



Denise Lovison

Languages

- Italian (native language)
- English (C1)
- Spanish (B2)
- German (A2)

Areas of expertise

- Synthesis of metal complexes
- Synthesis of functionalised ligands (polymers, peptides, etc.)
- Application of metallo-drugs for therapeutic purposes
- Catalysis: transfer hydrogenation reactions involving relevant biomolecules
- Drug delivery systems
- Analytical methods: NMR, UV/Vis, fluorescence spectroscopies, ESI-MS, DLS, TEM, circular dichroism

About Me

Dedicated and detail-oriented researcher with 5 years of experience in organometallic chemistry, synthesis of metal complexes and their application as catalysts in water conditions for therapeutic purposes. Special interest in achieving the interaction of such metal complexes with biomolecules which are relevant for the redox balance of the cell, also upon incapsulation in drug delivery systems (DDS).

Education

Post Doc | Technical University of Munich
2021 – Present

- Chair of Bioinorganic and Medicinal Chemistry
- Group of **Prof. Dr. Angela Casini**
- Organometallic chemistry, bioorthogonal chemistry, catalysis in cells, anticancer drugs

PhD | University of Udine
2017 – 2020

- Department of Agricultural, Food, Environmental and Animal Sciences (DI4A)
- Group of **Prof. Walter Baratta**
- synthesis of novel anticancer ruthenium complexes and evaluation of the involved mechanisms of action

Master's degree in Medicinal Chemistry | University of Cagliari
Completed in 2017

- **Erasmus Thesis** at the University of Ljubljana, Faculty of Pharmacy, group of **Prof. Dr. Danijel Kikelj**
- Thesis title: "Study, synthesis and evaluation of biological activity of new N-phenyl-4,5-dibromopyrrolamides and N-phenyl-3,4-dichloro-5-methylpyrrolamides as ATPase inhibitors of DNA gyrase B". Supervisors: **Dr. Prof. Elias Maccioni** (University of Cagliari), **Dr. Prof. Danijel Kikelj** and **Dr. Nace Zidar** (University of Ljubljana).

Grants

Post doctoral DAAD fellowship

03/2021 – 12/2021

- Chair of Bioinorganic and Medicinal Chemistry
- Group of **Prof. Dr. Angela Casini**



Denise Lovison

Teachings

General Chemistry Course | University of Verona

10/2023 – 01/2024

Inorganic Chemistry Lab Course | Technical University of Munich

10/2022 – 12/2022

Master's Thesis students | Technical University of Munich

- M. Sc. T. Berghausen: "Ruthenium(II) complexes for intracellular transfer hydrogenation reactions – Synthesis, catalytic activity and cytotoxicity studies"
- M. Sc. A. Sebeschuk: "Studies on encapsulated ruthenium complexes in micelle nanocarriers for medical and industrial applications"

Internship students | Technical University of Munich

- A. Christidis: "Activity of Ru²⁺ complexes towards NADH oxidation and NAD⁺"
- L. Reichers: "Ruthenium complexes for transfer hydrogenation reactions involving NADPH and improving the system for EPR effect exploitation in tumors"

Conferences

XLIX Congresso Nazionale di Chimica Inorganica | Perugia (Italy)

12/09/2023 – 15/09/2023

- Oral communication: "Water-soluble Ru(II) Complexes And Ru-micelles As Efficient Catalysts For Transfer Hydrogenation Reactions Involving Biomolecules"

44th ICCC International Conference on Coordination Chemistry | Rimini (Italy)

28/08/2022 – 02/09/2022

- Oral communication: "Catalysis in cells with water-soluble ru(II) complexes as efficient catalysts for transfer hydrogenation reactions involving the NAD⁺/NADH couple"

Gordon Research Conference, Metals in Medicine | Boston (MA)

26/06/2022 – 01/07/2022

- Invited lecturer: "Catalysis in cells"

XXVII Congresso Nazionale della Società Chimica Italiana | Online

14/09/2021 – 23/09/2021

- Oral communication: "Highly active ruthenium complexes: synthesis and evaluation of the anticancer activity through interaction with relevant biomolecules"



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XLVII Congresso della Divisione di Chimica Inorganica della SCI | Bari (Italy)

09/09/2019 - 12/09/2019

- Oral communication: "Highly active chiral ruthenium complexes: from the synthesis to the evaluation of the anticancer activity"

MERCK and ELSEVIER, Young Chemists Symposium | Rimini (Italy)

19/11/2018 - 21/11/2018

- Poster: "New phosphine/diimine ruthenium(II) complexes as promising anticancer agents: cytotoxicity and pro-apoptotic activity"

Publications

- Lovison, D.; Berghausen, T.; Thomas, S. R.; Robson, J.; Drees, M.; Jandl, C.; Pöthig, A.; Mollik, P.; Halter, D. P.; Baratta, W.; Casini, A., Beyond Metal-Arenes: Monocarbonyl Ruthenium(II) Catalysts for Transfer Hydrogenation Reactions in Water and in Cells. ACS Catalysis 2023, 10798–10823. **(first and corresponding author)**
- Lovison, D.; Alessi, D.; Allegri, L.; Baldan, F.; Ballico, M.; Damante, G.; Galasso, M.; Guardavaccaro, D.; Ruggieri, S.; Melchior, A.; Veciani, D.; Nardon, C.; Baratta, W., Enantioselective Cytotoxicity of Chiral Diphosphine Ruthenium(II) Complexes Against Cancer Cells. Chemistry – A European Journal 2022, 28 (33), e202200200. **(first author)**
- Ballico, M.; Alessi, D.; Jandl, C.; Lovison, D.; Baratta, W., Terpyridine Diphosphine Ruthenium Complexes as Efficient Photocatalysts for the Transfer Hydrogenation of Carbonyl Compounds. Chemistry – A European Journal 2022, n/a (n/a).
- Lovison, D.; Allegri, L.; Baldan, F.; Ballico, M.; Damante, G.; Jandl, C.; Baratta, W., Cationic carboxylate and thioacetate ruthenium(II) complexes: synthesis and cytotoxic activity against anaplastic thyroid cancer cells. Dalton Transactions 2020, 49 (24), 8375–8388. **(first author)**
- Figliolia, R.; Cavigli, P.; Comuzzi, C.; Del Zotto, A.; Lovison, D.; Strazzolini, P.; Susmel, S.; Zuccaccia, D.; Ballico, M.; Baratta, W., CNN pincer ruthenium complexes for efficient transfer hydrogenation of biomass-derived carbonyl compounds. Dalton Transactions 2020, 49 (2), 453–465.
- Giboulot, S.; Comuzzi, C.; Del Zotto, A.; Figliolia, R.; Lippe, G.; Lovison, D.; Strazzolini, P.; Susmel, S.; Zangrando, E.; Zuccaccia, D.; Baldino, S.; Ballico, M.; Baratta, W., Preparation of monocarbonyl ruthenium complexes bearing bidentate nitrogen and phosphine ligands and their catalytic activity in carbonyl compound reduction. Dalton Transactions 2019, 48 (33), 12560–12576.
- Baldino, S.; Giboulot, S.; Lovison, D.; Nedden, H. G.; Pöthig, A.; Zanolli-Gerosa, A.; Zuccaccia, D.; Ballico, M.; Baratta, W., Preparation of Neutral trans - cis [Ru(O2CR)2P2(NN)], Cationic [Ru(O2CR)P2(NN)](O2CR) and Pincer [Ru(O2CR)(CNN)P2] (P = PPh3, P2 = diphosphine) Carboxylate Complexes and their Application in the Catalytic Carbonyl Compounds Reduction. Organometallics 2021, 40 (8), 1086–1103.
- Durcik, M.; Lovison, D.; Skok, Ž.; Durante Cruz, C.; Tammela, P.; Tomašič, T.; Benedetto Tiz, D.; Draskovits, G.; Nyerges, Á.; Pál, C.; Ilaš, J.; Peterlin Mašič, L.; Kikelj, D.; Zidar, N., New N-phenylpyrrolamide DNA gyrase B inhibitors: Optimization of efficacy and antibacterial activity. European Journal of Medicinal Chemistry 2018, 154, 117–132. **(shared first author)**