### Supplementary File 1: Table of Dataset Composition

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| --- | --- | --- | --- |
| **Genotype** | **Structure** | **N Primordia** | **n Cells** |
| *cldnb:lyn-EGFP* | membranes | 24 | 2310 |
| *cldnb:lyn-EGFP**cxcr4b:NLS-tdTomato* | membranesnuclei | 20 | 2528 |
| *cldnb:lyn-EGFP**Actb2:mKate2-Rab11a* | membranesrecycling endosomes | 19 | 1554 |
| *cldnb:lyn-EGFP*RNA: *mKate2-Rab5a* | membranesearly endosomes | 14 | 1131 |
| *cldnb:lyn-EGFP*RNA: *mKate2-GM130(rat)* | membranes*cis*-Golgi | 11 | 866 |
| *cldnb:lyn-EGFP**LexOP:CDMPR-tagRFPt**cxcr4b:LexPR (driver)* | membranesTGN & late endosomes | 13 | 967 |
| *cldnb:lyn-EGFP**LexOP:B4GalT1(1-55Q)-tagRFPt**cxcr4b:LexPR (driver)* | membranes*trans*-Golgi | 10 | 789 |
| *cldnb:lyn-EGFP**atoh1a:dtomato* | membranes*atoh1a* expression | 14 | 1524 |
| *cldnb:lyn-EGFP**6xUAS:tagRFPt-UtrCH**ETL GA346 (driver)* | membranesF-actin | 19 | 1876 |
| *cldnb:lyn-EGFP*LysoTrackerTM Deep Red staining | membraneslysosomes | 21 | 1802 |
| **Total** |  | **165** | **15347** |
| Additional smFISH dataset (fixed): |
| *cldnb:lyn-EGFP**pea3* smFISH staining | membranes*pea3* RNA molecules | 31 | 3149 |