

In October 1993 Dr. Maria Letizia Di Pietro took her degree in Chemistry at the University of Messina and in January 1999 her PhD in Chemical Sciences discussing the thesis entitled “Interactions between Pt(II) planar complexes and deoxyribonucleic acid”.

From June 1999 to June 2001 he carried out post-doctoral research in Chemical Sciences at the University of Messina.

Since December 2001 she is researcher (CHIM/03 - General and Inorganic Chemistry) at the current Department of Chemical, Biological, Pharmaceutical and Environmental Sciences of the University of Messina.

Teaching activity

According to the needs of the General and Inorganic Chemistry area, she has been entrusted with the teaching of:

- “*Laboratory of Inorganic Chemistry II*” for the five-year degree course in Chemistry (A.Y. 02/03 and 03/04);
- “*I.C. of Laboratory of Chemistry*” (module of Inorganic Chemistry) for the three-year degree course in Biological Sciences (A.Y. 04/05, 05/06, 06/07);
- “*Complements of Inorganic, Bioinorganic and Physical Chemistry*” (module 1) for the second cycle degree in Biology, Biohealth curriculum (A.Y. 05/06);
- “*Complements of Chemistry*” (module 1) for the second cycle degree in Biology, Applied Microbiology and Molecular and Cellular Biotechnology curricula (A.Y. 05/06);
- “*Complements of Inorganic Chemistry II*” (module B) for the second cycle degree in Chemistry, Advanced Chemical Methods and New Materials curriculum (A.Y. 05/06, 06/07, 07/08, 08/09);
- “*C.I. Laboratory of General and Inorganic Chemistry and Laboratory of Organic Chemistry*” (module of General and Inorganic Chemistry) for the three-year degree course in Biological Sciences (A. Y. 07/08 and 08/09);
- “*Organometallic, Catalysis and Bioinorganic Chemistry*” (mod. B) for the second cycle degree in Chemistry (A.Y. 08/09);
- “*Complements of Inorganic Chemistry: Mod. C – Bioinorganic Chemistry*” for the second cycle degree in Chemistry (A.Y. 09/10);
- “*Complements of Inorganic Chemistry: Mod. B – Bioinorganic Chemistry*” for the second cycle degree in Chemistry (A.Y. 11/12, 12/13, 13/14);
- “*Cytochemistry, Histochemistry and Bioinorganic Chemistry*” (module of Bioinorganic Chemistry) for the second cycle degree in Biology, Biohealth curriculum (A.Y. 14/15);
- “*Metals in Biological Systems*” for the second cycle degree in Chemistry, Analytical-Biological curriculum (A.Y. 15/16, 16/17, 17/18, 18/19, 19/20, 20/21);
- “*Bioinorganic Chemistry and Clinical Biochemistry*” (module of Bioinorganic Chemistry) for the second cycle degree in Biology, Biohealth curriculum (A.Y. 15/16, 16/17, 17/18, 18/19, 19/20);
- “*Analytical Chemistry of Aquatic Systems and Metals in Biological Systems*” (module of Metals in Biological Systems) for the second cycle degree in Chemistry, Analytical-Environmental curriculum (A.Y. 20/21).

Research Activity

Her research activity is in the field of bioinorganic chemistry and focuses on possible clinical applications of compounds that can interact non-covalently with nucleic acids. This is the natural evolution of her research work, which began with the study of the characteristics at the basis of the intercalative process of small molecules within the DNA double helix using square planar complexes of Pt(II) and Pd(II) with suitably chosen coordinated ligands, and then continued by investigating the possibility of molecular recognition of different nucleic acids by these species. Since it is also known that anti-tumour drugs such as doxorubicin perform their cytotoxic activity precisely because of their ability to intercalate in DNA, Dr Di Pietro decided to test, in collaboration with researchers of other universities, the possible cytotoxic activity of new Pt(II) compounds she had synthesised, after verifying their intercalative capability within deoxyribonucleic acid. Moreover, since photodynamic therapy (PDT) is one of the new frontiers in the clinical field, Dr Di Pietro was involved in a study in which the intercalation of the compound takes place 'in situ' only after its photoactivation, thus providing a link between photoinduced processes and intercalation, which can potentially be used in the therapeutic field. Her research activity was carried out in collaboration with colleagues from the University of Messina and researchers from other Italian and foreign universities, such as Chalmers University of Technology in Gothenburg, the University of Modena and Reggio Emilia, the University of Bologna and the "Université Paris Descartes" in Paris, as well as researchers from "Sanofi-Aventis Recherche" in Montpellier, "STMicroelectronics" in Catania, "CNR-Istituto per i Processi Chimico-Fisici" in Messina and the "Istituto di Scienze e Tecnologie Molecolari del CNR (ISTM)" in Milan. Her scientific production is documented by 33 publications in international refereed journals and various communications at national and international conferences.