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The synthesis and biological applications of photo-activated ruthenium anticancer drugs

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Propositions (stellingen)

accompanying the thesis

“The synthesis and biological applications of photo-activated ruthenium anticancer drugs”

1. Since cancer is ultimately the result of mutations in DNA caused by –among others- xenobiotics, it is curious that there is still an emphasis on the targeting of DNA in the field of metallodrugs.
A. C. Komor, J. K. Barton, Chem Commun **2013**, 49, 3617-3630.
2. It is curious that the finding of a significant contribution of organic cation transporters (OCT2) in the uptake of glucose-platinum conjugates (ANIE) is not taken into account in a later paper (JACS)
M. Patra, T. C. Johnstone, K. Suntharalingam, S. J. Lippard, Angew Chem Int Ed **2016**, 55, 2550-2554.; *M. Patra, S. G. Awuah, S. J. Lippard, J Am Chem Soc* **2016**, 138, 12541-12551.
3. The use of transition metals in conventional chemotherapy is only justified if they allow a mode of action that cannot be acquired with an organic molecule.
4. The idea that every metal complex can be purified by precipitation is incorrect.
Chapter 2
5. It's remarkable that minor structural differences between different ruthenium polypyridyl complexes lead to a dramatic difference in cytotoxicity.
Chapter 3 and 4
6. The cytotoxicity of a ruthenium complex is not necessarily related to its cellular uptake.
Chapter 3 and 4; U. Schatzschneider, J. Niesel, I. Ott, R. Gust, H. Alborzinia, S. Wolf, ChemMedChem **2008**, 3, 1104-1109.
7. One cannot make statements such as “the complexes are exceptionally stable in the dark” based on the results of electronic absorption spectroscopy without applying baseline corrections and in the absence of supporting mass spectrometry data.
Chapter 6; A. Li, R. Yadav, J. K. White, M. K. Herroon, B. P. Callahan, I. Podgorski, C. Turro, E. E. Scott, J. J. Kodanko, Chem Commun **2017**, 53, 3673-3676.

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8. The 'thuiskopieheffing' should be replaced with a form of taxation in which the revenues are redistributed to donation-dependent organizations dedicated to collecting knowledge from the public and sharing knowledge with the public such as Wikipedia.
 9. Peer reviewing in science should be carried out "triple blind": Neither the editor, nor referees or refereed party should know each other's identity to reduce bias in the refereeing process.
 10. The current publishing system is perverted: Scientists often have to *i.* pay to get their work published *ii.* review articles for a commercial party without being compensated *iii.* pay to read their own work. Commercial publishers of scientific work should all be replaced with one non-profit umbrella-organization, to avoid the appearance of 'illegal' websites such as Sci-Hub.
 11. The quality of food provided by the cafeteria does not justify the prices offered: Either the prices need to be lowered, or competitive parties should be allowed to sell their food products in the university leading to lower prices