Caging ruthenium complexes with non-toxic ligands for photoactivated chemotherapy

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Propositions (stellingen)

accompanying the thesis

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1. In PACT, the caging part (being either the ligand(s) or the metal) must always be tested for its cytotoxicity.

   *B. S. Howerton et al., J. Am. Chem. Soc., **2012**, 134, 8324-8327; D. F. Azar et al., Dalton Trans., **2017**, 46, 11529-11532; This thesis, Chapter 3*

2. Strain elongates a ruthenium-thioether bond, but not a stronger ruthenium-carboxylate bond.

   This thesis, Chapter 2 and Chapter 4

3. Non-selective photosubstitution of two different ligands in tris-bidentate complexes is rarely reported in literature. Probably not because it is a rare phenomenon, but because it is difficult to explain.

   This thesis, Chapter 4

4. DFT is a very accurate tool to predict the experimentally obtained complex in potential mixtures containing up to sixteen isomers.

   This thesis, Chapter 6

5. The lack of a standard irradiation setup in PACT research makes the comparison of the results obtained in different laboratories very difficult.

   *S. L. Hopkins et al., Photochem. Photobiol. Sci., **2016**, 15, 644-653.*

6. From a chemical point of view it makes sense to compare (photo)cytotoxicity experiments under hypoxic *vs.* normoxic conditions to prove an oxygen-independent mode of action. However, this is not true from a biological point of view.

   This thesis, Chapter 7

7. In inorganic chemistry, predicting the outcome of a photochemical reaction is more complicated than predicting that of a thermal reaction.
   This thesis, Chapter 2 and Chapter 4

8. DNA interaction tests are of limited usefulness when the localization of the anticancer metallodrug is unknown.

9. Multidisciplinarity has its drawbacks: one might know a little of many things and be an expert on nothing.

10. It will remain uncertain if the personal and professional growth in the last four years would have occurred doing anything other than a PhD.

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Leiden, November 2017