Giovanni Battista Giovenzana

Personal Data

Born in Besana in Brianza (MB, Italy) in 1971

Resident in Novara

Bio and education

1990 – High school diploma – Technical Institute (Industrial chemistry)
1995 - Laurea Degree in Chemistry - Università degli Studi di Milano.
1998 – PhD in Chemical Sciences - Università degli Studi di Milano.
1998 – Federchimica research fellowship - Università degli Studi di Milano
2001 – Research period at UTD, University of Texas at Dallas, TX, USA.

University career

2004-	Associate Professor (SSD Chim-06, Organic Chemistry) Università del Piemonte Orientale
1999-2004	Researcher (SSD Chim-06, Organic Chemistry) Università del Piemonte Orientale

University positions

2013-	President of the Board-Pharmacy Course, Dipartimento di Scienze del Farmaco, Università del Piemonte Orientale

Main fields of interest

1. Chelating agents and coordination of metal ions
2. Molecular Imaging Probes
3. Green Chemistry applied to industrial processes
4. Chemistry of nitrogen-containing compounds.
5. Supramolecular Chemistry

CURRENT ISSUES OF RESEARCH

1. Chelating agents and coordination of metal ions

Several metal ions find application in medicine as diagnostic or therapeutic agents, usually in the form of stable chelates. Other metal ions are naturally present in living organisms, playing different physiological roles. The study of the coordination chemistry of metal ions and their interaction with different biological or synthetic compounds helps to design, prepare and characterise selective chelating agents able to form stable complexes with important metal ions.

2. Molecular Imaging Probes

Molecular Imaging is defined as the visualization, characterization, and measurement of biological processes at the molecular and cellular levels in living systems, using diagnostic techniques such as MRI, PET, SPECT, US and Optical imaging. Specific probes (metal chelates, luminescent compounds, active nanoparticles) are designed and tested in order to obtain highly informative images, depending on the technique and the particular parameter to be quantified.

3. Green Chemistry applied to industrial processes

Green Chemistry and its principles are used as guidelines to revise industrial processes. Alternative synthetic strategies and methodologies, substitution of hazardous reagents and solvents, process development are undertaken in order to obtain sustainable production of APIs and other industrial products.

4. Chemistry of nitrogen-containing compounds

Approximately 60% of metabolites and 85% of drugs contain one or more nitrogen atoms per molecule. A detailed study of the chemistry of nitrogen-containing functional groups and heterocycles allows to design and synthesise original small-molecules, endowed with bioactivity of with specifically designed properties.

5. Supramolecular chemistry

The non-covalent interaction of chemical species is studied and employed in the design and the (self-)assembly of supramolecular systems with specific solution or solid-state properties.

TOP FIVE PAPERS

1. Aime, S.; Calabi, L.; Cavallotti, C.; Gianolio, E.; Giovenzana, G.B.; Losi, P.; Maiocchi, A.; Palmisano, G.; Sisti, M.: "*Gd-AAZTA, a Novel Structural Entry for an Improved Generation of MRI Contrast Agents*", *Inorg. Chem.*, **2004**, *43*, 7588-7590.
2. Giovenzana, G.B.; Tron, G.C.; Di Paola, S.; Menegotto, I.G., Pirali, T.: "*Split the Primary Amine in Two: Secondary Amine May Play the Role of the Primary Amine in the Ugi 4CR*", *Angew. Chemie Int. Ed. Engl.*, **2006**, *45(7)*, 1099-1102.

3. Aime, S.; Geninatti Crich, S.; Gianolio, E.; Giovenzana, G.B.; Tei, L.; Terreno, E.: "*High Sensitivity Lantanide(III) Based Probes for MR-Medical Imaging*", *Coord. Chem. Rev.*, **2006**, *250(11+12)*, 1562-1579.
4. Lattuada, L.; Barge, A.; Cravotto, G.; Giovenzana, G.B.; Tei, L.: "*The synthesis and application of polyamino polycarboxylic bifunctional chelating agents*", *Chem. Soc. Rev*., **2011**, *40*, 3019-3049.
5. Longo, D.L.; Arena, F.; Consolino, L.; Minazzi, P.; Geninatti Crich, S.; Giovenzana, G.B.; Aime, S.: "*Gd-AAZTA-MADEC, an improved blood pool agent for DCE-MRI studies on mice on 1T scanners*", *Biomaterials*, **2016**, *75*, 47-57.