**Table S1. Mouse airway neuroendocrine cell markers**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | |  | **Fraction of expressing cells** | | **Relative**  **expression level** | **Expression difference**  **(NE/non NE)** | **TNEC marker (Montoro et al)5** | **TNEC marker (Plasschaert et al)6** | **PNEC-selective marker7** | | **Gene1** | **NE** | **non NE2** | **ln (NE/non NE)3** | **p-value4** |  |  |  | | Pcsk11 | 0.96 | 0.01 | 7.5 | ≤ 0.0001 | + | + |  | | Resp181 | 0.99 | 0.03 | 7.7 | ≤ 0.0001 |  |  |  | | Nov | 0.99 | 0.04 | 7.2 | ≤ 0.0001 | + | + |  | | Piezo2 (Fam38b)1 | 0.96 | 0.02 | 6.8 | ≤ 0.0001 |  |  | + | | Scg51 | 0.96 | 0.02 | 6.5 | ≤ 0.0001 | + | + |  | | \*Calca1 | 0.93 | 0.02 | 7.0 | ≤ 0.0001 | + | + |  | | Ptprn1 | 0.90 | 0.02 | 5.9 | ≤ 0.0001 |  |  | + | | Col8a11 | 0.82 | 0.01 | 6.4 | ≤ 0.0001 |  |  |  | | Nnat1 | 0.98 | 0.11 | 5.4 | ≤ 0.0001 |  |  |  | | Snap251 | 0.78 | 0.01 | 6.1 | ≤ 0.0001 | + | + |  | | Pkib1 | 0.83 | 0.03 | 2.8 | ≤ 0.0001 | + | + |  | | Spock31 | 0.77 | 0.00 | 6.3 | ≤ 0.0001 |  | + |  | | Slc35d31 | 0.90 | 0.05 | 4.3 | ≤ 0.0001 |  | + |  | | Ascl11 | 0.74 | 0.00 | 6.0 | ≤ 0.0001 | + | + |  | | Cplx21 | 0.91 | 0.07 | 4.4 | ≤ 0.0001 | + | + |  | | Igf21 | 0.81 | 0.02 | 4.3 | ≤ 0.0001 |  |  | + | | Arc1 | 0.83 | 0.04 | 5.6 | ≤ 0.0001 |  |  |  | | Meg31 | 0.81 | 0.03 | 4.6 | ≤ 0.0001 |  |  | + | | Rab3b1 | 0.79 | 0.03 | 4.7 | ≤ 0.0001 |  |  |  | | Tcerg1l1 | 0.70 | 0.00 | 6.1 | ≤ 0.0001 | + | + |  | | Pnmal2 | 0.68 | 0.01 | 5.8 | ≤ 0.0001 |  | + |  | | Zcchc12 | 0.67 | 0.01 | 5.6 | ≤ 0.0001 |  |  |  | | Chgb | 0.71 | 0.02 | 6.2 | ≤ 0.0001 | + | + |  | | Ptn | 0.84 | 0.07 | 3.3 | ≤ 0.0001 | + | + |  | | Rgs2 | 0.76 | 0.04 | 4.4 | ≤ 0.0001 |  |  |  | | Cldn4 | 0.89 | 0.12 | 4.5 | ≤ 0.0001 |  |  |  | | Meis2 | 0.71 | 0.03 | 4.4 | ≤ 0.0001 | + | + |  | | Cdh13 | 0.79 | 0.07 | 3.4 | ≤ 0.0001 |  |  |  | | Nrxn1 | 0.76 | 0.04 | 3.1 | ≤ 0.0001 |  |  |  | | Scg2 | 0.67 | 0.03 | 6.7 | ≤ 0.0001 | + | + |  | | Aplp1 | 0.68 | 0.03 | 5.4 | ≤ 0.0001 |  | + |  | | Pcsk1n | 0.62 | 0.01 | 4.7 | ≤ 0.0001 |  |  |  | | Ddc | 0.63 | 0.02 | 5.2 | ≤ 0.0001 | + | + |  | | Ly6h | 0.56 | 0.00 | 3.8 | ≤ 0.0001 | + | + |  | | St8sia3 | 0.55 | 0.00 | 4.7 | ≤ 0.0001 |  |  |  | | Ptprn2 | 0.65 | 0.03 | 4.7 | ≤ 0.0001 |  |  |  | | Cd9 | 1.00 | 0.87 | 2.2 | ≤ 0.0001 | + |  |  | | Tspan13 | 0.93 | 0.24 | 3.0 | ≤ 0.0001 |  |  |  | | Kcnip1 | 0.56 | 0.01 | 5.3 | ≤ 0.0001 |  |  |  | | Egr1 | 0.99 | 0.56 | 3.0 | ≤ 0.0001 |  |  |  | | Lrp11 | 0.64 | 0.04 | 4.5 | ≤ 0.0001 | + |  |  | | Insm1 | 0.53 | 0.00 | 3.9 | ≤ 0.0001 |  | + |  | | Peg3 | 0.63 | 0.04 | 5.2 | ≤ 0.0001 |  |  |  | | Thbs1 | 0.94 | 0.32 | 4.2 | ≤ 0.0001 |  |  |  | | Crmp1 | 0.50 | 0.00 | 6.0 | ≤ 0.0001 |  | + |  | | Cldn9 | 0.52 | 0.00 | 6.2 | ≤ 0.0001 |  |  |  | | Clstn2 | 0.55 | 0.01 | 4.9 | ≤ 0.0001 |  |  |  | | Runx1t1 | 0.53 | 0.01 | 4.7 | ≤ 0.0001 |  | + |  | | F5 | 0.53 | 0.01 | 5.7 | ≤ 0.0001 |  |  |  | | \*Ncam1 | 0.53 | 0.01 | 4.9 | ≤ 0.0001 |  |  |  | | Prune2 | 0.51 | 0.01 | 4.5 | ≤ 0.0001 |  |  |  | | Fhl2 | 0.59 | 0.03 | 4.9 | ≤ 0.0001 |  |  |  | | Espn | 0.74 | 0.10 | 3.2 | ≤ 0.0001 |  |  |  | | Scg3 | 0.52 | 0.01 | 5.2 | ≤ 0.0001 |  |  |  | | Robo1 | 0.66 | 0.06 | 3.5 | ≤ 0.0001 |  |  |  | | Zcchc18 | 0.50 | 0.01 | 5.8 | ≤ 0.0001 |  |  |  | | Syp\* | 0.52 | 0.01 | 4.4 | ≤ 0.0001 |  |  |  | | Cpe | 0.67 | 0.07 | 3.8 | ≤ 0.0001 |  |  |  | | Selm | 0.59 | 0.03 | 3.2 | ≤ 0.0001 |  |  |  | | Krt18 | 1.00 | 0.76 | 2.5 | ≤ 0.0001 |  |  |  | | Stxbp1 | 0.66 | 0.07 | 4.1 | ≤ 0.0001 |  |  |  | | Olfm1 | 0.50 | 0.01 | 4.8 | ≤ 0.0001 |  |  |  | | Bex1 | 0.74 | 0.12 | 3.4 | ≤ 0.0001 |  |  |  | | Gnao1 | 0.49 | 0.01 | 4.8 | ≤ 0.0001 |  |  |  | | Actg1 | 1.00 | 0.93 | 2.1 | ≤ 0.0001 |  |  |  | | \*Uchl1 | 0.61 | 0.04 | 3.3 | ≤ 0.0001 | + | + |  | | Btg2 | 0.99 | 0.70 | 2.5 | ≤ 0.0001 |  |  |  | | Nptx1 | 0.49 | 0.01 | 6.1 | ≤ 0.0001 |  |  |  | | \*Chga | 0.63 | 0.06 | 5.8 | ≤ 0.0001 | + | + |  | | Syt7 | 0.74 | 0.12 | 3.4 | ≤ 0.0001 | + | + |  | | Tnfrsf21 | 0.72 | 0.11 | 3.1 | ≤ 0.0001 |  |  |  | | Dner | 0.46 | 0.00 | 5.2 | ≤ 0.0001 |  |  |  | | Atf3 | 0.94 | 0.42 | 3.4 | ≤ 0.0001 |  |  |  | | Egr3 | 0.47 | 0.01 | 3.5 | ≤ 0.0001 |  |  |  | | Ptprz1 | 0.77 | 0.15 | 3.3 | ≤ 0.0001 |  |  |  | | Itm2c | 0.98 | 0.57 | 2.1 | ≤ 0.0001 |  |  |  | | Tmem171 | 0.73 | 0.13 | 3.1 | ≤ 0.0001 |  |  |  | | Pcdh9 | 0.46 | 0.01 | 5.1 | ≤ 0.0001 |  |  |  | | Wnt3 | 0.43 | 0.00 | 5.1 | ≤ 0.0001 |  |  |  | | Insrr | 0.44 | 0.01 | 5.1 | ≤ 0.0001 |  | + |  | | Disp2 | 0.45 | 0.01 | 5.0 | ≤ 0.0001 |  | + |  | | Gpr126 | 0.62 | 0.06 | 3.0 | ≤ 0.0001 |  |  |  | | Nr4a1 | 0.89 | 0.43 | 3.7 | ≤ 0.0001 |  |  |  | | Tmod2 | 0.46 | 0.01 | 4.6 | ≤ 0.0001 |  |  |  | | Smpd3 | 0.73 | 0.12 | 2.9 | ≤ 0.0001 |  |  |  | | Nbl1 | 0.84 | 0.23 | 2.4 | ≤ 0.0001 |  |  |  | | Ccnd2 | 0.96 | 0.45 | 2.0 | ≤ 0.0001 |  |  |  | | Dmpk | 0.56 | 0.05 | 3.9 | ≤ 0.0001 |  |  |  | | Stmn3 | 0.42 | 0.00 | 5.1 | ≤ 0.0001 |  |  |  | | Sez6l2 | 0.44 | 0.01 | 4.5 | ≤ 0.0001 |  |  |  | | Tspan7 | 0.64 | 0.09 | 3.6 | ≤ 0.0001 |  |  |  | | 6330407J23Rik | 0.39 | 0.00 | 4.7 | ≤ 0.0001 |  |  |  | | Cldn6 | 0.45 | 0.02 | 4.0 | ≤ 0.0001 |  |  |  | | Cacna1h | 0.41 | 0.00 | 3.8 | ≤ 0.0001 |  |  |  | | Mcoln3 | 0.38 | 0.00 | 5.1 | ≤ 0.0001 |  |  |  | | Celf4 | 0.50 | 0.04 | 4.1 | ≤ 0.0001 |  |  |  | | Krt8 | 1.00 | 0.86 | 2.0 | ≤ 0.0001 |  |  |  | | Kcnk3 | 0.47 | 0.02 | 3.6 | ≤ 0.0001 |  |  |  | | Cited4 | 0.49 | 0.03 | 3.5 | ≤ 0.0001 |  |  |  | |

\*Previously reported PNEC marker

1PNEC genes analyzed for expression in TNECs (Montoro et al, 2018)

2Non-neuroendocrine epithelial cells from mouse lung cell atlas (Travaglini et al, 2020)

3Natural log of the ratio of average expression (counts per million) in NE to non-PNEC epithelial cells

4Wilcoxon rank sum test

5Top reported mouse tracheal neuroendocrine cell (TNEC) marker genes in Montoro et al (2018)

6Top reported mouse TNEC marker genes in Plasschaert et al, 2018

7PNEC markers1 with little or no expression in TNECs (Montoro et al, 2018)