Prof. Enzo Alessio
Curriculum Vitae
Updated April 2014

Enzo Alessio was born in 1958.

EDUCATION AND PROFESSIONAL CAREER

1982	Master Degree (*cum laude*) in Chemistry (University of Trieste, Italy)
1983-1984	Research fellow at the Department of Chemistry, University of Trieste
1985	Research Associate at the *Istituto Guido Donegani* of Novara, research center of the chemical company Montedison SpA
1989	Ph. D. in Chemistry (University of Ferrara, Italy)
1990-2000	Assistant Professor of Inorganic Chemistry (Faculty of Sciences, University of Trieste)
1991-1992	Postdoctoral researcher (recipient of a NATO-CNR Fellowship) at Emory University, Atlanta (USA), supervisor Prof. Luigi G. Marzilli
2000-present	Associate Professor of Inorganic Chemistry (Faculty of Sciences, University of Trieste).
2005-2009	Director of the Ph D Course in Molecular Sciences of the University of Trieste.
2006-2012	Director of the Ph D School in Chemical and Pharmaceutical Sciences and Technologies of the University of Trieste.
2008 (1 month)	Visiting Professor, Universitè Louis Pasteur, Strasburg (France)
2008-present	Responsible for the NMR facility of the Department
2011-2012	Vice-director of the Department of Chemical and Pharmaceutical Sciences (established Dec 2010).
2013 (Dec.)	National scientific qualification (*Abilitazione Scientifica Nazionale*) to function as Full Professor in the area 03/B1 (*Fondamenti delle Scienze Chimiche e Sistemi Inorganici*) and 03/B2 (*Fondamenti Chimici delle Tecnologie*).

AWARDS

1985	*Stampacchia Award* for the first publication in the field of Chemistry.
1996	*Nasini Award* from the Italian Chemical Society for young researchers (age < 40) in Inorganic Chemistry.

INTERNATIONAL COLLABORATION

1995-2001	Coordinator of the Working Group (WG) COST 'The development of ruthenium antitumor compounds' (COST Chemistry Action D1 1995–97 and COST Action D8 1997–2001).
2000-2006	Coordinator of WG 'Design of novel, innovative metal anticancer drugs' (COST Chemistry Action D20 'Metal compounds in the treatment of cancer and viral diseases').
2000-2003	**Vice-Chairman** of COST Chemistry Action D20.

2003-2006 **Chairman** of COST Chemistry Action D20.

2004-2009 Coordinator of WG 'Metal-mediated nanoscopic assemblies of chromophores for molecular electronics, light energy conversion, and molecular recognition' (COST Chemistry Action D31 'Organising Chemical Systems with Selected Functions').

2005-2010 Italian representative in the Management Committee and coordinator of WG 'Ruthenium anticancer compounds' (COST Chemistry Action D39 'Metallo-Drug Design and Action').

2012-present Italian representative in the Management Committee and participant to WG 'Metal bioconjugates for targeting and delivery' (COST Chemistry Action CM1105 'Functional metal complexes that bind to biomolecules').

EDITORIAL ACTIVITY

2005-2012 Member of the International Advisory Board of the *European Journal of Inorganic Chemistry*

2012-present Member of the Editorial Board of the *Journal of Inorganic Biochemistry*

2012-present Member of the Editorial Board of the *European Journal of Inorganic Chemistry*

2014-present Member of the Editorial Board of *Inorganica Chimica Acta*

REFEREEING AND EVALUATION ACTIVITY

I regularly act as reviewer for several Chemistry ISI Journals (an average of 60-70 manuscripts per year). I was/am in the evaluation panel of national and international research proposals for public and private institutions. Public: PRIN and FIRB Projects and VQR for the Italian Ministry of University, ANR (France), CNRS (France), ERA-Chemistry (EU), EU-REA (FP7-PEOPLE-2013-ITN), FCT (Portugal), NWO (The Netherlands), National Science Foundation (USA). Private: FRC foundation (France), Genesis Oncology Trust (New Zealand), Italian-French University, ICREA (Spain). I was in the evaluation panel of several PhD students in chemistry in France (Strasbourg University), Switzerland (University of Lausanne), The Netherlands (Leiden University) and Ireland (Dublin University and Royal College of Surgeons). I was asked to evaluate the career achievements (for promotion) of researchers from Warwick University (UK), Dublin University and Royal College of Surgeons (Ireland), University of Strasburg (France).

TEACHING AND SUPERVISION ACTIVITIES

Since 1992 I have been teaching different courses of Inorganic Chemistry – including organometallic, bioinorganic, and supramolecolar chemistry – to undergraduate, master and Ph D students in Chemistry. I have been the supervisor of more than 35 master students and of 3 Ph D students in Chemistry. Many of my master students have afterwards got a Ph D in chemistry, either in Italy or abroad, with excellent results.

Over the years I hosted in my group several foreign Ph D students and postdoctoral fellows in the context of COST and other international collaborations.

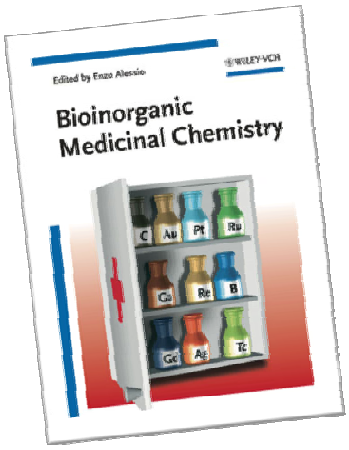
PUBLICATIONS

I am (co)author of 168 publications on peer reviewed international Journals, including reviews and book chapters, in the fields of coordination chemistry, supramolecular chemistry, and anticancer metal compounds and of 10 patents (national and international).

- ***h* index = 47** (ISI – Web of Science, as of Oct. 2014)
- total number of citations: 6325
- average number of citations per item: 40.54

BOOKS EDITED

- 'Non-Covalent Multi-Porphyrin Assemblies', E. Alessio ed., Vol 121 in the series *Structure and Bonding*, series editor D.M.P. Mingos, Springer-Verlag, Berlin, Germany, **2006** (ISBN-10 3-540-32542-5).
- *Bioinorganic Medicinal Chemistry*, E. Alessio ed., Wiley-VCH, Weinheim, Germany, **2011** (ISBN 978-3-527-32631-0).



CONFERENCES, SEMINARS AND SYMPOSIA

More than 70 lectures/seminars (40 in the last 10 years) given at Universities, national and international Symposia (session-, keynote-, invited- and plenary-lectures), including an invited lecture tour in Germany (2011) at the Universities of Dortmund, Marburg, Bochum, Goettingen and Münster. In 2012 I was invited to organize a session on metal anticancer compounds within the Gordon Research Conference 'Metals in Medicine'.

MAIN RESEARCH LINES

My main research interests are in the field of coordination chemistry and concern supramolecular inorganic chemistry (in particular the preparation of multi-porphyrin assemblies for artificial photosynthesis), and the development of metal compounds and of porphyrin-metal conjugates for imaging and therapy (mainly anticancer).

FUNDING ID (MAIN GRANTS RECEIVED IN THE LAST 10 YEARS)

In the past 10 years I have successfully applied for several grants related to my main research topics; the grants were used also for paying in full PhD and post doc positions.

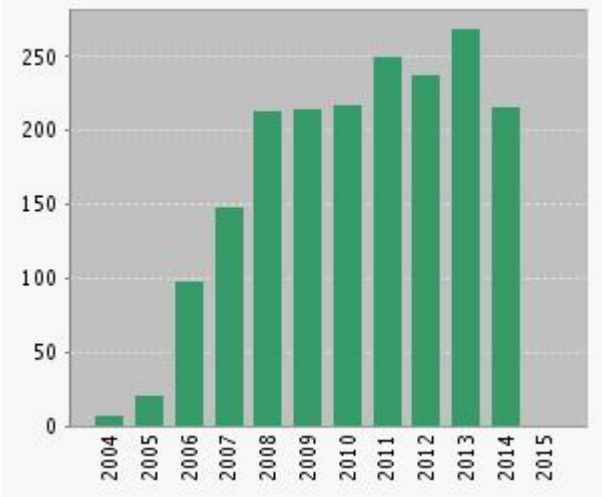
Funding Agency	**Duration**	**Amount**	**Broad topic**
American Chemical Society – Petroleum Research Fund	2002-2004	80.000 $	Supramolecular porphyrin assemblies
Italian Ministry for Univ. and Res.	2003-2005	51.300 €	Artificial photosynthesis
CRTrieste Foundation	2006-2009	250.000 €	Clinical investigation of NAMI-A (phase 2)
Commissariato del Governo – Fondo Trieste	2006-2012	551.500 €	Clinical investigation of NAMI-A (phase 2)
Beneficentia – Stiftung Foundation	2007-	100.000 €	Anticancer metal compounds
Italian Ministry for Univ. and Res.	2006-2008	65.500 €	Artificial photosynthesis
Beneficentia – Stiftung Foundation	2010-	70.000 €	Artificial photosynthesis
Italian Ministry for Univ. and Res.	2009-2012	43.500 €	Artificial photosynthesis

10-YEAR TRACK-RECORD

In the last 10 years (2004 – 2013) (taken from ISI Web of Science on October 2014)**:**

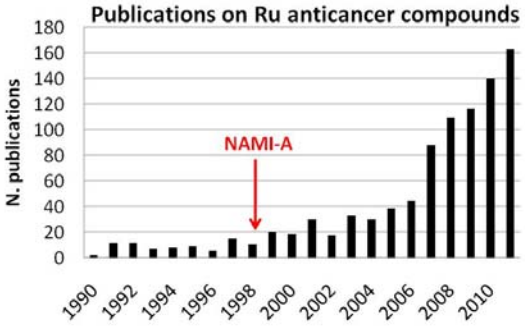
- publications: 49
- total number of citations: 1897
- average number of citations per item: 38.71
- *h* index in the last 10 years = 23

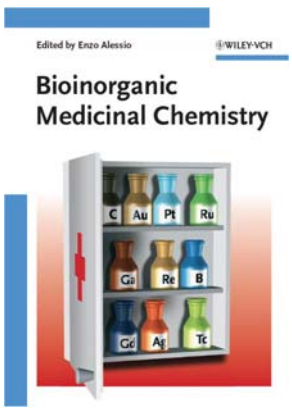
The graph shows the number of citations per year in the last 10 years.



ACCOMPLISHMENTS

The most well known accomplishment in my career was the development of **NAMI-A**, an antimetastatic Ru(III) coordination complex that is well known in the community of bioinorganic chemists (it even made its way to textbooks of Inorganic Chemistry, such as the 5th edition of the Shriver & Atkins). The pioneering role of my group – together with very few others – in the field of **ruthenium anticancer drugs** is well illustrated by this graph that reports the number of publications on this topic from 1990 to 2011. When I started back in the late '80s there were basically two or three groups in the world working on this topic. At that time the focus was almost exclusively on Pt anticancer compounds. In 1999 the compound developed in my group, NAMI-A, was the first Ru complex ever to be tested on humans. Since then, the number of publications on Ru anticancer complexes has been growing almost exponentially. In 2012 NAMI-A has accomplished a phase 2 study in clinical combination with gemcitabine on 32 patients bearing non-small cell lung carcinoma. Evaluation of the results is in progress.





My role is well recognized in the scientific community of bioinorganic chemists working in the field of medicinal inorganic chemistry. I have actively participated to all COST Actions in this field (since 1997, in COST Chemistry Action D1) and I served as vice-Chairman (2000-2003) and then Chairman (2003-2006) of COST Chemistry Action D20 'Metal compounds in the treatment of cancer and viral diseases'. In 2010 I was asked by Wiley to be the editor of a book entitled Bioinorganic Medicinal Chemistry (see figure) published in 2011, that puts together contributions of the most distinguished chemists in this field.

In the last decade my group has started a new research line in the field of supramolecular chemistry, aimed at the construction of metal-mediated assemblies of **porphyrins** that mimic the natural photosynthetic systems (artificial photosynthesis).

We also started exploring the new research subject of **porphyrin-metal**

conjugates for therapy and imaging. My group has already developed (and published) several novel water-soluble ruthenium-porphyrin conjugates that – upon irradiation with red light – showed **additive antitumor effect** *in vitro*: a combination of porphyrin phototoxicity and cytotoxicity of the metal fragment.