**Supplementary file 1. Primary antibodies used for ICC and IHC**

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| --- | --- | --- | --- | --- | --- |
|  | **Antigen** | **Source** | **Isotype** | **Dilution** | **Localization** |
| ICC | NKX6.1 | DSHB | Mouse IgG1 | 1:200 | Nucleus |
| SOX2 | Santacruz | Goat IgG | 1:200 | Nucleus |
| PAX6 | DSHB | Mouse IgG1 | 1:100 | Nucleus |
| OLIG2 | Santacruz | Goat IgG | 1:200 | Nucleus |
| SV2 | DSHB | Mouse IgG1 | 1:100 | Cytoplasm |
| HB9 | DSHB | Mouse IgG1 | 1:100 | Nucleus |
| ISLT1 | DSHB | Mouse IgG2b | 1:100 | Nucleus |
| NCAM | DSHB | Mouse IgG2b | 1:200 | Cytoplasm |
| CHAT | Millipore | Rabbit IgG | 1:400 | Cytoplasm |
| TH | Millipore | Rabbit IgG | 1:200 | Cytoplasm |
| GFAP | Sigma | Mouse IgG1 | 1:500  | Cytoplasm |
| GFP | Abcam | Chicken IgY | 1:300 | GFP protein |
| MAP2 | Abcam | Mouse IgG1 | 1:400 | Cytoplasm |
| TUJ1 | Millipore | Mouse IgG1 | 1:500  | Cytoplasm |
| IHC | TUJ1 | Abcam | Rabbit IgG | 1:500  | Cytoplasm |
| MAP2 | Abcam | Mouse IgG1 | 1:400 | Cytoplasm |
| SV2 | DSHB | Mouse IgG1 | 1:100 | Cytoplasm |
| MBP | Millipore | Rat IgG2a | 1:100  | Myelin membrane |
| GFAP | DAKO | Rabbit IgG | 1:200  | Cytoplasm |
| GFP | Abcam | Chicken IgY | 1:300 | GFP protein |