp)] and [*mer*-RuCl₃(H₂O)(dmsso-S)(dmtp)] (dmtp = 5,7-dimethyl[1,2,4]triazolo[1,5-*a*]pyrimidine).

J. Med. Chem., **2004**, *47*, 1110-1121.

120) **E. Alessio**

Synthesis and Reactivity of Ru-, Os-, Rh-, and Ir-halide-sulfoxide Complexes.

Chem. Rev., **2004**, *104*, 4203- 4242.

121) D. Griffith, E. Zangrando, **E. Alessio**, C. Marmion*

A novel ruthenium nitrosyl complex which also contains a free NO-donor moiety.

Inorg. Chim. Acta, **2004**, *357*, 3770-3774.

122) **E. Alessio**, S. Daff, M. Elliot, E. Iengo, L. A. Jack, K. G. Macnamara, J. M. Pratt, L. Yellowlees*

Spectroelectrochemical Techniques,

Trends in Molecular Electrochemistry, Eds. A. Pombeiro and C. Amatore, Fontis Media S. A., Chapter 11, **2004**, pp. 339-381.

123) E. Alessio,* G. Mestroni, A. Bergamo, G. Sava
Ruthenium antimetastatic agents.
Curr. Topics Med. Chem., **2004**, *4*, 1525-1535.

124) E. Iengo, E. Zangrando, E. Baiutti, F. Munini, **E. Alessio***
Synthesis and Structural and Spectroscopic Characterization of New Ru(II)-dmsO Precursors with Face-capping Ligands for Use in Self-Assembly Reactions.
Eur. J. Inorg. Chem., **2005**, 1019-1031.

125) A. Prodi, C. Chiorboli, F. Scandola,* E. Iengo,* **E. Alessio**, R. Dobrawa, F. Würthner*
Wavelength-Dependent Electron and Energy Transfer Pathways in a Side-to-Face Ruthenium Porphyrin / Perylene Bisimide Assembly.
J. Am. Chem. Soc., **2005**, *127*, 1454-1462.

126) T. Gianferrara, B. Serli, E. Zangrando, E. Iengo, **E. Alessio***
Pyridylporphyrins peripherally coordinated to ruthenium-nitrosyls, including the water-soluble $\text{Na}_4[\text{Zn}\cdot 4\text{TPyP}\{\text{RuCl}_4(\text{NO})\}_4]$: synthesis and structural characterization.
New J. Chem., **2005**, *29*, 895-903.

127) B. Serli, E. Zangrando, T. Gianferrara, C. Scolaro, P. J. Dyson, A. Bergamo, **E. Alessio***
Is the aromatic fragment of piano-stool ruthenium compounds an essential feature for anticancer activity? The development of new Ru(II)-[9]aneS₃ analogues.
Eur. J. Inorg. Chem., **2005**, 3423-3434.

128) I. Bratsos, E. Zangrando, B. Serli, N. Katsaros, **E. Alessio***
The unprecedented bridging coordination mode of 1,1-cyclobutane dicarboxylate ($\mu\text{-cbdc-O,O'}$) stabilized by intramolecular hydrogen bonds in ruthenium(II) complexes.
Dalton Trans., **2005**, 3881-3885.

129) E. Iengo,* E. Zangrando, M. Bellini, **E. Alessio**,* A. Prodi, C. Chiorboli, F. Scandola*
Pyridylporphyrin metallacycles with a slipped cofacial geometry: spectroscopic, X-ray and photophysical characterization.
Inorg. Chem., **2005**, *44*, 9752-9762.

130) F. Frausin, V. Scarcia, M. Cocchietto, A. Furlani, B. Serli, **E. Alessio**, G. Sava*
Free exchange across cells, and echistatin-sensitive membrane target for the metastasis inhibitor NAMI-A (imidazolium trans-imidazole dimethyl sulfoxide tetrachlororuthenate) on KB tumor cells.
J. Pharmacol. Exp. Ther. **2005**, *313*, 227-233.

131) F. Scandola,* C. Chiorboli, A. Prodi, E. Iengo, **E. Alessio***
Photophysical Properties of Metal-Mediated Assemblies of Porphyrins.
Coord. Chem. Rev., **2006**, *250*, 1471-1496.

- 132)** E. Iengo, F. Scandola, **E. Alessio***
Metal-mediated multi-porphyrin discrete assemblies and their photoinduced properties.
Struct. Bond., **2006**, *121*, 105-144.
- 133)** A. Prodi, C. Chiorboli, F. Scandola,* E. Iengo, **E. Alessio**
Electronic Energy Transfer in a Multiporphyrin-based Molecular Box
ChemPhysChem, **2006**, *7*, 1514-1519.
- 134)** M. Casanova, E. Zangrando, F. Munini, E. Iengo, **E. Alessio***
fac-[Re(CO)₃(dmsO-O)₃](CF₃SO₃): a new versatile and efficient Re(I) precursor for the preparation of mono and polynuclear compounds containing *fac*-[Re(CO)₃]⁺ fragments.
Dalton Trans., **2006**, 5033-5045.
- 135)** E. Iengo, E. Zangrando, **E. Alessio***
Synthetic Strategies and Structural Aspects of Metal-Mediated Multi-Porphyrin Assemblies
Acc. Chem. Res., **2006**, *39*, 841-851.
- 136)** M. Ghirrotti, C. Chiorboli, M. T. Indelli,* F. Scandola, M. Casanova, E. Iengo, **E. Alessio***
Energy Transfer Pathways in Pyridylporphyrin Re(I) Adducts.
Inorg. Chim. Acta, **2007**, *360*, 1121-1130.
- 137)** I. Bratsos, B. Serli, E. Zangrando, N. Katsaros, **E. Alessio***
Replacement of chlorides with dicarboxylate ligands in anticancer active Ru(II)-dmsO compounds: a new strategy that might lead to improved activity.
Inorg. Chem., **2007**, *46*, 975-992.
- 138)** G. Laurenczy,* S. Jedner, **E. Alessio**, P. J. Dyson
In situ NMR characterisation of an intermediate in the catalytic hydrogenation of CO₂ and HCO₃⁻ in aqueous solution.
Inorg. Chem. Commun., **2007**, *10*, 558-562.
- 139)** T. Gianferrara,* D. Giust, I. Bratsos, **E. Alessio**
Metalloporphyrins as chemical shift reagents: the unambiguous NMR characterization of the *cis*- and *trans*- isomers of *meso* (bis)-4'-pyridyl-(bis)-4'-carboxymethylphenylporphyrins.
Tetrahedron, **2007**, *63*, 5006-5013.
- 140)** I. Bratsos, G. Birarda, S. Jedner, E. Zangrando, **E. Alessio***
Half-sandwich Ru(II)-[9]aneS₃ complexes with dicarboxylate ligands: synthesis, characterization and chemical behavior.
Dalton Trans., **2007**, 4048-4058.
- 141)** I. Bratsos, S. Jedner, T. Gianferrara, **E. Alessio***
Ruthenium anticancer compounds: challenges and expectations
Chimia, **2007**, *61*, 692-697.

- 142)** S. Derossi, M. Casanova, E. Iengo, E. Zangrando,* M. Stener, **E. Alessio***
Self-assembled metallacycles with pyrazine edges: a new example in which the *unexpected* molecular triangle prevails over the *expected* molecular square.
Inorg. Chem., **2007**, *46*, 11243-11253.
- 143)** I. Bratsos,* A. Bergamo, G. Sava, T. Gianferrara, E. Zangrando, **E. Alessio**
Influence of the anionic ligands on the anticancer activity of Ru(II)-dmsO complexes: kinetics of aquation and *in vitro* cytotoxicity of new dicarboxylate compounds in comparison with their chloride precursors.
J. Inorg. Biochem., **2008**, *102*, 606-617.
- 144)** I. Bratsos, S. Jedner, A. Bergamo, G. Sava, T. Gianferrara, E. Zangrando, **E. Alessio***
Half-sandwich Ru^{II}-[9]aneS₃ complexes structurally similar to antitumor-active organometallic piano-stool compounds: preparation, structural characterization and *in vitro* cytotoxic activity.
J. Inorg. Biochem., **2008**, *102*, 1120-1133.
- 145)** M. Casanova, E. Zangrando, **E. Alessio***
Trinuclear metallacycles: metallatriangles and much more.
Chem. Rev., **2008**, *108*, 4979-5013.
- 146)** M. Casanova, E. Zangrando, E. Iengo, **E. Alessio***, M. T. Indelli,* F. Scandola, M. Orlandi
Structural and Photophysical Characterization of Multichromophoric Pyridylporphyrin-Rhenium(I) Conjugates.
Inorg. Chem., **2008**, *47*, 10407-10418.
- 147)** E. Zangrando,* N. Kulisic, F. Ravalico, I. Bratsos, S. Jedner, M. Casanova, **E. Alessio***
New ruthenium(II) precursors with the tetradentate sulfur macrocycles tetrathiacyclododecane ([12]aneS₄) and tetrathiacyclohexadecane ([16]aneS₄) for the construction of metal-mediated supramolecular assemblies.
Inorg. Chim. Acta, **2009**, *362*, 820-832.
- 148)** T. Gianferrara, I. Bratsos, **E. Alessio***
A Categorization of Metal Anticancer Compounds Based on Their Mode of Action.
Dalton Trans., **2009**, 7588-7598. Perspective Article
- 149)** T. Gianferrara,* I. Bratsos, E. Iengo, B. Milani, A. Oštrić, C. Spagnul, E. Zangrando, **E. Alessio***
Synthetic strategies towards ruthenium-porphyrin conjugates for anticancer activity.
Dalton Trans., **2009**, 10742-10756.
- 150)** T. Gianferrara,* A. Bergamo,* I. Bratsos, B. Milani, C. Spagnul, G. Sava, **E. Alessio**
Ruthenium-porphyrin conjugates with cytotoxic and phototoxic antitumor activity.
J. Med. Chem., **2010**, *53*, 4678-4690.

151) I. Bratsos, **E. Alessio***

Ruthenium(II)-chlorido complexes of dimethylsulfoxide

Inorg. Synth., **2010**, *35*, 148-152 (doi: 10.1002/9780470651568.ch8).

152) E. Iengo,* T. Gatti, E. Zangrando, M. T. Indelli, F. Scandola, **E. Alessio***

Concerted motions in supramolecular systems: metal-mediated assemblies of porphyrins that behave like nanometric step-machines.

Chem. Commun. **2011**, *47*, 1616-1618 (DOI: 10.1039/c0cc03513k)

153) E. Alessio editor

Bioinorganic Medicinal Chemistry

2011, Wiley-VCH, Weinheim. ISBN: 978-3-527-32631-0

154) I. Bratsos, T. Gianferrara, **E. Alessio**, C. G. Hartinger, M. A. Jakupec, B. K. Keppler

Ruthenium and Other Non-platinum Anticancer Compounds.

in *Bioinorganic Medicinal Chemistry*, E. Alessio ed., Wiley-VCH, Weinheim, **2011**, pp. 151-174.

155) I. Bratsos,* D. Urankar, E. Zangrando, P. Genova-Kalou, J. Košmrlj, **E. Alessio**, I. Turel*
1-(2-picolyl)-substituted 1,2,3-triazole as novel chelating ligand for the preparation of ruthenium complexes with potential anticancer activity.

Dalton Trans. **2011**, *40*, 5188 – 5199.

156) I. Bratsos,* C. Simonin, E. Zangrando, T. Gianferrara, A. Bergamo, **E. Alessio***

New half sandwich-type Ru(II) coordination compounds characterized by the *fac*-Ru(dmsO-S)₃ fragment: influence of the face-capping group on the chemical behavior and *in vitro* anticancer activity.

Dalton Trans. **2011**, *40*, 9533 – 9543.

157) **E. Alessio**, M. Casanova, E. Zangrando, E. Iengo*

Modular self-assembled multiporphyrin cages with tunable shape.

Chem. Commun. **2012**, *48*, 5012-5015.

158) I. Bratsos,* E. Mitri, F. Ravalico, E. Zangrando, T. Gianferrara, A. Bergamo, **E. Alessio***

New half sandwich Ru(II) coordination compounds for anticancer activity

Dalton Trans. **2012**, *41*, 7358 – 7371.

159) A. Rilak, I. Bratsos,* E. Zangrando, J. Kljun, I. Turel, Ž. D. Bugarčić, **E. Alessio***

Factors that influence the antiproliferative activity of half sandwich Ru^{II}-[9]aneS₃ coordination compounds: activation kinetics and interaction with guanine derivatives.

Dalton Trans. **2012**, *41*, 11608 – 11618.

160) G. Ragazzon, I. Bratsos, **E. Alessio**,* L. Salassa,* A. Habtemariam, R. McQuitty, G. J. Clarkson, P. J. Sadler*

Design of Photoactivatable Metallodrugs: Selective and Rapid Light-induced Ligand Dissociation from Half-Sandwich [Ru([9]aneS₃)(N-N')(py)]²⁺ Complexes.

Inorg. Chim. Acta **2012**, 393, 230-238.

161) C. Spagnul, R. Alberto,* G. Gasser, S. Ferrari, V. Pierroz, A. Bergamo, T. Gianferrara,* E. Alessio

Novel water-soluble $^{99m}\text{Tc(I)/Re(I)}$ -porphyrin conjugates as potential multimodal agents for molecular imaging.

J. Inorg. Biochem. **2013**, 122, 57–65.

162) I. Finazzi, I. Bratsos, T. Gianferrara, A. Bergamo, N. Demitri, G. Balducci, **E. Alessio***

Photolabile Ru^{II} Half-Sandwich Complexes Suitable for Developing “Caged” Compounds: Chemical Investigation and Unexpected Dinuclear Species with Bridging Diamine Ligands.

Eur. J. Inorg. Chem. **2013**, 4743–4753. DOI:10.1002/ejic.201300792

163) J. Kljun, I. Bratsos, **E. Alessio**, G. Psomas, U. Repnik, M. Butinar, B. Turk, I. Turel*

New Uses for Old Drugs: Attempts to Convert Quinolone Antibacterials into Potential Anticancer Agents Containing Ruthenium.

Inorg. Chem. **2013**, 52, 9039–9052. DOI: 10.1021/ic401220x

164) I. Bratsos, S. Calmo, E. Zangrando, G. Balducci, **E. Alessio***

New cationic and neutral Ru(II) - and Os(II) -dmsO carbonyl compounds.

Inorg. Chem. **2013**, 52, 12120–12130. DOI: 10.1021/ic401940z

165) T. Gianferrara, C. Spagnul, R. Alberto,* G. Gasser, S. Ferrari, V. Pierroz, A. Bergamo, **E. Alessio***

Towards matched pairs of porphyrin- $\text{Re(I)/}^{99m}\text{Tc(I)}$ conjugates that combine photodynamic activity with fluorescence- and radio-imaging.

ChemMedChem **2014**, 9, 1231–1237. DOI: 10.1002/cmdc.201300501.

166) A. Rilak, I. Bratsos,* E. Zangrando, J. Kljun, I. Turel, Z. D. Bugarčić, **E. Alessio***

New Water-Soluble Ruthenium(II) Terpyridine Complexes for Anticancer Activity: Synthesis, Characterization, Activation Kinetics, and Interaction with Guanine Derivatives.

Inorg. Chem. **2014**, 53, 6113–6126. DOI 10.1021/ic5005215.

167) S. Pillozzi, L. Gasparoli, M. Stefanini, M. D’Amico, M. Ristori, **E. Alessio**, F. Scaletti, A. Becchetti, A. Arcangeli*, L. Messori*

NAMI-A is Highly Cytotoxic Toward Leukaemia Cell Lines: Evidence of Inhibition of KCa3.1 Channels.

Dalton Trans. **2014**, 43, 12150-12155. DOI: 10.1039/C4DT01356E.

168) E. Iengo, N. Demitri, G. Balducci and **E. Alessio***

An irresolute linker: separation, and structural and spectroscopic characterization of the two linkage isomers of a Ru(II) -(2-(2'-pyridyl)pyrimidine-4-carboxylic acid) complex.

Dalton Trans. **2014**, 43, 12160-12163. DOI: 10.1039/C4DT01282H.

- 169)** S. Leijen, S. A. Burgers, P. Baas, D. Pluim, M. Tibben, E. van Werkhoven, **E. Alessio**, G. Sava, J. H. Beijnen, J. H. M. Schellens*
Phase I/II study with ruthenium compound NAMI-A and gemcitabine in patients with non-small cell lung cancer after first line therapy.
Invest. New Drugs **2015**, *33*, 201-214. DOI: 10.1007/s10637-014-0179-1.
- 170)** F. Battistin, G. Balducci, N. Demitri, E. Iengo, B. Milani,* **E. Alessio***
¹⁵N NMR spectroscopy unambiguously establishes the coordination mode of the diimine linker 2-(2'-pyridyl)pyrimidine-4-carboxylic acid (cppH) in Ru(II) complexes.
Dalton Trans. **2015**, *44*, 15671-15682. DOI: 10.1039/c5dt02361k.
- 171)** G. Balducci, E. Iengo, N. Demitri, **E. Alessio***
New Insight into a Deceptively Simple Reaction: The Coordination of bpy to Ru^{II}-Carbonyl Precursors – The Central Role of the *fac*-[Ru(bpy)Cl(CO)₃]⁺ Intermediate and the *Chloride Rebound* Mechanism.
Eur. J. Inorg. Chem. **2015**, 4296-4311. DOI: 10.1002/ejic.201500568.
- 172)** G. Mion, T. Gianferrara,* A. Bergamo, G. Gasser,*V. Pierroz, R. Rubbiani, R. Vilar,* A. Leczkowska, **E. Alessio**
Phototoxic activity and DNA interactions of New Water Soluble Porphyrins and their Re(I) Conjugates.
ChemMedChem **2015**, *10*, 1901-1914. DOI: 10.1002/cmdc.201500288.
- 173)** F. Battistin, F. Scaletti, G. Balducci, S. Pillozzi, A. Arcangeli, L. Messori,* **E. Alessio***
Water-soluble Ru(II)- and Ru(III)-halide-PTA complexes (PTA = 1,3,5-triaza-7-phosphaadamantane): chemical and biological properties.
J. Inorg. Biochem. **2016**, *160*, 180-188, 10.1016/j.jinorgbio.2016.02.009.
- 174)** F. Battistin, G. Balducci, E. Iengo, N. Demitri, **E. Alessio***
Neutral Ru(II)-PTA and Ru(II)-PTA-dmsO complexes (PTA = 1,3,5-triaza-7-phosphaadamantane) as precursors for the preparation of highly water-soluble derivatives.
Eur. J. Inorg. Chem. **2016**, 2850-2860, DOI: 10.1002/ejic.201600084.
- 175)** V. Rosar, D. Dedeic, T. Nobile, F. Fini, G. Balducci, **E. Alessio**, C. Carfagna, B. Milani*
Palladium complexes with simple iminopyridines as catalysts for polyketone synthesis.
Dalton Trans. **2016**, *45*, 14609-14619.
- 176)** **E. Alessio**
30 years of the drug candidate NAMI-A and the myths in the field of ruthenium anticancer compounds: a personal perspective.
Eur. J. Inorg. Chem. Accepted for publication as a review article in the thematic issue on "Metal Anticancer Complexes – Activity, Mechanism of Action, Future Perspectives", Guest Editors Zijian Guo and Enzo Alessio (DOI: 10.1002/ejic.201600986).

PATENTS

- 1) G. Mestroni, G. Zassinovich, **E. Alessio**
Processo per la riduzione catalitica di composti nitroaromatici.
Italian Patent F 3103 (N. 21953 A/82).
- 2) G. Mestroni, G. Zassinovich, **E. Alessio**
Process for catalytically reducing nitroaromatic compounds.
United States Patent 4.535.162; deposited Aug 13, 1985
- 3) **E. Alessio**, G. Mestroni
Process for the catalytic synthesis of aromatic urethanes from nitroaromatic compounds.
Italian Patent F 3297 (N. 21401 A/84), Montedison S.p.A. Extended worldwide.
- 4) G. Mestroni, **E. Alessio**, F. Quadrifoglio, S. Cauci, G. Sava and S. Zorzet
Complessi trans di rutenio come agenti antineoplastici
Italian Patent N. 20180 A/87 (1987).
- 5) **E. Alessio**, G. Mestroni, S. Pacor, G. Sava, S. Spinelli
Ruthenium(III) complexes as antineoplastic agents.
Italian Patent 20385 A/89 (1989).
International Patent WO90/13553.
- 6) G. Mestroni, **E. Alessio**, G. Sava
New salts of anionic complexes of Ru(III) as antimetastatic and antineoplastic agents.
Italian Patent MI96A001359 (1996).
International Patent WO 98/00431.
- 7) G. Mestroni, **E. Alessio**, G. Sava, E. Iengo, S. Zorzet, A. Bergamo
Ruthenium complexes with high antitumoral and antimetastatic activities.
Italian Patent MI99A002256 (1999)
European Patent EP00/10566 (2000)
- 8) G. Mestroni, **E. Alessio**, G. Sava, E. Iengo, S. Zorzet, A. Bergamo
Ruthenium dimeric compounds suitable as antimetastatic and antineoplastic agents
Italian Patent, MI99A000811 (1999)
European Patent EP00/03484 (2000)
- 9) **E. Alessio**, G. Mestroni, G. Sava, A. Bergamo
New anionic and neutral complexes of Ru(III) with nitrogen oxide.
Italian Patent TS2001A000005 (2001)
European Patent EP02/03256 (2002)
- 10) **E. Alessio**, E. Zangrando, B. Serli, J. Bratsos, G. Sava, A. Bergamo
Complessi dicarbossilati del rutenio(II) e loro impiego come antitumorali.
Italian Patent MI2005A001817 (2005).

Lectures at Meetings and Symposia

1. Catalytic reductive carbonylation of nitroaromatic compounds to aromatic urethanes using Palladium + 1,10-Phenanthroline derivatives as catalyst precursors.
XVII Congresso Nazionale di Chimica Inorganica - Cefalù, 15 - 19 October 1984.
Oral communication
2. Ruthenium complexes as potential antitumor drugs
Congresso Interdivisionale della Società Chimica Italiana, Perugia, 7-11 October 1989.
Oral communication
3. Molecular weathervanes: restricted rotation about metal-ligand σ nitrogen bonds in substituted derivatives of *cis*-RuCl₂(dmsO)₄.
IV Convegno Nazionale "Interazione di Metalli e Composti con Biomolecole", S. Agnello (Na) 13-15 April 1993.
Oral communication
4. Restricted rotation phenomena about metal-ligand σ bonds in octahedral coordination compounds: an NMR and structural approach.
XXII Congresso Nazionale di Chimica Inorganica, Villasimius (Ca) September 26 – October 1 1993.
Oral communication
5. The development of antitumor active ruthenium-sulfoxide complexes.
CERC3 Young Chemists Workshop 1994 "Coordination Chemistry in the Context of Biological and Environmental Studies", Toulouse (France), July 4-7 1994.
Invited oral contribution
6. Selective S to O linkage isomerization in dimethylsulfoxide complexes of ruthenium induced by coordination of CO.
XXIII Congresso Nazionale di Chimica Inorganica, Bressanone (Bz), October 2-7 1994.
Oral communication
7. The development of antitumor active ruthenium-sulfoxide complexes.
Third Greek, Italian, Portuguese, Spanish Meeting in Inorganic Chemistry, Senigallia (Italy), June 9-14 1995.
Invited oral contribution
8. Ruthenium compounds and pyridyl-porphyrins as building blocks for self-assembling supramolecular arrays.
VII Convegno Nazionale "Interazione di Metalli e Composti con Biomolecole", S. Agnello (Na), April 12-14 1996.
Oral communication
9. The development of antitumor active ruthenium-sulfoxide complexes.

NATO Advanced Study Institute "Cytotoxic, Mutagenic and Carcinogenic Potential of Heavy Metals Related to Human Environment," Przesieka (Poland), June 15-26 1996.

Invited lecture

10. From simple coordination compounds to "advanced" coordination chemistry.
XXIV Congresso di Chimica Inorganica, Mondello (Pa), June 25-29 1996.
"Nasini Award" plenary lecture
11. Ruthenium compounds and pyridyl-porphyrins as building blocks for self-assembling supramolecular arrays.
Sixth International Conference on The Chemistry of the Platinum Group Metals, York (UK), July 21-26 1996.
Oral communication
12. Ruthenium compounds and pyridyl-porphyrins as building blocks for self-assembling supramolecular arrays.
31 International Conference on Coordination Chemistry (ICCC31), Vancouver (Canada), August 18-23 1996.
Oral communication
13. Strategies toward the construction of supramolecular systems by self-assembly of building blocks: a set of coordination compounds with mono-coordinated bridging ligands.
XXV Congresso Nazionale di Chimica Inorganica, Alessandria, September 1-4 1997.
Oral communication
14. The development of ruthenium antitumor drugs.
Final COST D1 Meeting "Coordination Chemistry in the Context of Biological and Environmental Studies", Bergen (Norway), September 11-13 1997.
Plenary lecture
15. The role of coordination chemistry in the design and synthesis of supramolecular arrays of porphyrins
VII ESF Conference "Design of Functional Systems - Inorganic Environmental and Medicinal Challenges", San Feliu de Guixols (Spain), September 4 - 9 1998.
Invited lecture
16. Ruthenium compounds with antimetastatic properties.
5th International Symposium on Applied Bioinorganic Chemistry, Corfù (Greece), April 13-17 1999.
Invited session lecture
17. Novel supramolecular arrays of pyridylporphyrins and ruthenium coordination compounds.
7th International Conference on The Chemistry of the Platinum Group Metals, Nottingham (UK), July 25-30 1999.
Oral communication

18. Metal-mediated supramolecular assemblies of porphyrins
Meeting of COST Working Group D11/0004/98, Bristol (UK), May 25-28 2000,.
Oral presentation
19. Recent developments in ruthenium-dimethylsulfoxide chemistry pertaining to antitumor agents.
International Conference on DNA conformation, modification and recognition in biomedicine, Brno (Czech Republic), July 2-5 2000.
Invited lecture
20. The development of ruthenium antitumor drugs.
Final Meeting of COST D8 "The chemistry of metals in medicine", Dublin (Ireland), March 29-31 2001.
Plenary lecture
21. Ruthenium anticancer drugs
6th FIGIPS Meeting in Inorganic Chemistry, Barcellona (Spain), July 15-20, 2001.
Invited session lecture
22. Ruthenium anticancer drugs
10th International Conference on Bioinorganic Chemistry (ICBIC X), Florence (Italy), August 26-31 2001.
Invited session lecture
23. From molecular squares of porphyrins to supramolecular assemblies of higher order.
5° Congresso Nazionale di Chimica Supramolecolare, Frascati (Roma), September 30 - October 3 2001.
Plenary lecture
24. Ruthenium anticancer drugs
1st Workshop on Pharmaco-bio-metallics, Certosa di Pontignano (Siena), November 23-25 2001.
Oral communication
25. Metallacycles of porphyrins as building blocks in the construction of higher order assemblies through axial coordination of bridging ligands: solid state characterization of molecular sandwiches and molecular wires.”
ELETTRA IX Users' Meeting, Trieste, December 3-4, 2001.
Invited lecture.
26. Novel Ruthenium-Dimethyl sulfoxide Nitrosyls as Possible NO-Releasing Agents
35th International Conference on Coordination Chemistry (ICCC35), Heidelberg (Germany), July 21-26, 2002.
Invited session lecture

27. Metal-mediated supramolecular assemblies of porphyrins
Third International Conference on Porphyrins and Phthalocyanines, New Orleans (USA), July 11-16 2004.
Invited symposium lecture
28. Anticancer ruthenium complexes
7th European Biological Inorganic Chemistry Conference (EUROBIC7), Garmish-Partenkirchen (Germany), August 29 - September 2 2004.
Invited session lecture
29. Metal-mediated nanoscopic assemblies of chromophores for molecular electronics, light energy conversion, and molecular recognition.
Kick-off Meeting of COST Action D31 "Organizing non-covalent chemical systems with selected functions", Prague (Czech Republic), November 4-6 2004.
Oral presentation
30. Metal-mediated supramolecular assemblies of porphyrins.
1st Working Group Meeting of COST Action D31/003/04, Grado (Italy), May 20-22, 2005.
Oral presentation
31. Ruthenium and other non-platinum anticancer drugs
1st European Conference on Chemistry for Life Sciences, Rimini (Italy), October 4-8, 2005.
Invited lecture
32. Design of novel, innovative metal anticancer drugs
Final Meeting of COST Action D20, Brno (Czech Republic), July 15-18, 2006
Session lecture
33. The development of ruthenium anticancer compounds
38th Convention of the South African Chemical Institute, Durban (South Africa), December 3-8, 2006.
Plenary lecture
34. Metal-mediated nanoscopic assemblies of chromophores for molecular electronics, light energy conversion, and molecular recognition.
COST D31 Mid-term Meeting, Athens, March 28-30, 2007.
Session lecture
35. Ruthenium-dmsO anticancer complexes
Metal Containing Anticancer Agents, Jerusalem, April 14-17, 2007.
Invited lecture

36. Synthetic strategies and structural aspects of metal-mediated multi-porphyrin assembliesII
International Symposium on Macrocyclic and Supramolecular Chemistry, Salice Terme (Italy),
June 24-28, 2007.
Invited lecture
37. Recent advances in anticancer ruthenium compounds.
13th International Conference on Biological Inorganic Chemistry (ICBIC XIII), Vienna
(Austria), July 15-20, 2007
Session lecture
38. Ruthenium anticancer compounds: challenges and expectations.
9th European Biological Inorganic Chemistry Conference (EUROBI9), Wroclaw (Poland),
September 2-6, 2008.
Keynote lecture
39. Sorting out metal anticancer compounds with a focus on ruthenium.
COST Action D39, Meeting of Working Group 006, Leiden (The Netherlands), November 25-
26, 2008.
Invited lecture
40. Chemical strategies for metal anticancer drugs
COST D39 Working Group meeting, Trieste, May 22-23, 2009.
Invited lecture
41. Metal-mediated nanoscopic assemblies of chromophores for molecular electronics, light
energy conversion, and molecular recognition.
COST D31 Final Action Meeting, Warsaw (Poland), May 28-29, 2009.
Oral report presentation
42. A categorization of metal anticancer compounds based on their mode of action.
COST D39 Action Meeting, Debrecen (Hungary), September 24-25, 2009.
Keynote lecture
43. Ruthenium-porphyrin conjugates for anticancer activity.
10th European Biological Inorganic Chemistry Conference (Eurobic10), Thessaloniki
(Greece), June 22 – 26, 2010.
Keynote lecture
44. Ruthenium anticancer drugs
49th Meeting of the Serbian Chemical Society, Kragujevac (Serbia), May 13-14, 2011.
Plenary lecture
45. Pyridyl- and bpy-substituted Porphyrins as Ligands in Supramolecular and Medicinal
Chemistry
5th EuCheMS Conference on Nitrogen Ligands, Granada (Spain), September 4-8, 2011.

Plenary lecture

46. What did we learn from 30 years of 'promising' ruthenium anticancer compounds?
Gordon Research Conference on Metals in Medicine, Andover (New Hampshire, USA), June 24-29, 2012.
Invited lecture
47. $^{99m}\text{Tc(I)/Re(I)}$ -porphyrin conjugates for multimodal molecular imaging
First Whole Action Meeting of COST CM1105, Granada (Spain), September 17 – 18, 2012.
Oral presentation
48. Porphyrin-metal conjugates for solar energy conversion, ion transport and medicinal chemistry.
Italian Meeting on Porphyrins and Phthalocyanines-1, Rome, 1-3 July 2013.
Oral presentation
49. New water-soluble Re(I)-porphyrin conjugates for PDT and nuclear medicine applications.
1st Symposium on functional metal complexes that bind to biomolecules, Barcelona (Spain), September 9-10, 2013.
Oral presentation
50. Inorganic Chemistry in a Biological Context
NIOK/HRSMC AMOCC Summer School 2014, Deurne (NL), July 2014.
Series of 4 invited lectures for Ph D students
51. Development of new water-soluble metal complexes as precursors for the preparation of metal-porphyrin conjugates for medicinal chemistry, supramolecular chemistry and photocatalysis
International Symposium on Metal Complexes (ISMEC 2015), Wroclaw (PL), 24-28 June 2015.
Plenary lecture
52. Ruthenium anticancer compounds: history, clinical developments and future perspectives
International Symposium on Medicinal Bioinorganic Chemistry, Guilin (China), July 18, 2015.
Plenary lecture
53. NAMI-A: end of the story?
17th International Conference on Bioinorganic Chemistry, ICBIC17, Beijing (China), 20-24 July 2015.
Invited lecture
54. The battle against cancer with metal compounds
10th International School of Organometallic Chemistry, Camerino (Italy), 5-9 September 2015.
Invited lecture

55. Metal compounds in the battle against cancer and other diseases
Symposium “New Trends in Inorganic Chemistry” for the 100th Anniversary of the Chemistry School at the Universidad Nacional Autónoma de México, Mexico City (México), 3-4 March 2016.
Plenary lecture

Conferences and Seminars at Universities

1. Complessi di rutenio e piridilporfirine quali building blocks per la costruzione di sistemi supramolecolari auto-assemblanti.
Dipartimento di Scienze Chimiche, Università di Ferrara (Italy), December 18, 1996.
2. Composti di coordinazione quali building blocks per la costruzione di sistemi supramolecolari ordinati.
Dipartimento di Scienze Chimiche, Università di Camerino (Italy), May 15, 1997.
3. Composti antitumorali inorganici: il caso del rutenio.
Dipartimento di Chimica, Università di Firenze (Italy), June 13, 1997.
4. Composti supramolecolari contenenti porfirine e composti di coordinazione
Istituto di Fotochimica e Radiazioni d'Alta Energia (FRAE), CNR di Bologna (Italy), March 22, 2000.
5. The development of ruthenium-dimethylsulfoxide anticancer complexes
Institute of Inorganic Chemistry, University of Vienna (Austria), October 21, 2002.
6. Beyond NAMI-A: the search for new potential anticancer ruthenium-dimethylsulfoxide complexes.
Department of Chemistry, University of Leiden (The Netherlands), Sept 29, 2003.
7. Costruzione di sistemi supramolecolari di porfirine mediata da centri metallici.
Istituto di Fotochimica e Radiazioni d'Alta Energia (FRAE), CNR di Bologna (Italy), May 20, 2004.
8. Il ruolo della chimica inorganica nello sviluppo di farmaci antitumorali: il caso dei composti del rutenio.
Dipartimento di Chimica, Università di Firenze (Italy), June 23, 2004.
9. Costruzione di sistemi supramolecolari di porfirine mediata da centri metallici
Dipartimento di Chimica, Università di Parma (Italy), June 24, 2004.
10. Anticancer ruthenium complexes Scuola Internazionale Superiore di Studi Avanzati (SISSA), Trieste (Italy), July 27, 2004.
11. Metal-mediated supramolecular assemblies of porphyrins for photophysical applications
University of Lousanne (CH), May 29, 2006.
12. Metal-mediated supramolecular assemblies of porphyrins for photophysical applications
Institut Català de Investigacion Química (ICIQ), Tarragona (Spain), October 6, 2006.
13. Metal-mediated assemblies of porphyrins for photophysical applications

University of Leiden (The Netherlands), September 25, 2007.

14. Metal-mediated assemblies of chromophores for photophysical applications
Université Louis Pasteur, Strasbourg (France), October 12, 2007.
15. Metal-mediated assemblies of porphyrins for photophysical applications
University of Zurich (CH), April 11, 2008.
16. Ruthenium anticancer compounds
Université Louis Pasteur, Strasbourg (France), May 29, 2008.
17. Metal-mediated assemblies of porphyrins for photophysical applications
Université Louis Pasteur, Strasbourg (France), June 5, 2008.
18. Metal-mediated assemblies of porphyrins for photophysical applications.
University of Twente, Enschede (The Netherlands), November 24, 2008.
19. A categorization of metal anticancer compounds based on their mode of action.
Dipartimento di Chimica, Università di Firenze (Italy), June 12, 2009.
20. Platinum and ruthenium anticancer drugs
University of Ljubljana (Slovenja), April 21, 2010.
21. Beyond NAMI-A: recent developments in ruthenium anticancer compounds
University of Marburg (Germany), May 23, 2011.
22. Metal-mediated assemblies of porphyrins for photophysical applications
Technical University of Dortmund (Germany), May 24, 2011.
23. Metal-mediated assemblies of porphyrins for photophysical applications
University of Göttingen (Germany), May 25, 2011.
24. Beyond NAMI-A: recent developments in ruthenium anticancer compounds
University of Münster (Germany), May 26, 2011.
25. Beyond NAMI-A: recent developments in ruthenium anticancer compounds
University of Bochum (Germany), May 27, 2011.
26. What I learned from 25 years of 'promising' ruthenium anticancer compounds
University College Dublin (Ireland), November 2, 2012.
27. Ruthenium anticancer compounds: history, clinical developments and future perspectives.
Institute of Chinese Medical Sciences, University of Macau, Taipa, Macau (China), July 14
2015.

28. Ruthenium anticancer compounds: history, clinical developments and future perspectives. Hong Kong Baptist University, Kowloon Tong, Hong Kong (China), July 15 2015.
29. The search for well-behaved ruthenium and rhenium precursors. University of Zurich, Zurich (Switzerland), January 28, 2016.
30. Ruthenium anticancer compounds: history, clinical developments and future perspectives. Royal College of Surgeons, Dublin (Ireland), February 5, 2016.
31. Ruthenium anticancer compounds: history, clinical developments and future perspectives. Universidad Nacional Autónoma de México, Facultad de Química, Mexico City (México), March 1, 2016.
32. Ruthenium anticancer compounds: history, clinical developments and future perspectives. ETH, Zurich (Switzerland), March 15, 2016.