

**Project Title:** CSC Light-activated anticancer drugs

**Project description:**

Our group is developing metal-based anticancer compounds that are activated by light, in particular for the treatment of hypoxic tumors. We are looking for motivated photochemists, bioinorganic chemists, or chemical biologists, who are interested in combining in their PhD thesis coordination chemistry, photochemistry, and biology. See <https://doi.org/10.1021/jacs.0c01369>, <https://doi.org/10.1021/jacs.9b07225>, or <https://doi.org/10.1002/anie.201703890>. Good spoken and written English is a must. The candidates must have experience with the synthesis of molecules. Published papers are a plus, as well as experience with drug delivery and/or biology (cell growing, cytotoxicity, biochemical assays, tumor spheroids).

**Supervisor:** Professor Sylvestre Bonnet

**Selection criteria:** English level (European B2 or C1, TOEFL 90 (internet-based) and 575 (paper-based), IELTS Academic: 6.5, Cambridge CAE (Certificate of Advanced English): 180

**Applications:**

To apply for this vacancy, please send an email to [snellenberg@chem.leidenuniv.nl](mailto:snellenberg@chem.leidenuniv.nl) with a Cc: to [bonnet@chem.leidenuniv.nl](mailto:bonnet@chem.leidenuniv.nl) . Please ensure that you upload the following additional documents quoting the project title:

- Updated Curriculum vitae;
- Bachelor's and master's transcripts;
- (Draft of) MSc thesis or letter of motivation explaining your research experience

**Deadline:** December 10<sup>th</sup>, 2020

**Project Title:** CSC Photocatalytic liposomes

**Project description:**

Our group is developing photocatalytic liposomes for water oxidation and the synthesis of solar fuels. We study fundamental supramolecular chemistry regulating membrane-embedded photosensitizers and catalysts, and study the effect of tethering photoactive molecules to lipid membranes on photocatalytic mechanisms. We are also looking for innovative strategies to control transmembrane electron transfer for artificial photosynthesis. See <https://doi.org/10.1002/chem.202003391> or <https://doi.org/10.1021/acscatal.6b00151>.

Good spoken and written English is a must. The candidates must have experience with the synthesis of molecules. Published papers are a plus, as well as experience with liposomes and/or photochemistry (e.g. time-resolved spectroscopy).

**Supervisor:** Professor Sylvestre Bonnet

**Selection criteria:** English level (European B2 or C1, TOEFL 90 (internet-based) and 575 (paper-based), IELTS Academic: 6.5, Cambridge CAE (Certificate of Advanced English): 180

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**Deadline:** December 10<sup>th</sup>, 2020

**Project Title: Electrocatalysis for the oxygen reduction and/or the oxygen evolution reaction**

**Project description:** In my group we study the electrochemical reduction of dioxygen in light of fuel cell chemistry and for the electrochemical synthesis of hydrogen peroxide. Homogeneous catalysts are employed that are inspired by the chemistry of copper based monooxygenases. See for example: <https://onlinelibrary.wiley.com/doi/full/10.1002/anie.201904075>

In addition we study the mechanism of oxygen evolution on well-defined metal and metal oxide surfaces. How to control and steer the catalytic features of the heterogeneous catalysts will be subject of interest. See for example: <https://pubs.acs.org/doi/abs/10.1021/acscatal.0c03548>

**Supervisor: Dr. Dennis Hetterscheid**

**Selection criteria:** A solid background in either homogeneous catalysis/coordination chemistry or electrochemistry. An excellent understanding of the English language is a must as well.

**Applications:**

To apply for this vacancy, please send an email to [d.g.h.hetterscheid@chem.leidenuniv.nl](mailto:d.g.h.hetterscheid@chem.leidenuniv.nl) Please ensure that you upload the following additional documents quoting the project title:

- Curriculum vitae;
- Bachelor's and master's transcripts;
- (Draft of) MSc thesis.

**Deadline: January 15<sup>th</sup> 2021**