# Curriculum Vitae

**Name**
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**Current Position**
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**Education & Professional Experiences**
2008 Ph.D. The University of Tokyo, Japan
2008-2010 Postdoctoral fellow, École Polytechnique Fédérale de Lausanne, Switzerland
2010-2015 Assistant Professor, Graduate School of Medicine, The University of Tokyo
2016-2019 Lecturer, Graduate School of Medicine, The University of Tokyo
2019- Associate Professor, Graduate School of Medicine, The University of Tokyo
2022- Professor, Department of Life Science and Technology, The University of Tokyo

**Research Interests**
1) Design and development of activatable fluorescent probes for bio-imaging
2) Design and development of activatable Raman probes for bio-imaging

**Selected Publications**
1) H. Fujioka, et al, J. Am. Chem. Soc. 142, 20701–20707 (2020).
2) H. Fujioka, et al, J. Am. Chem. Soc. 145, 8871-8881 (2023).
3) J. Shou, et al, Sci. Adv. 9, eade9118 (2023).

**Lecture Title**
Molecular design of activatable Raman probes for multiplexed bioimaging

**Abstract (500 words maximum)**
Raman probes based on alkyne or nitrile tags hold promise for highly multiplexed imaging. In order to functionalize the Raman probes to be responsive to biological phenomena in live cells, we have established a general strategy to control Raman signals intensity based on the resonant Raman effect, which enabled us to develop Raman probes that show enhanced stimulated Raman scattering (SRS) signals upon reaction with biomolecules under physiological conditions. By optimizing xanthene derivative bearing a nitrile group at 9th position, we prepared four activatable Raman probes for different enzymes with different vibrational frequencies and succeeded in simultaneous imaging of these enzyme activities in live cells. We also expanded our molecular design strategy by utilizing aggregate formation to develop a series of activatable Raman probes. Further, we succeeded to develop photoactivatable probes and photoswitchable Raman probes for super-resolution vibrational imaging. In this symposium, I would like to introduce the molecular design strategy of our activatable Raman probes and its biological applications, as well as our recent effort to develop new series of functional Raman probes.