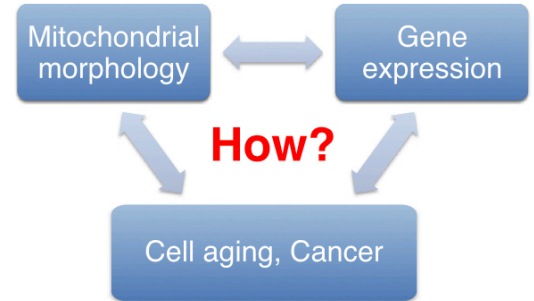


# Tsuboi Lab @ Tsinghua-Shenzhen

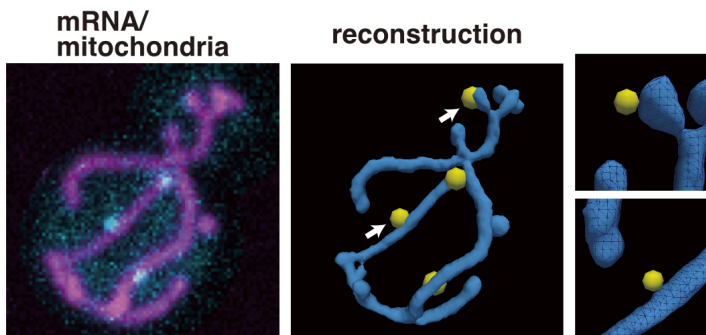
\* Recruiting Grad students and Postdocs!! Please message me!!

## Decoding the Mechanistic Principles of Gene Regulation by Mitochondrial 3D Spatial Organization

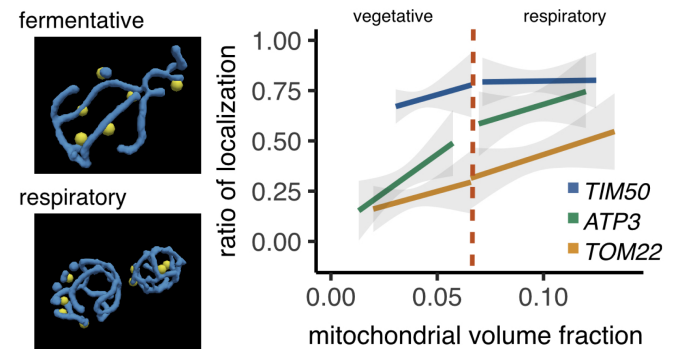
1. Decipher the mechanistic basis of enhanced protein synthesis on the mitochondria surface
2. Investigate how fluctuating mitochondrial morphology during stress and disease affects gene expression
3. Pursue application method from the understanding of fluctuating mitochondrial morphology, such as screening of anti-aging drugs



## Reconstruction of the spatial relationship between mRNAs and mitochondria



## Mitochondrial volume fraction and binding affinity regulates mRNA localization



## Selected Publications

- Tsuboi T\*, Leff J, Zid BM\*. Post-transcriptional control of mitochondrial protein composition in changing environmental conditions. (2020) *Biochem Soc Trans.* [\*co-correspondence authors] **Review**
- Tsuboi T\*, Viana MP, Xu F, Yu J, Chanchani R, Arceo XG, Tutucci E, Choi J, Chen YS, Singer RH, Rafelski SM\*, Zid BM\*. (2020) Mitochondrial volume fraction and translation duration impact mitochondrial mRNA localization and protein synthesis. *Elife*, [\*co-correspondence authors]
- Tsuboi T, Yamazaki R, Nobuta R, Ikeuchi K, Makino S, Ohtaki A, Suzuki Y, Yoshihisa T, Trotta C, Inada T. (2015) The tRNA Splicing Endonuclease Complex Cleaves the Mitochondria-localized CBP1 mRNA. *The Journal of Biological Chemistry*
- Izawa T, Tsuboi T, Kuroha K, Inada T, Nishikawa S, Endo T. (2012) Roles of dom34:hbs1 in nonstop protein clearance from translocators for normal organelle protein influx. *Cell Reports*
- Tsuboi T, Kuroha K, Kudo K, Makino S, Inoue E, Kashima I, Inada T. (2012) Dom34:hbs1 plays a general role in quality-control systems by dissociation of a stalled ribosome at the 3' end of aberrant mRNA. *Molecular Cell*

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Postdoctoral Scholar: Prof. Susanne Rafelski, University of California, Irvine  
Ph.D: Tohoku University, Advisor: Prof. Toshifumi Inada  
Master: Nagoya University  
Bachelor: Nagoya University