

平成30年 5月25日(金) 16時~17時30分  
伊都キャンパス ウエスト4号館314号室 (物質系4番講義室)

## Fluorescent Chemosensors and Imaging Agents

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The ability to monitor analytes within physiological, environmental and industrial scenarios is of prime importance. Since recognition events occur on a molecular level, gathering and processing the information poses a fundamental challenge. Therefore, robust chemical molecular sensors “chemosensors” with the capacity to detect chosen molecules selectively and signal this presence continue to attract considerable attention. Real-time monitoring of saccharides is of particular interest, such as D-glucose in blood. Towards that end the covalent coupling interaction between boronic acids and saccharides has been exploited with some success to monitor the presence of such saccharides. The boronic acid Lewis acid-base interaction is also suitable for the capture and recognition of anions. Anions are involved in fundamental processes in all living things. Our

aim is to mimic nature's level of sophistication in designing and producing chemosensors capable of determining the concentration of a target species such as: saccharides, glycosylated proteins, anions and reactive oxygen/nitrogen species (ROS/RNS) in any medium.



Cartoons depicting the past, present and future of chemosensors and molecular logic gates

### References

1. X. Sun and T. D. James, *Chem. Rev.* **2015**, *115*, 8001-8037.
2. X.-P. He, Y. Zang, T. D. James, J. Li, G.-R. Chen, and J. Xie, *Chem. Commun.* **2017**, *53*, 82-90.
3. X.-P. He, X.-L. Hu, T. D. James, J. Yoon and H. Tian, *Chem. Soc. Rev.* **2017**, *46*, 6687-6696.
4. D. Wu, A. C. Sedgwick, T. Gunnlaugsson, E. U. Akkaya, J. Yoon and T. D. James, *Chem. Soc. Rev.* **2017**, *46*, 7105-7123.
5. S. Erbas-Cakmak, S. Kolemen, A. C. Sedgwick, T. Gunnlaugsson, T. D. James, J. Yoon and E. U. Akkaya, *Chem. Soc. Rev.* **2018**, *47*, 2228-2248.

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