Literature Report

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Article

Imaging and profiling of proteins under oxidative conditions in cells and tissues by hydrogen-peroxide-responsive labeling

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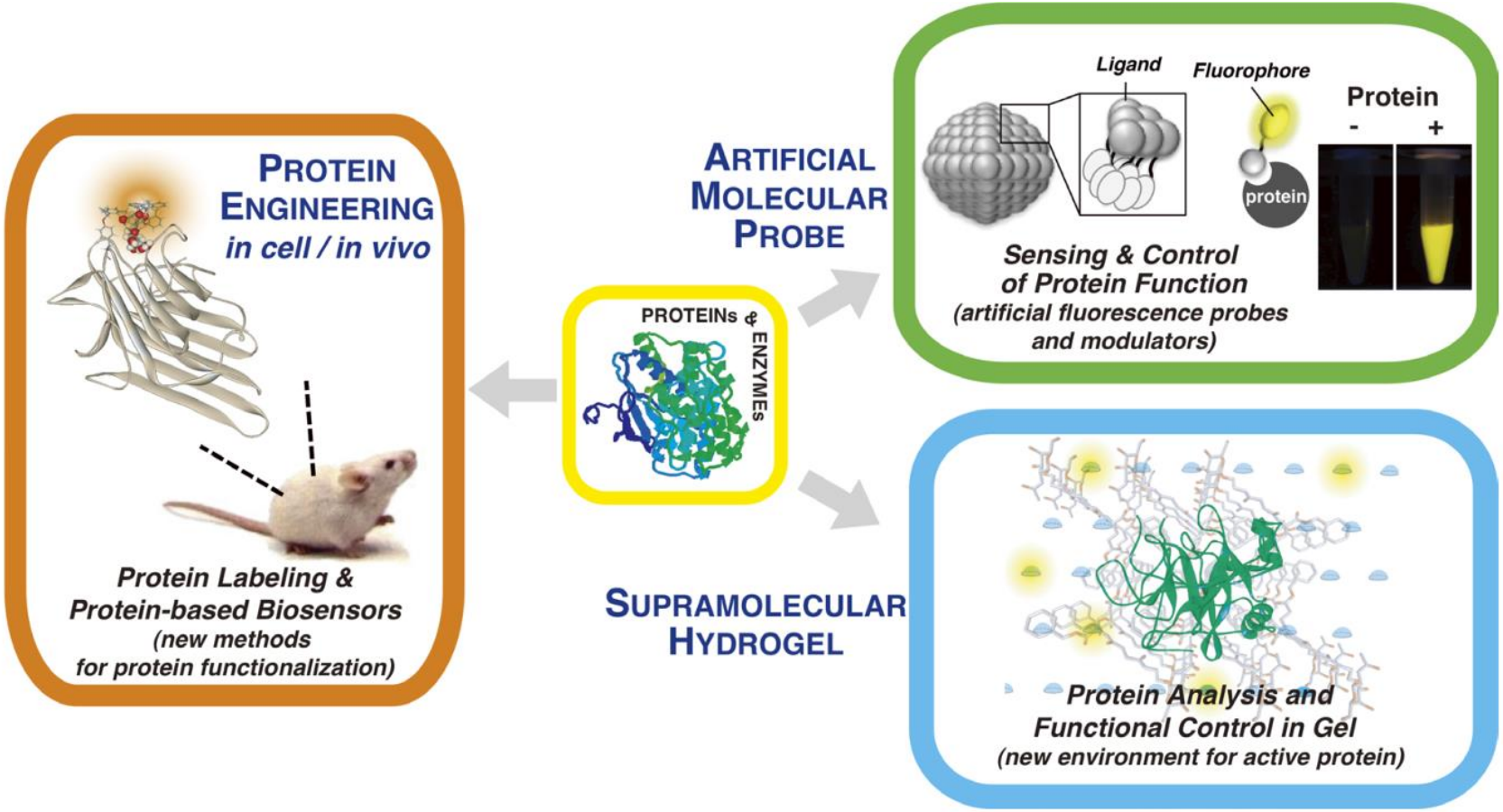
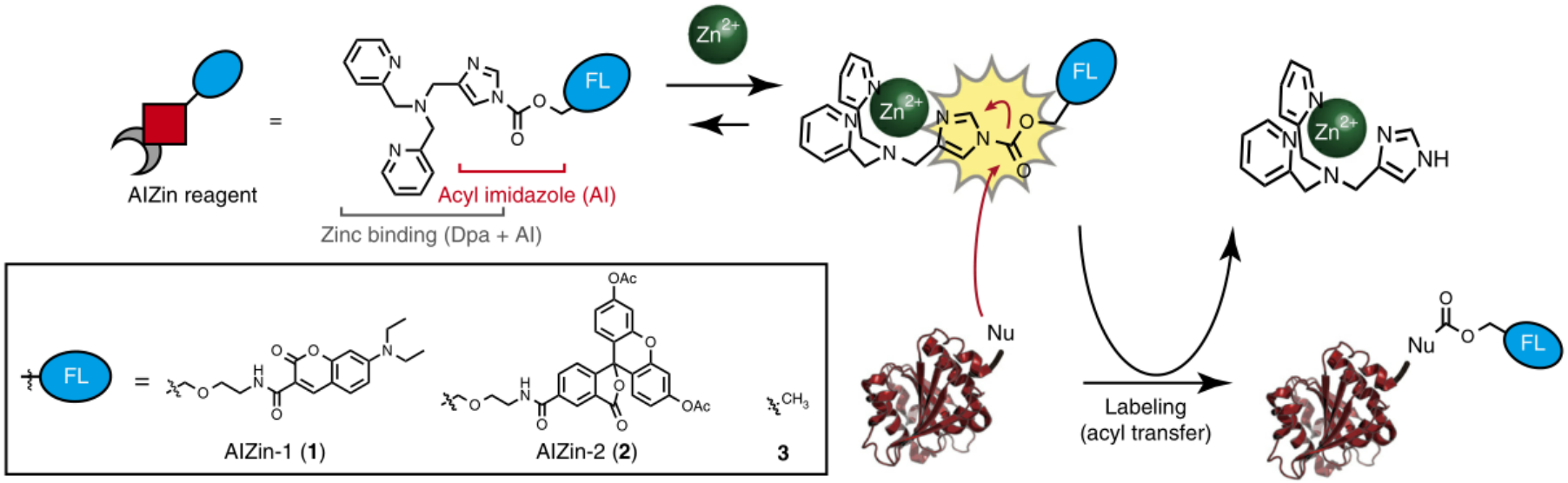
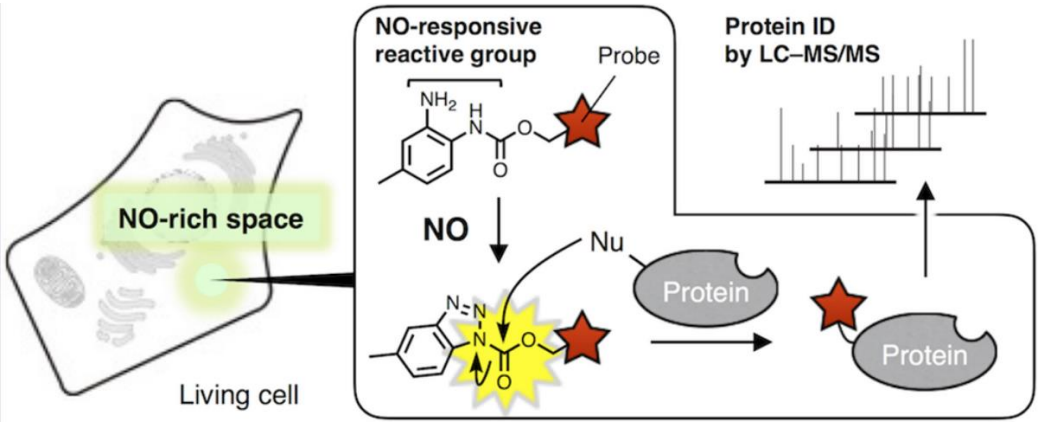
Professor of Kyoto University（2005）



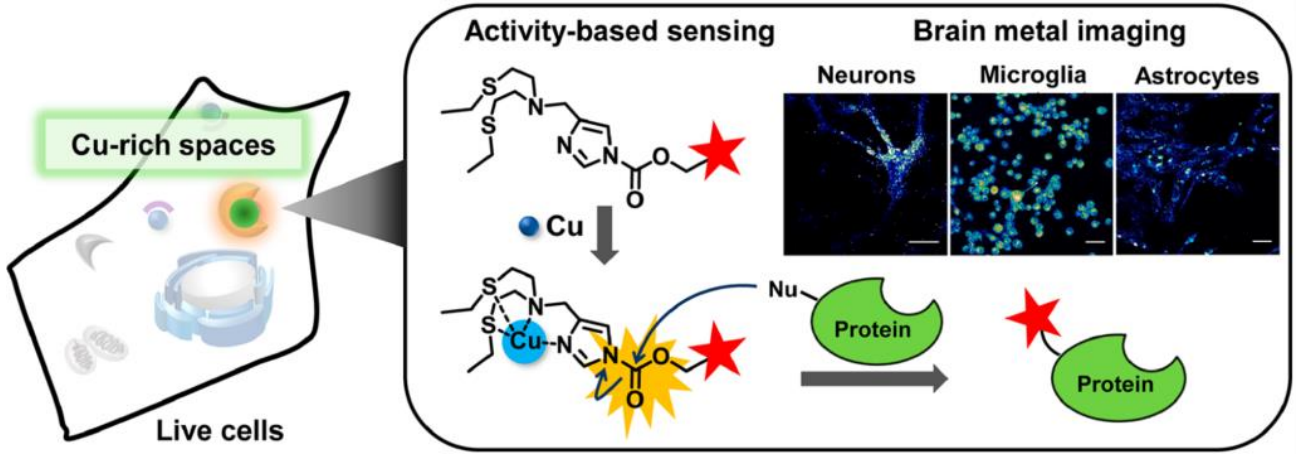
Introduction



Nature Methods, 2016, **13**, 931–937

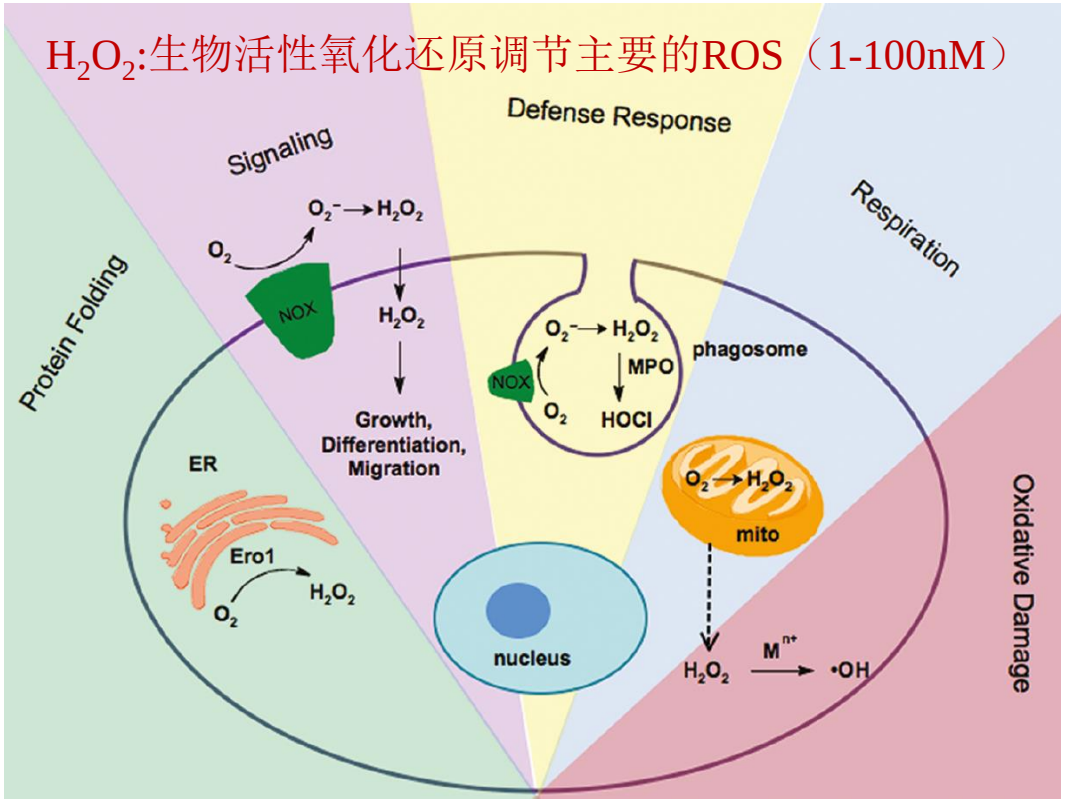


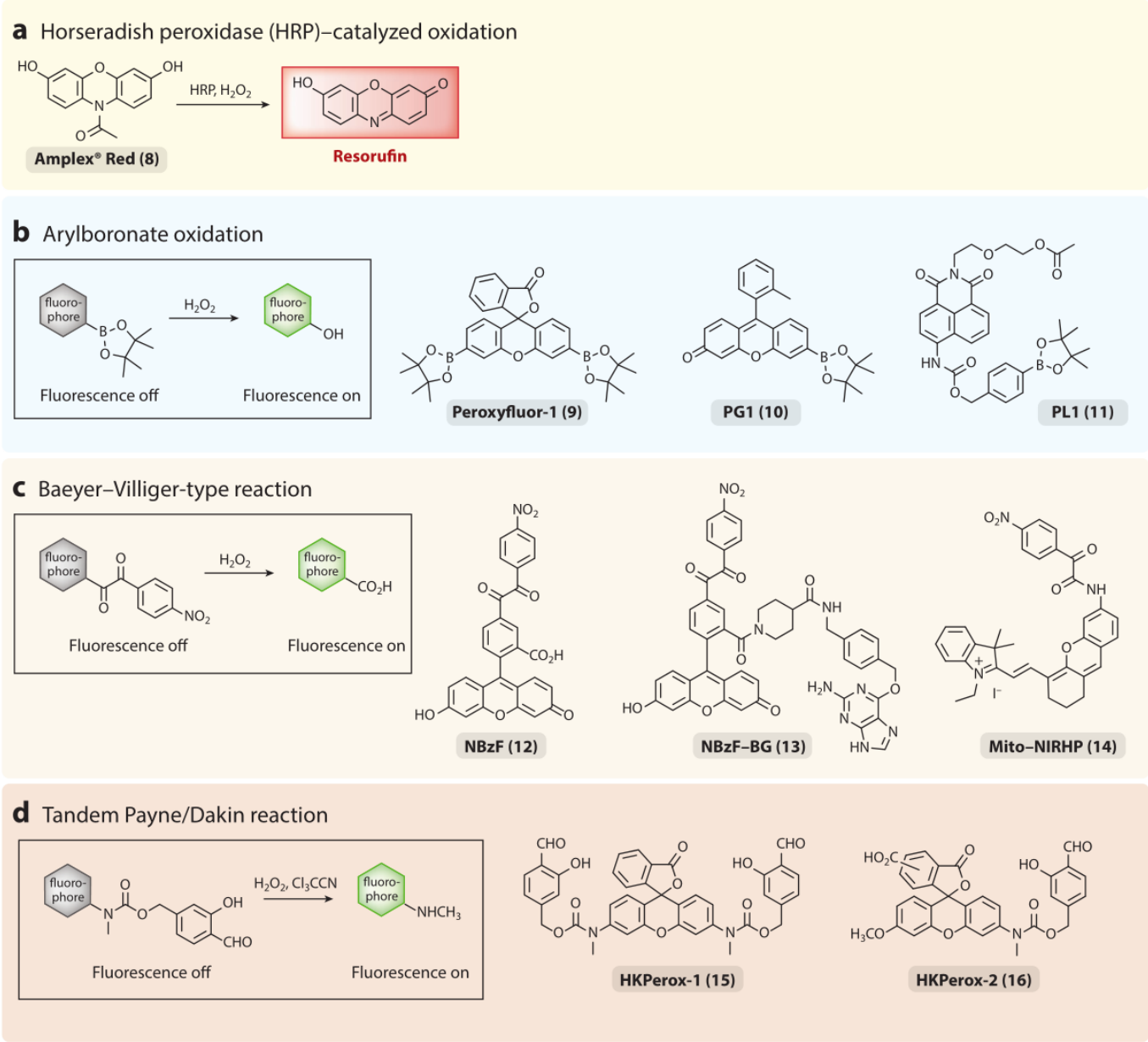
ACS Chem. Biol. 2019, **14**, 397−404

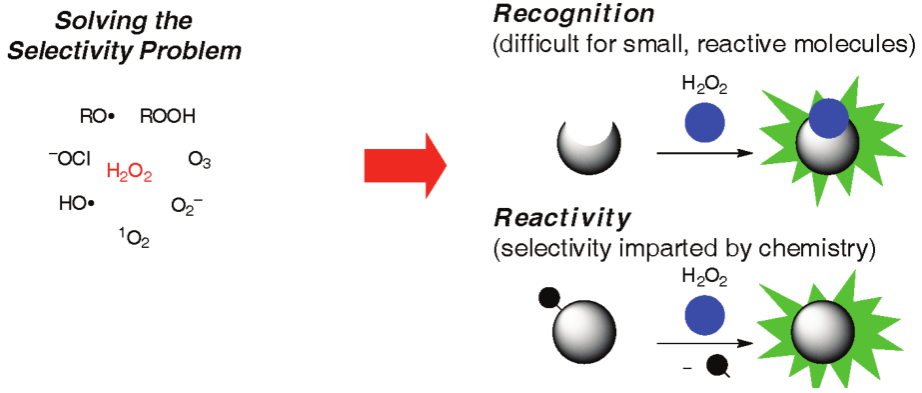


J. Am. Chem. Soc. 2020, **142**, 14993−15003

Introduction



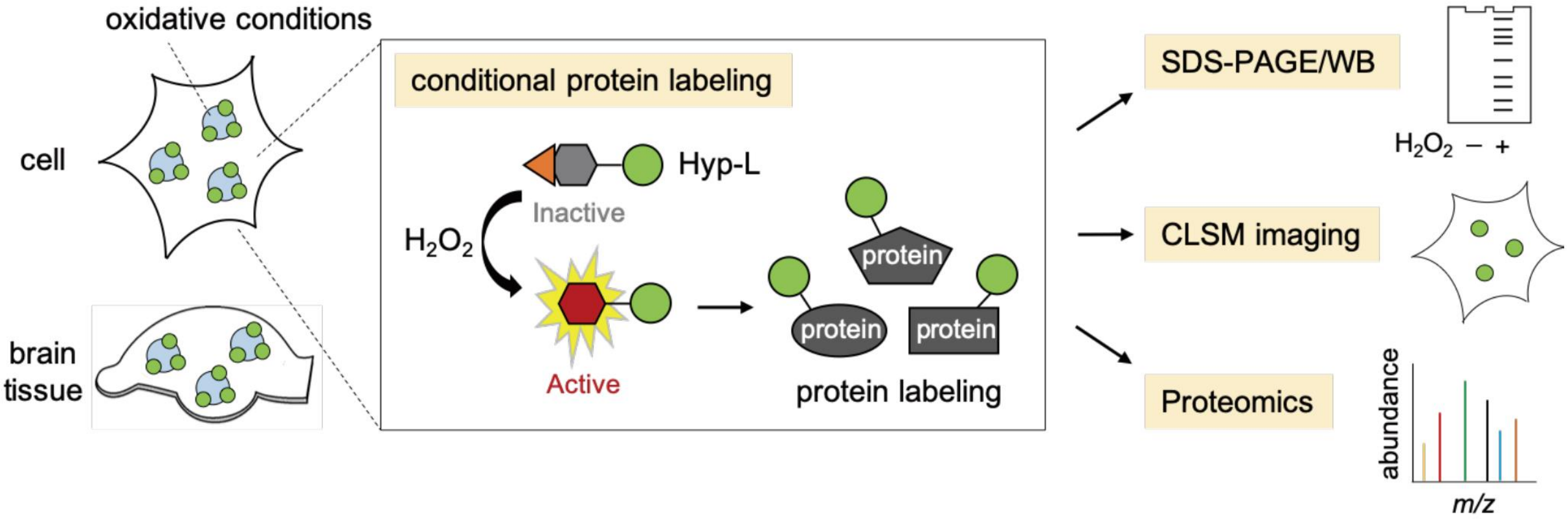




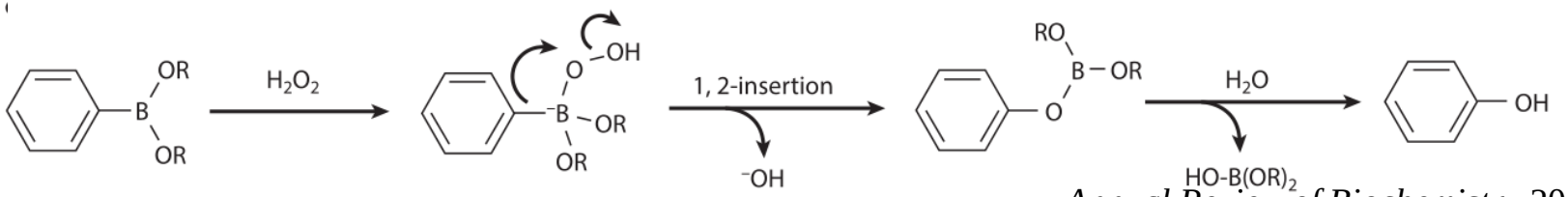
Acc. Chem. Res. 2011, **44**, 793–804

Annu. Rev. Biochem. 2019. **88**, 30.1–30.29

Design of Hyp-L



Design of Hyp-L



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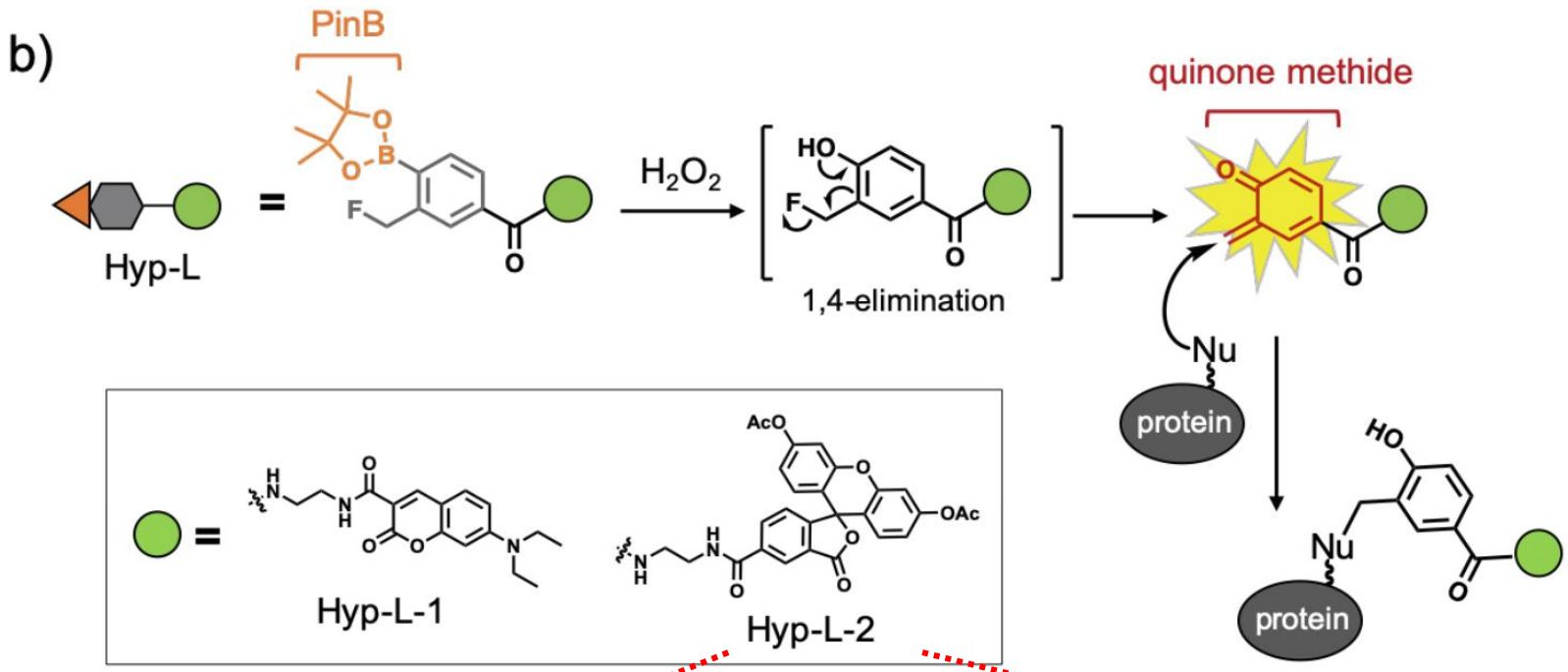
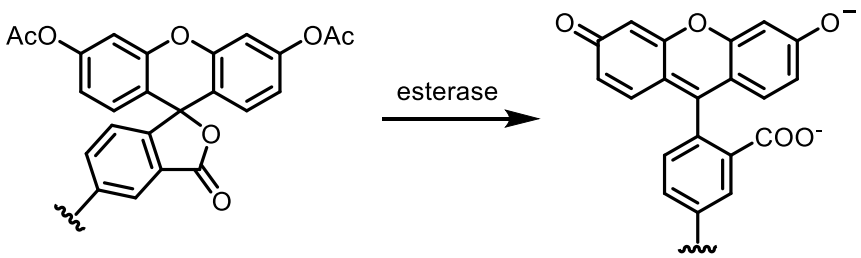


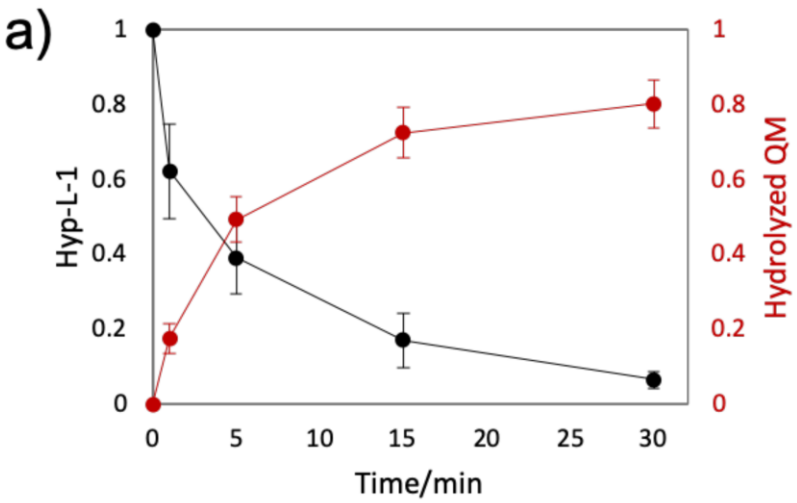


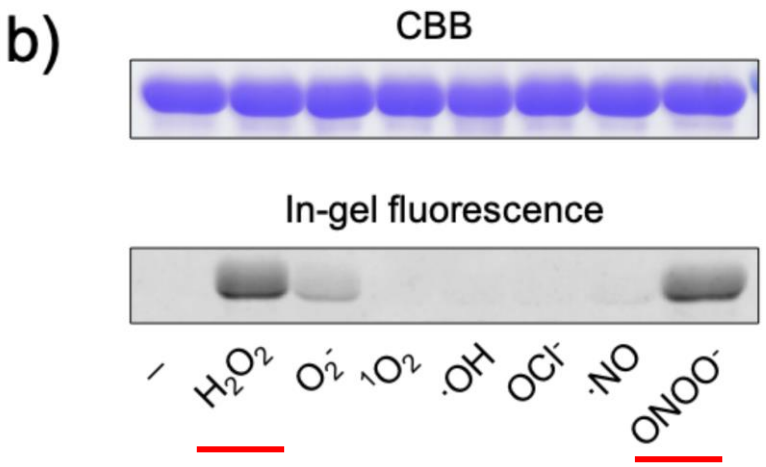
底物：H_2O_2

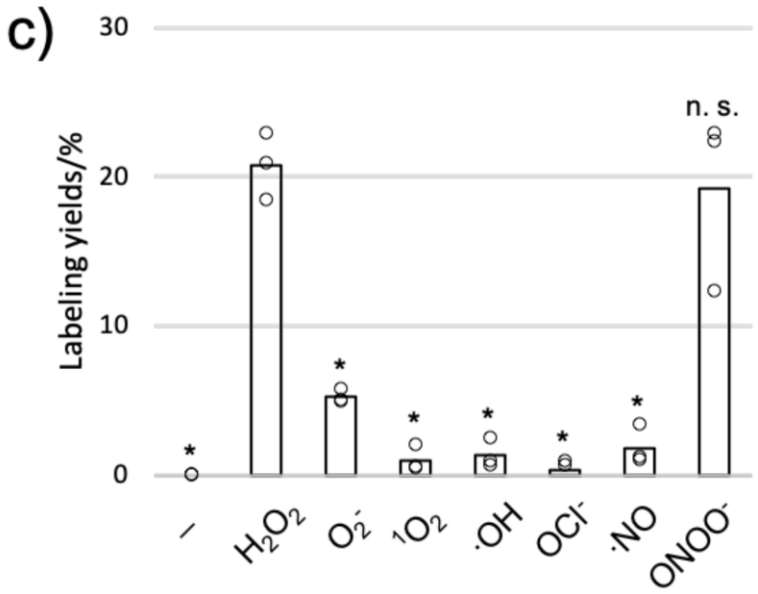
受体：PinB

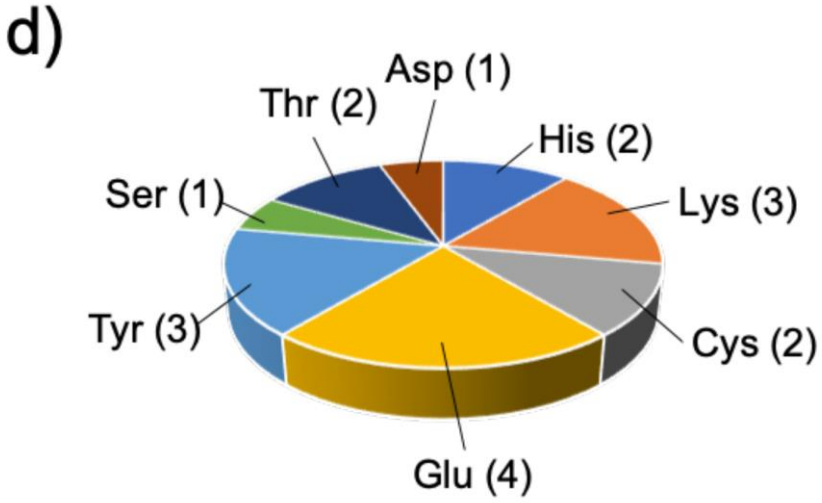
荧光团：Coumarin or Fluorescein

H_2O_2-modulated reactivity of Hyp-L-1

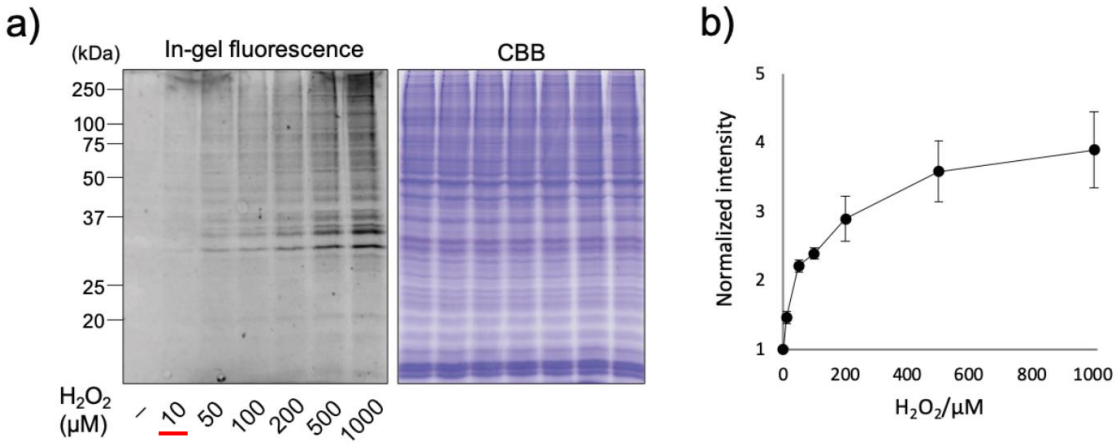


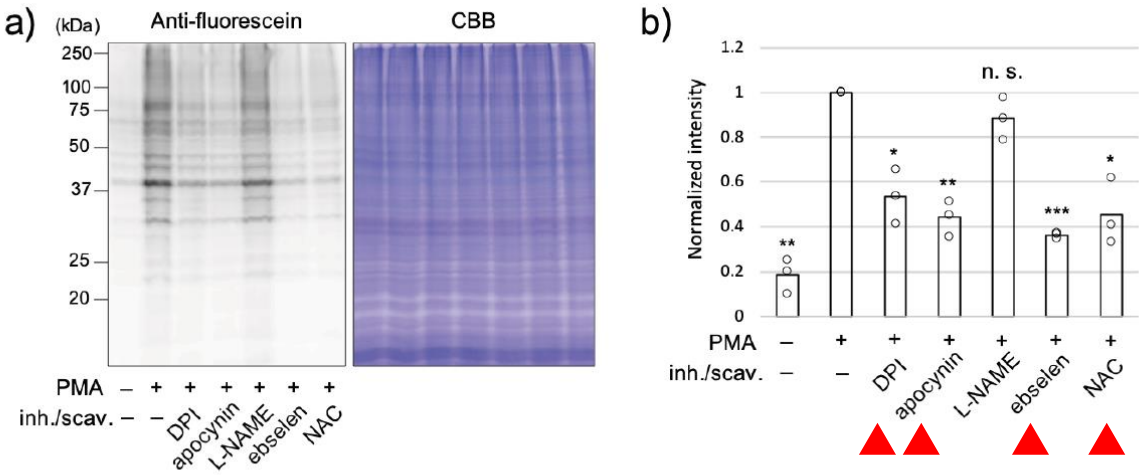


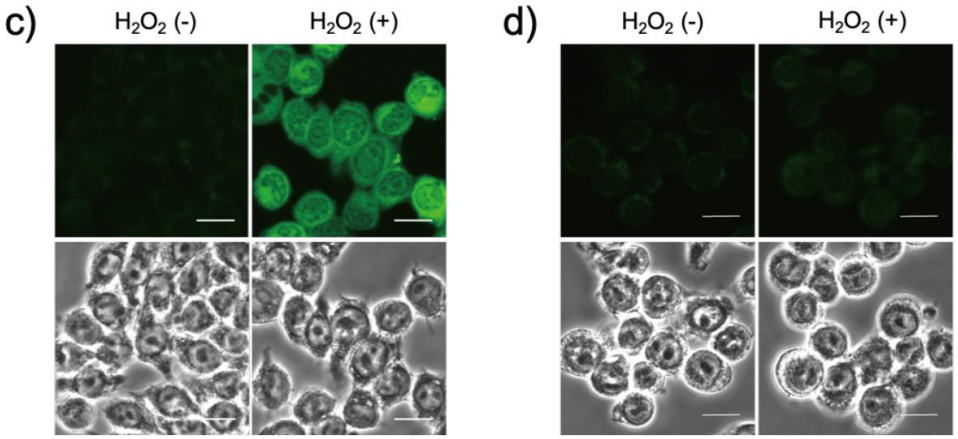




H_2O_2-responsive labeling in living cells





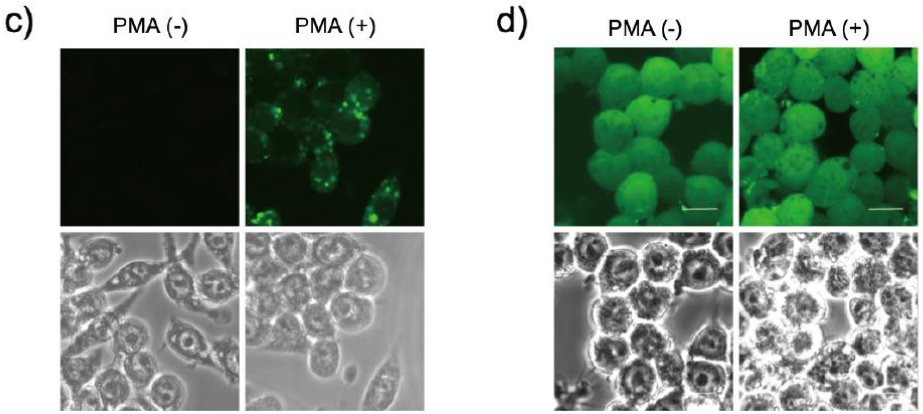


Hyp-L-2

HYDROP

（商业化染料 ）

H_2O_2：100nM

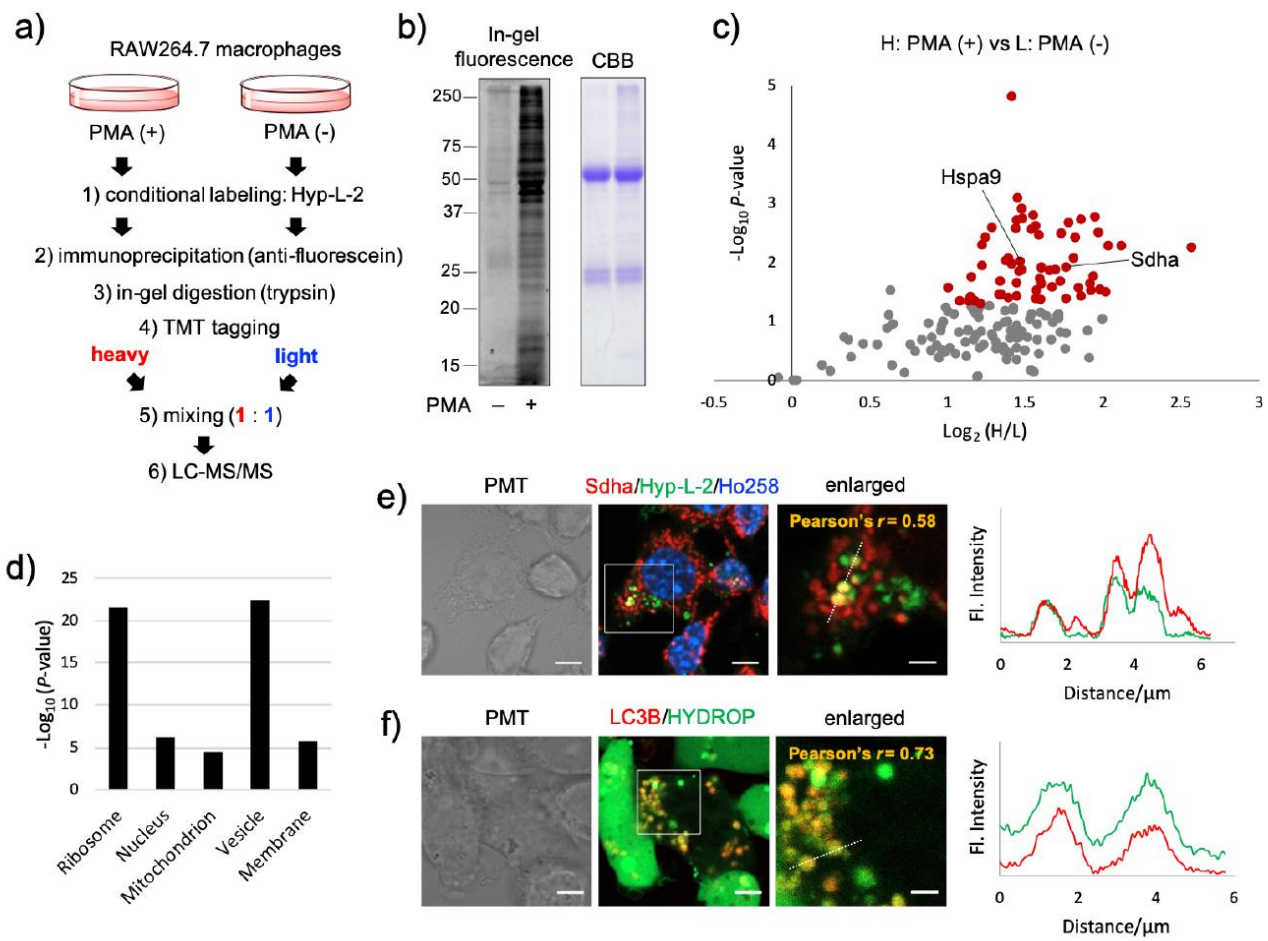


Fixed cells

Living cells

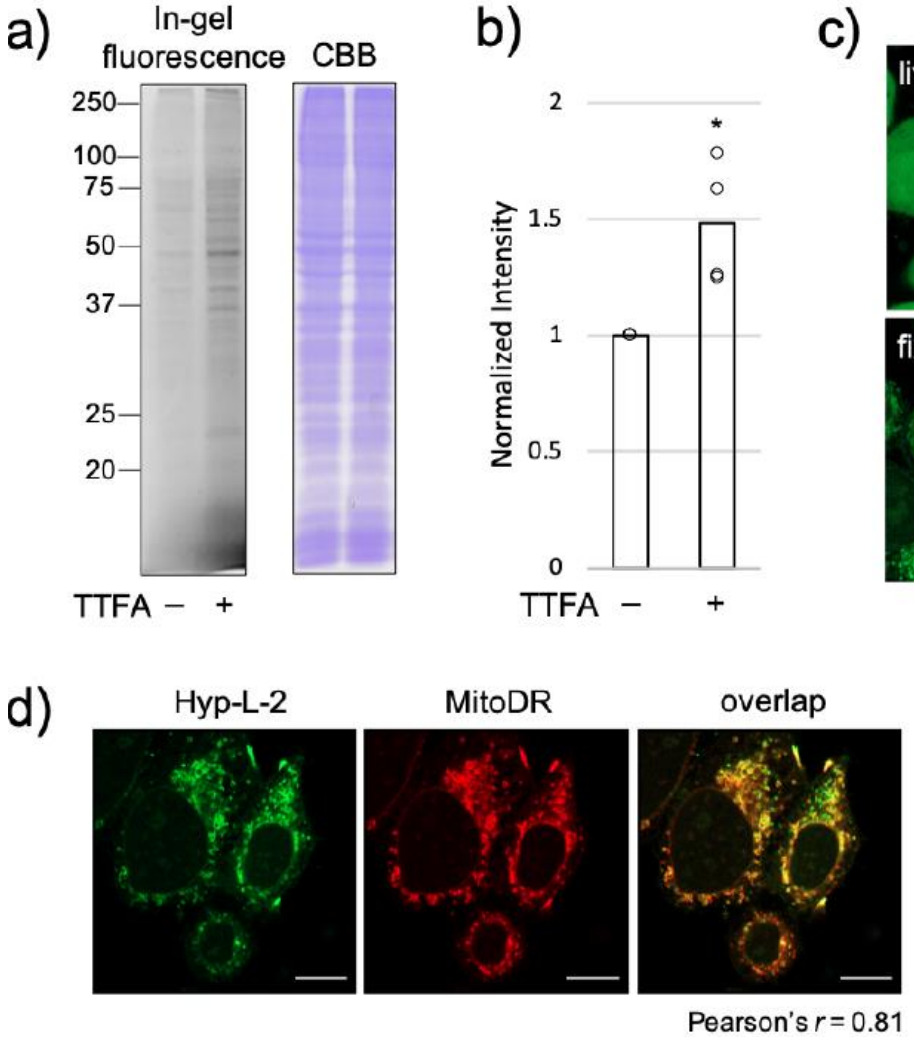
PMA：促进细胞产生不同的富含ROS的囊泡

Proteomic profiling



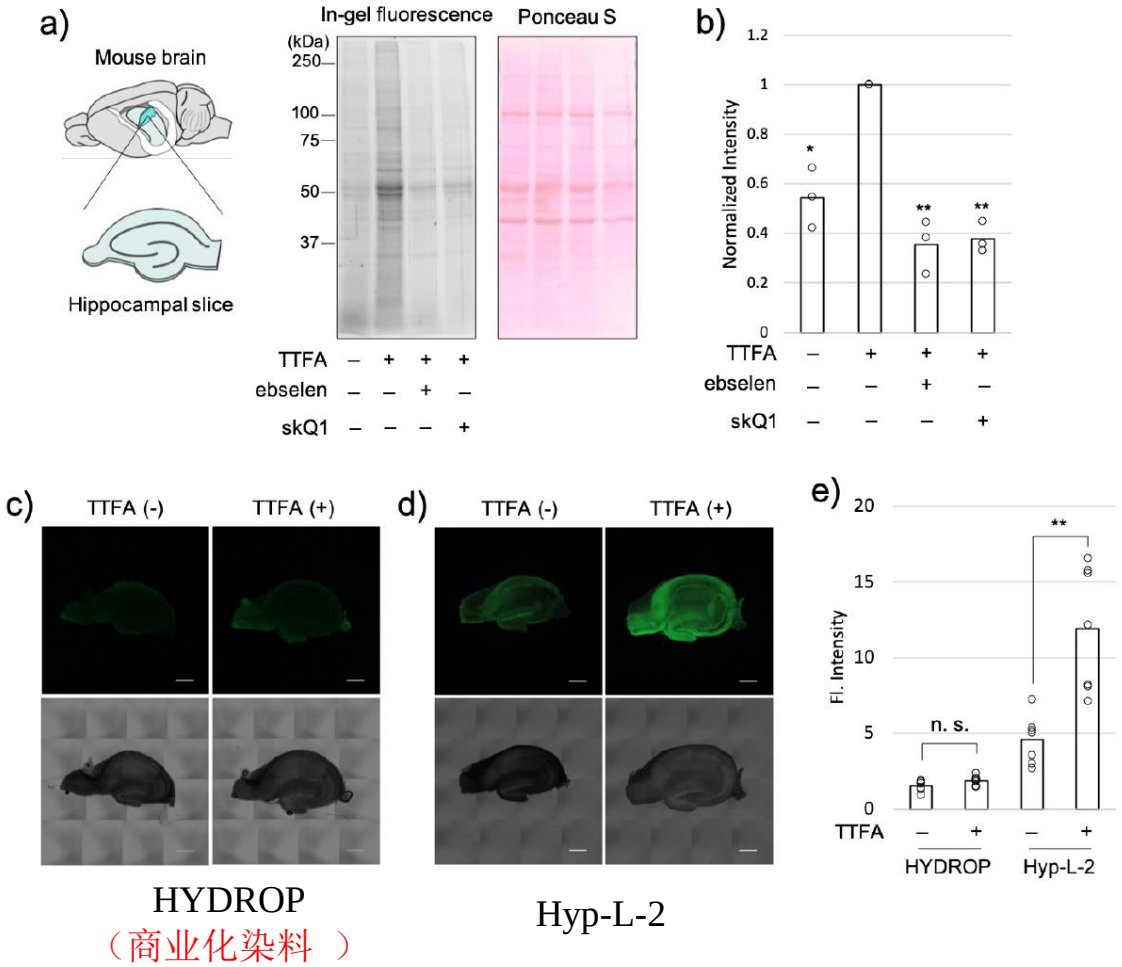
*LC3B：标准的自噬体标记物

PMA刺激RAW264.7巨噬细胞产生的H_2O_2广泛富集囊泡中



*TTFA：线粒体复合物抑制剂，诱导线粒体的氧化应激。

Application of Hyp-L to mouse brain tissue



HYDROP
（商业化染料 ）

Hyp-L-2