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## **Ruthenium- and cobalt-based artificial metalloenzymes for photocatalytic water oxidation in artificial photosynthesis**

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### **Citation**

Polanco Rivas, E. A. (2023, June 7). *Ruthenium- and cobalt-based artificial metalloenzymes for photocatalytic water oxidation in artificial photosynthesis*. Retrieved from <https://hdl.handle.net/1887/3619951>

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## List of publications

Maaskant, R. V.; Polanco, E. A.; van Lier, R. C.W.; Roelfes, G. “Cationic iron porphyrins with sodium dodecyl sulphate for micellar catalysis of cyclopropanation reactions”. **Org. Biomol. Chem.** **2020**,**18**, 638-641

Opdam, L. V.; Polanco, E. A.; Regt, B. de, Lambertina, N.; Bakker, C.; Bonnet, S. A.; and Pandit, A.; “A screening method for binding synthetic metallo-complexes to haem proteins”. *Analytical Biochemistry*. **2022**, 653, 114788.

Polanco, E. A.; Opdam, L. V.; Passerini, L.; Huber, M.; Bonnet, S.A.; Pandit, A. An artificial metalloenzyme that can oxidize water photocatalytically: design, synthesis, and characterization (*submitted*)

Polanco, E. A.; Opdam, L. V. Hakkennes, M.; ; Stringer, L.; Pandit, A.; Bonnet, S.A. An artificial carbonic anhydrase-ruthenium metalloenzyme for water oxidation (*In preparation*)

Polanco, E. A.; Opdam, L. V.; Stringer, L.; Pandit, A.; Bonnet, S.A. Protein-protein interaction for photocatalytic water oxidation (*In preparation*)

Zhang, Liyan; Wang, Peiyuan; Zhou, Xue-quan; Bretin, Ludovic; Zeng, Xiaolong; Husiev, Yurii; Polanco, Ehider; Wijaya, Lukas; Biver, Tarita; Le Dévédec, Sylvia; Sun, Wen; Bonnet, Sylvestre. Cyclic ruthenium-peptide conjugates as integrin-targeted photoactivated chemotherapy prodrugs for the treatment of brain tumors (*In preparation*)



# Curriculum Vitae

Ehider Polanco was born in Ciudad Bolívar, Bolívar state, Venezuela, on May 18<sup>th</sup>, 1990. At the age of 16 he started his Bachelor in Chemistry at Universidad Simón Bolívar, in Miranda, Venezuela. During his Bachelor, he focused his studies in organic chemistry, in the area of medicinal chemistry where he performed his thesis on the development fluorine-based benzoyl indoles as microtubulin polymerization inhibitor compounds. Afterwards, his academic life continued in France. On August 24<sup>th</sup>, 2016, he arrived in Paris to start his master degree at “Paris Descartes Université”. During his master, he was granted an Erasmus scholarship in 2017 to go to The Netherlands, where he did an internship at Groningen University, in the Stratingh Institute of Chemistry in the group of Prof. dr. Gerard Roelfes. From this work, he got his first published publication named “Cationic iron porphyrins with sodium dodecyl sulphate for micellar catalysis of cyclopropanation reactions” in *Organic & Biomolecular Chemistry*. After this, he went back to Paris to finish his master. In his second year, he got the opportunity to work with Prof.dr Hamid Dhimane on the synthesis of new azobenzenes for the development of photosensitive hydrogels towards extracellular matrix mimetics with tunable mechanical properties. On June 30<sup>th</sup>, 2018, he finished his Master degree in chemistry and life science “*Chimie moléculaire dirigée vers le vivant*”. In July 9<sup>th</sup>, 2018, he started his PhD at Leiden University within the Metals in catalysis, biomimetics and materials research group (MCBIM), under the supervision of Prof. dr. Sylvestre Bonnet and Dr. Anjali Pandit. During his PhD, he supervised four *Practicum Basisvaardigheden* (PBV-MST), twelve (12) *Leren Onderzoeken 2* students, one bachelor student, and one master student. He followed HRSMC courses on Molecular modeling (MM), Physical methods in inorganic chemistry (PMIC), Photophysics, photochemistry and photobiology (PPP), the HRSMC doctorate school Advanced metal-organic chemistry and catalysis (AMOCC), and several other courses.

During his PhD, he presented his results in several national and international conferences:

- Netherlands Chemistry and Catalysis Conferences (NCCC XXI, XXIII, XXIV) 2020, 2022 and 2023, Noordwijkerhout, The Netherlands (**Poster presentation**)
- Chemistry As Innovating Science (NWO CHAINS): 2019 and 2022, Veldhoven, The Netherlands. (**Poster presentation**)
- HRSMC Symposium 2022, Amsterdam, The Netherlands (**Poster presentation**).
- HRSMC/ 6<sup>th</sup> EPA Advanced Summer School on Photochemistry, Noordwijk, The Netherlands (**Poster presentation**).
- 28<sup>th</sup> PhotoIUPAC, 2022, Amsterdam, The Netherlands (**Oral presentation**)

# Acknowledgement

To my daughter *Sofia*, you motivate me to become a better person and better researcher even at the end of the PhD.

To my wife *Sandra*, la mujer mia, with whom I shared the weight of this journey, and who became my pilar during my whole PhD. You encouraged me in my lowest moments, you showed me the light when everything was dark. You pushed me to work, you taught me and you believed in me. This degree also belongs to you. Without you, this could not have been possible.

To my Family, in Venezuela and Mexico, who always support me from far away and found the way to cheer me up. Seeing you during this time was a blessing. Thanks, mom, for always reminding me that there are worst things than fail, like not try once more.

To my friends, even living all around the world Colombia, Brazil, Mexico, Argentina, France, Venezuela, Uruguay, Alaska, Dominican Republic, Belgium, Chile, Spain, Italy and here in The Netherlands, the support you showed me, help me to overcome the hardest times over my PhD.

To Sylvestre, for being my promotor but also for believing and trusting me during this project. The opportunity you gave me not only opened my eyes about research but also expanded my knowledge about artificial photosynthesis. You were a remarkable guidance during this almost five years of research, always indulging me to find more, do more and learn more. Your priceless tutoring not only taught me about chemistry, also life and for that I am grateful.

To Laura V. Opdam, for being the best colleague and collaborator that anyone can have. The patience you had to explain me what you know about proteins, how to run the gels (over and over) was immense. For growing the crystal that were lost and we never managed to get. All the discussions over what to do, all the late evening analyzing what happened to our protein and running photocatalysis, DLS, or gels.

Even when sometimes you acted like my third boss, your help was unvaluable and I always will remember when you mocked me for calling the ladder “staircase”.

To Anjali, for being my co-promotor and for all the guidance and advices during my PhD. All the discussions always gave me a good insight and direction during my research.

To all the people from the LIC that participated and supported my research within the years: Sipeng, Bobby, Anneloes, Charlotte, Patrick, Lionel, Martina and Leonardo.

To Lucia and Luuk, whom I had the pleasure to supervised during their bachelor and master internships at MCBIM and contributed to my research.

To my office-mates, Chengyu (Party boy), Liyan, Vasiliki, Valeriia, David and Irene. Even in moments of stress and despair, a little of music, a joke or even an unrelated and unexpected comment about the weather, about how busy the cell lab is, or about anything else, changed the mood in the office. Keep being as you are. 周莫莱拉

To MCBIM group, former and current members: Anja (Andrea), Andrea (the real), Alex, Ramu, Michael, Erik, Xuequan, Christian, Nicole, Jordi, Hans, Corjan, Agnese, Michael, Ashok, Aswin, Dennis, Yuriii, Lan, Wessel, Selda, Sina, Ludo, Bas, Daan, Dana, Soerjd, Shengxiang, Michiel, Marleen, Kira, Phoebe and all the students. The group made it possible to enjoy this ride, all the hangouts, the events and dinners shared with all of you helped me a lot even when I did not say it. I am proud to have been able to work next to such remarkable and capable people.