

Curriculum Vitae (english)

Roberto Pagliarin was born in Legnano (MI) in 1955. He received his degree in chemistry in 1980 from the Università Degli Studi di Milano. Thereafter he spent two years with prof. G. Jommi working on the synthesis of bio-active fluorinated compounds. In 1982 he was appointed as research scientist of the Consiglio Nazionale delle Ricerche (C.N.R.) at Dipartimento di Chimica Organica e Industriale of the faculty of Science (University of Milan) and he worked for a program of synthesis of bio-active organic compounds. In 1990 he got a permanent position and in 2002 he moved to this current position of Researcher in the field of Organic Chemistry. His main research interests include the *Synthesis of Contrast Agents for MRI*, *Synthesis of Metallo-Enzyme Mimetic Systems and Synthesis of Small Molecules as Anti-Cancer Agents*.

Fields of Interest:

Synthesis of Contrast Agents for MRI (Magnetic Resonance Imaging)^{1,2}.

Synthesis of new contrast agents devoted to diagnostic imaging with the technique of nuclear magnetic resonance. Organic ligands are synthesized for the preparation of paramagnetic metals complexes such as Gd(III) and Mn(II) complexes. The aim will be the elucidation of the relationships between solution structure and the relaxivity enhancement of the chelates. The research also focuses on self-assembling systems of Lanthanide chelates, functionalized with different substituents and interacting groups in order to accumulate, at the sites of interest, a large number of MRI Contrast Agent units.

Synthesis of Organic Compounds with Anti-Tumor Activity^{3,4}.

Among Anticancer molecules a lot of organic compounds have been isolated from animals and plants as well as chemically synthesized. Attention has been focused toward natural products from plants. Small organic molecules, derived from natural sources, are structurally modified to increase their activity and their specificity with respect to the different cellular targets.

Synthesis of Metallo-Enzyme Mimetic Systems^{5,6}.

Aerobic oxidation of many natural organic substrates is performed in vivo by multicopper enzymes, whose active site contains a dinuclear or a trinuclear metal cluster. Mimicking the properties and reactivity of such versatile enzymatic systems, with either dinuclear or trinuclear copper clusters, through synthetic design is a challenging task. While several biomimetic models are able to replicate the structural and electronic features of natural dinuclear or trinuclear copper centers, it is still a challenge to rationalize the factors (structural and electronic) which need to be translated into the synthetic metallo-organic scaffold in order to perform stereoselective oxidation of substrates.

Education

Teaching activity is mainly focused in assisting students as tutor during the course of experimental thesis and, as a teacher, in the theoretical courses of organic chemistry

Publications

1) MEMRI and tumors: a method for the evaluation of the contribution of Mn(II) ions in the extracellular compartment

By Gianolio, Eliana; Arena, Francesca; Di Gregorio, Enza; **Pagliarin, Roberto**; Delbianco, Martina; Baio, Gabriella; Aime, Silvio From **NMR in Biomedicine** (2015), 28(9), 1104-1110.

2) Target Visualization by MRI Using the Avidin/Biotin Amplification Route: Synthesis and Testing of a Biotin-Gd-DOTA Monoamide Trimer

By Tei, Lorenzo; Barge, Alessandro; Geninatti Crich, Simonetta; **Pagliarin, Roberto**; Negri, Viviana; Ramella, Daniela; Cravotto, Giancarlo; Aime, Silvio From **Chemistry--A European Journal** (2010), 16(27), 8080-8087

3) Synthesis and biological evaluation of 1,4-diaryl-2-azetidinones as specific anticancer agents: Activation of adenosine monophosphate activated protein kinase and induction of apoptosis

By Tripodi, Farida; **Pagliarin, Roberto**; Fumagalli, Gabriele; Bigi, Alessandra; Fusi, Paola; Orsini, Fulvia; Frattini, Milo; Coccetti, Paola From **Journal of Medicinal Chemistry** (2012), 55(5), 2112-2124.

4) A novel AMPK activator reduces glucose uptake and inhibits tumor progression in a mouse xenograft model of colorectal cancer

By Valtorta, Silvia; Nicolini, Gabriella; Tripodi, Farida; Meregalli, Cristina; Cavaletti, Guido; Avezza, Federica; Crippa, Luca; Bertoli, Gloria; Sanvito, Francesca; Fusi, Paola; **Pagliarin, Roberto**; Orsini, Fulvia; Moresco, Rosa Maria; Coccetti, Paola From **Investigational New Drugs** (2014), 32(6), 1123-1133.

5) A new chiral, poly-imidazole N8-ligand and the related di- and tri-copper(II) complexes: synthesis, theoretical modelling, spectroscopic properties, and biomimetic stereoselective oxidations

By Mutti, Francesco G.; Gullotti, Michele; Casella, Luigi; Santagostini, Laura; **Pagliarin, Roberto**; Andersson, K. Kristoffer; Iozzi, Maria Francesca; Zoppellaro, Giorgio From **Dalton Transactions** (2011), 40(20), 5436-5457.

6) Biomimetic modelling of copper enzymes: synthesis, characterization, EPR analysis and enantioselective catalytic oxidations by a new chiral trinuclear copper(II) complex

By Mutti, Francesco G.; Zoppellaro, Giorgio; Gullotti, Michele; Santagostini, Laura; **Pagliarin, Roberto**; Andersson, K. Kristoffer; Casella, Luigi From **European Journal of Inorganic Chemistry** (2009), (4), 554-566