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Chronopharmacology

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Stellingen

Behorende bij het proefschrift
"Chronopharmacology"
door
Dušan P. Kolarski

1. To reach a full potential of photopharmacology, research should focus on pharmacokinetic and pharmacodynamic properties of photo-responsive drugs, and particularly embrace deeper into *in vivo* studies. The photo-responsive groups will face many limitations but this will be crucial for the further development of the field.

2. The stability of a photoswitch demonstrated by repetitive photoisomerization cycles in DMSO offers very little to no information about its (photo)chemical stability in the studied biological medium. Thus, stability study of photo-responsive drugs in biological medium must be included in each photopharmacology article, otherwise, light-induced effects might be misinterpreted (Chapter 3 and 4).

Cell **2015**, *162*, 403–411 followed by *Org. Biomol. Chem.*, **2016**, *14*, 40–49

A good example of publishing negative results *Photochem. Photobiol. Sci.* **2019**, *18*, 1398–1407

3. One should not be allowed to redefine the term *in vivo* for the sake of a catchy title.

Chem. Rev. **2018**, *118*, 10710–10747

4. Claiming that antibacterial ability of the supramolecular azo-norfloxacin/ α CD assembly upon light exposure is enhanced 1.4–2.0 folds without showing the standard deviation of IC_{50} values is preposterous.

Chem. Commun., **2019**, *55*, 14466–14469

5. "Working long hours should not be demonised; Individuals should be able to choose their own work-life balance depending on their life situation and level of ambition." – Lee Cronin

Another factor to consider is social jetlag. Assuming only one chronotype and following very strict early working hours prevents people with a later chronotype to fully express their creativity and productivity, leading to depression and consequent metabolic diseases.

PNAS, **2009**, *106*, 4453; *Front. Neurosci.*, **2019**, *13*, 950; *J. Biol. Rhythms*, **2014**, *29*, 377

6. The field of photopharmacology should encompass all light-responsive drugs, with reversibly but also irreversibly photoactivated designs.

7. Jeffrey C. Hall and Michael W. Young, two Nobel prize recipients for the discoveries of molecular mechanisms controlling the circadian rhythm, received their assistant professorships despite of having no publications during their postdoctoral research. The scientific community today loses great minds due to its unreasonable publication proliferation prerequisites.

8. A successful collaboration is not a give and take relationship, it requires building an "intimate" scientific relationship through mutual trust and genuine interest in each other's work.

9. The scientific environment would probably be less pleasant but more useful and fair if the names of paper referees were public.

10. Scientifically speaking, the meaning of life is a successful preservation, improvement and transfer of the information both - genetically and intellectually. The emotions evolved to ensure a quality of the information.

To tax-payers and governments: a bacterium divides with a pace shorter than one day, consequently being able to transfer its "optimized" genetic information on a daily base. On the contrary, humans have offspring ~2 times in ~80 years. This emphasizes the importance of improving, mastering and transferring the existent fundamental and applied knowledge (intellectual information).

11. Dutch directness saves time and increases efficiency.

12. Often, science and religion are mistakenly considered orthogonal. However, in both, one sets a life-long quest to reach or get closer to the ideal that is unknown but strongly intuitive.

13. Endurance sports (*e.g.*, running, swimming or cycling long distances) teach persistence, patience, failure acceptance, and that a long-term success is made through step-by-step progress. Thus, they are good for one's physical and mental health.

14. Despite all the impressive technological tools that we have today, imagination remains the most powerful.