

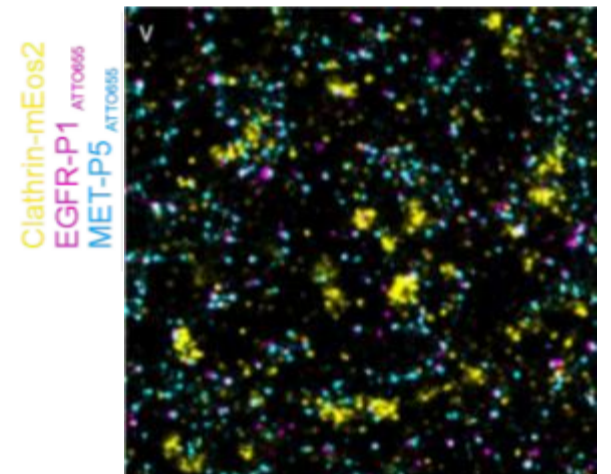
Super-resolution imaging of EGFR and MET receptor in the context of clathrin-mediated endocytosis

Motivation

RTK receptor family is one big group of transmembrane protein, and closely related with many cell disorder, e.g. cancer. EGFR and MET are two members of the RTKs. It's well-studied that, the function of RTKs are achieved, after their ligand binding and dimerization, and down-regulated by internalization. As long as RTKs are activated, the endocytosis related protein clathrin will be recruited and cage the RTKs to build clathrin pits or plaques the endocytosis process will start within 5 minutes. Combination of two SMLM methods DNA-PAINT and PALM make it possible to observe thesis process and bring a clearer view of the RTK behaviours.

Task Description

Your task will be: 1. transfection HeLa cells with mEos3.2 labeled clathrin plasmid. 2. treat HeLa cells with EGF (physiological ligand of EGFR) and InlB₃₂₁ (bacterial ligand that can activate MET). 3. implement DNA-PAINT of MET and EGFR and PALM of clathrin. 4. colocalization study of these 3 targets.



Key References

1. Harwardt, M. L. I. et al, Membrane dynamics of resting and internalin B-bound MET receptor tyrosine kinase studied by single-molecule tracking. FEBS open bio 2017, 7 (9), 1422-1440
2. Wheeler, D. L.; Yarden, Y., Receptor tyrosine kinases: family and subfamilies. Springer: 2015
3. Goh, L. K.; Sorkin, A., Endocytosis of receptor tyrosine kinases. Cold Spring Harbor perspectives in biology 2013, 5 (5), a017459

Work Area

Laboratory	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microscopy	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Data Analysis	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Programming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Time

Possible Start

August 2019

Duration

6 months

Contact

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Language