Supplementary Information Guide

(1) Contains: Supplementary tables 1-3

(2) Description: 1 PDF file

Supplementary Table 1. Validated, robust alveolar epithelial cell markers.

Supplementary Table 2. Percentiles of receptor genes expressed by bipotent progenitors and LysM-lineage alveolar type 2 (AT2) cells; and expression levels of EGF receptor family members with histograms of probe-specific levels.

Supplementary Table 3. Genes highly selectively expressed by bipotent progenitors and LysM-lineage alveolar type 2 (AT2) cells at the 90^{th} percentile or higher; and annotation enrichment analysis for these gene profiles.

Supplementary Table 1. Validated, robust alveolar epithelial cell markers

AT1 Markers

Antigen or Lectin (synonym)	Reference
Ager (Rage)	Fehrenbach et al. 1998
Aqp5	Nielsen et al. 1997
LEL	Bankston et al. 1991
Pdpn (T1α)	Rishi et al. 1995
RCA I	Dobbs et al. 1985

AT2 Markers

Antigen (synonym)	Reference
Abca3	Mulugeta et al. 2002
Ctsh	Ishii et al. 1991
Lamp-1, Lamp-2	Salaun et al. 2004
Lyz2 (LysM)	Singh et al. 1988
Muc1	Jarrard et al. 1998
Nkx2.1 (Ttf-1)*	Ikeda et al. 1995
SftpB	Kalina et al. 1992
SftpC	Beers et al. 1992
SftpD	Crouch et al. 1991

* Low level expression observed in AT1 cells

Bankston, P. W., Porter, G. A., Milici, A. J. & Palade, G. E. Differential and specific labeling of epithelial and vascular endothelial cells of the rat lung by Lycopersicon esculentum and Griffonia simplicifolia I lectins. *Eur J Cell Biol* **54**, 187-195 (1991).

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Ikeda, K. *et al.* Gene structure and expression of human thyroid transcription factor-1 in respiratory epithelial cells. *J Biol Chem* **270**, 8108-8114 (1995).

Ishii, Y., Hashizume, Y., Kominami, E. & Uchiyama, Y. Changes in immunoreactivity for cathepsin H in rat type II alveolar epithelial cells and its proteolytic activity in bronchoalveolar lavage fluid over 24 hours. *Anat Rec* **230**, 519-523 (1991).

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Salaun, B. *et al.* CD208/dendritic cell-lysosomal associated membrane protein is a marker of normal and transformed type II pneumocytes. *Am J Pathol* **164**, 861-871 (2004).

Singh, G., Katyal, S. L., Brown, W. E., Collins, D. L. & Mason, R. J. Pulmonary lysozyme--a secretory protein of type II pneumocytes in the rat. *Am Rev Respir Dis* **138**, 1261-1267 (1988).

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Receptor expression in bipotent progenitors (BP) and AT2 cells relative to cells in GEXC

-100 ↔ -80	-80 ↔ -60	-60 ↔ -40	-40 ↔ -20	-20 ↔ 20	20 ↔ 40	40 ↔ 60	60 ↔ 80	80 ↔ 100

	Gene	BP 1	BP 2	BP 3	AT2 1	AT2 2	AT2 3
Cytokine	Epor	-70	-68	-65	-53	-91	-76
	Ghr	36	39	30	3	-31	-39
	Mpl	-55	-63	-41	-59	-47	-34
	Prlr	-55	-57	42	-17	0	-19
	Csf3r	15	41	67	0	89	89
	Il12rb1	-89	-87	-75	-40	-16	-6
	Il12rb2	-94	-54	-73	-46	-70	-51
	Il27ra	-47	-58	-65	-47	2	19
	Il6st	48	48	23	48	3	12
	Lepr	23	18	-20	29	-21	-12
	Lifr	46	47	42	28	5	25
	Cntfr	-56	-51	-78	-75	-43	-61
	Crlf1	55	60	60	10	-16	-51
	Ebi3	33	26	64	55	27	54
	Il12b	-42	-28	-8	87	-1	13
	Il6ra	89	89	97	95	100	99
	Crlf2	43	33	76	91	100	95
	Csf2rb	85	83	98	94	82	87
	Csf2rb2	64	60	80	81	55	66
	Il21r	-36	-39	-10	-6	47	50
	Il2rb	-49	-77	-73	-68	-22	-21
	Il4ra	42	43	68	55	54	80
	Il7r	-3	-4	16	50	64	52
	Il9r	-15	-23	-72	-61	-66	-46
	Csf2ra	67	67	85	87	70	87
	Il13ra1	88	87	90	93	100	96
	Il2rg	28	31	31	56	85	61
	Il3ra	-25	-30	-31	-53	52	5
	Il5ra	-74	-45	-79	-56	-19	-52
	Crlf3	25	26	66	37	71	74
	Il10ra	56	55	92	92	77	97
	Il10rb	25	18	64	61	50	79
	Il20ra	-58	-75	-66	-64	-67	-69
	Il22ra2	-22	-69	-27	-11	-8	-8
	Il28ra	76	64	73	50	4	51
	Ifnar1	-27	-24	-43	-3	0	27
	Ifnar2	76	72	85	35	99	91
	Ifngr1	36	30	30	53	81	85
	Ifngr2	-25	0	5	-3	1	51
	Il18r1	32	38	56	80	81	39
	Il1r1	79	75	19	54	-24	-22
	Il1r2	73	70	95	64	97	98
	Il1rap	27	18	48	-26	55	84
	Il1rapl1	-73	-65	-84	-77	-23	-75
	Il1rapl2	-71	-68	-45	-84	-25	-60
	Il1rl1	43	35	81	64	9	28
	Il1rl2	68	66	82	83	-12	-3
	Il17ra	75	70	86	42	79	86
	Il13ra2	-89	-55	-88	-73	-43	-76
	Il17rb	-95	-75	-61	-89	-13	-44
	Il17rc	-8	-10	-20	46	-10	-20
	Il17rd	25	39	-25	-65	-61	-50
	Il17re	64	61	74	47	40	56
	Il2ra	-71	-72	-71	-28	-3	-18
	Il31ra	-27	-72	-66	-26	60	81
	F3	28	31	86	68	-25	-51
GPCR	A630033H20Rik	90	85	89	20	34	61
	Csprs	-90	-90	-68	-25	-47	-39
	Darc	-94	-85	-88	-91	-86	-83
	Drd1a	-20	-31	-28	-94	-68	-40
	Lpar6	48	41	43	67	67	61
	Lypd1	-61	-66	-55	-43	-21	-56
	Nmur1	-60	-54	-58	-75	0	-80
	Nmur2	-49	-47	-47	-35	-28	-29
	S1pr5	-20	-43	-27	-16	95	89
	Tm2d1	38	31	23	26	-51	27
	Tmem11	-5	-3	-52	-51	-69	-18
	Ccr1	87	85	97	83	91	90
	Ccr1l1	-30	-49	-35	-62	-27	-51
	Ccr2	79	79	86	79	77	86
	Ccr3	-86	-51	-58	-53	-32	-34
	Ccr4	-53	-79	-64	-43	39	-56
	Ccr5	41	35	39	71	34	59
	Ccr6	-53	-54	-51	39	47	53
	Ccr7	-29	-23	-5	72	66	67
	Ccr8	-57	-21	-29	-36	-54	-29
	Ccrl1	-11	-17	-61	-45	14	-14
	Ccrl2	87	83	93	93	92	95
	Cmklr1	53	42	53	20	73	80
	Xcr1	-48	-75	-43	98	-18	-19
	C3ar1	26	22	45	-2	-28	17
	C5ar1	8	5	29	-7	23	24
	Ednra	72	74	22	-65	-30	-60
	Ednrb	82	88	83	-82	-42	-61
	Npy1r	-71	-43	-64	-54	-75	-55
	Npy2r	-2	-1	-19	-62	-6	-22
	Npy5r	-60	-54	-78	-30	-52	-73
	Npy6r	-48	-65	-66	-82	-25	-23
	Ghsr	-79	-57	-98	-55	-14	-78
	Tshr	-39	-44	-55	-71	-23	-56
	Rxfp1	-97	-90	-99	-83	-99	-91
	Rxfp2	-24	-45	-10	-57	-9	-11
	Adora1	-5	18	-26	-31	-62	-81
	Adora2a	-75	-75	-73	-59	17	-38
	Adora2b	87	86	97	88	77	90
	Adora3	-3	-5	-2	-11	-2	-18
	Adra1a	-19	-58	-54	-37	39	-46
	Adra1b	-99	-83	-93	-47	-34	-66
	Adra2a	-7	1	-16	-1	-19	-27
	Adra2b	-74	-72	-33	-32	42	-17
	Adra2c	-24	-78	-20	-45	45	2
	Adrb1	37	55	28	76	15	-1
	Adrb2	65	65	54	33	39	23
	Adrb3	-71	-47	-60	-74	-80	-66
	Agtr1a	-14	-14	-49	-6	-70	-35
	Agtr1b	74	77	11	-71	-12	-74
	Agtr2	20	9	0	-61	-14	-66
	Aplnr	74	88	-10	-47	11	-23
	Avpr1a	-71	-56	-78	-92	-22	-40
	Avpr1b	-60	-76	-84	-42	-47	-54
	Avpr2	-72	-79	-70	-41	-23	-73
	Bdkrb1	-76	-79	-91	-67	-25	-53
	Bdkrb2	-7	-17	-54	-86	-30	-70
	Brs3	-32	-61	-63	-59	46	20
	Ccbp2	-3	-2	-54	-71	-47	-56
	Cckar	14	18	-2	93	-7	-12
	Cckbr	-67	-71	-84	-90	-47	-49
	Ccr10	-30	-23	-32	98	86	99
	Ccr9	-15	-18	-7	7	71	57
	Chrm1	-85	-69	-61	-58	-51	-52
	Chrm3	-80	-69	-56	-88	-57	-4
	Chrm4	-57	-71	-72	-29	-52	-32
	Cnr1	-35	-67	-88	-77	-71	-84
	Cnr2	43	43	52	15	71	88
	Cx3cr1	97	95	98	51	96	98
	Cysltr1	34	39	59	67	29	47
	Cysltr2	-61	-62	-66	-47	-16	-15
	Drd2	-73	-67	-55	-80	-21	-57
	Drd3	-84	-89	-89	-79	-30	-78
	Drd4	-68	-47	-60	-63	-39	-33
	F2r	82	81	88	-13	78	37
	F2rl1	-12	-3	-4	-20	-3	1
	F2rl2	-64	-67	-47	-7	-19	-36
	F2rl3	-60	-56	-56	-83	-51	-57
	Ffar2	66	59	59	-1	52	15
	Fpr1	65	64	72	17	57	63
	Fpr3	-78	-75	-12	-74	-7	-17
	Fshr	-40	43	-21	-3	-57	-12
	Galr1	-18	-68	-59	-81	29	-75
	Galr2	-84	-81	-97	-85	-69	-83
	Galr3	-76	-75	-75	-46	26	-15
	Gnrhr	-37	-58	7	-19	-59	-9
	Gpr1	-79	-73	-50	-64	-76	-85
	Gpr101	-49	-93	-60	-68	-27	-32
	Gpr12	-52	-44	-81	-75	-42	-46
	Gpr132	-16	-17	-5	11	25	17
	Gpr135	-25	-21	-26	-46	-15	-40
	Gpr149	-76	-76	-88	-52	-50	-78
	Gpr15	58	20	15	-83	9	-15
	Gpr150	-65	-50	-40	-33	-69	-22
	Gpr152	-40	-67	-26	-7	-11	-37
	Gpr160	54	49	48	39	-4	53
	Gpr161	-44	-20	-61	-51	-4	-25
	Gpr162	-71	-55	-64	-52	-41	-62
	Gpr17	-49	-64	-78	-70	-17	-45
	Gpr171	21	27	29	86	60	63
	Gpr173	-40	-54	-87	-64	-40	-60
	Gpr174	-26	-33	-5	-6	64	34
	Gpr176	-55	-67	-85	-69	-54	-74
	Gpr18	-44	-45	-21	-1	16	45
	Gpr182	-1	11	-38	-92	-63	-27
	Gpr183	-5	-11	4	41	31	63
	Gpr19	-19	-36	-55	-61	-69	-71
	Gpr20	-49	-18	-84	-32	-41	-36
	Gpr22	-78	-79	-68	-72	-63	-92
	Gpr25	-48	-69	-84	-80	-4	-10
	Gpr26	-16	-23	-43	13	50	-41
	Gpr27	-76	-71	-58	-77	-35	-38
	Gpr3	-31	-23	-71	-16	24	-2
	Gpr30	-1	-1	-40	-30	-34	-52
	Gpr33	-65	-83	-41	92	-4	-84
	Gpr34	24	4	-4	-17	-57	-5
	Gpr35	76	71	91	82	85	96
	Gpr37	-89	-77	-88	-42	-37	-86
	Gpr37l1	-62	-75	-66	-70	-75	-57
	Gpr39	-95	-89	-73	-26	-63	-83
	Gpr4	-10	0	-75	20	-48	-33
	Gpr44	-58	-80	-79	-25	-20	-58
	Gpr45	-28	-74	-44	-70	-8	-29
	Gpr50	12	-16	-38	-76	0	-15
	Gpr6	-90	-96	-83	-51	-21	-20
	Gpr61	-38	-71	-74	-75	-87	-51
	Gpr62	-63	-81	-62	-58	-5	-46
	Gpr63	-25	-50	-9	5	36	-6
	Gpr65	52	47	74	86	88	86
	Gpr68	-81	-88	-72	36	-2	7
	Gpr75	-85	-98	-69	-44	-34	-70
	Gpr81	-66	-68	-70	-75	-84	-90
	Gpr83	-79	-73	-57	-95	-12	-40
	Gpr84	6	0	53	-7	-3	0
	Gpr85	-3	-62	-19	-13	-67	-56
	Gpr87	-77	-80	-74	-87	-69	-76
	Gpr88	-4	-7	-24	-48	-24	-31
	Grpr	-45	-40	-31	-88	-3	-27
	Hcrtr1	-18	-44	-43	-17	-67	-27
	Hcrtr2	74	34	17	-31	62	34
	Hrh1	-90	-88	-93	-74	-97	-68
	Hrh2	-41	-74	-49	22	67	70
	Hrh3	-70	-58	-68	-52	-25	-60
	Hrh4	-23	-42	39	-26	37	-27
	Htr1a	-70	-64	-44	-23	-6	-14
	Htr1b	-40	-32	-59	46	23	-49
	Htr1d	-91	-80	-49	-30	-12	-63
	Htr1f	-78	-94	-78	-46	-9	-53
	Htr2b	-63	-62	-69	-82	-59	-51
	Htr2c	-23	-31	-42	-3	-4	-12
	Htr4	-70	-78	-41	-51	-74	-69
	Htr5a	-34	-60	-87	-34	-2	-39
	Htr5b	-73	-56	-50	-62	-43	-77
	Htr6	-73	-95	-90	-49	-90	-41
	Htr7	-53	-81	-42	92	-9	5
	Kiss1r	-70	-74	-68	-22	35	-31
	Lgr4	-23	-18	-30	-82	-71	-89
	Lgr5	-43	-68	-40	-69	-40	-63
	Lgr6	-5	-5	-5	-15	-33	-43
	Lhcgr	-89	-84	-77	-90	-74	-73
	Lpar1	46	49	8	-27	-42	-60
	Lpar2	45	64	53	-23	24	12
	Lpar3	25	29	-9	100	-5	7
	Lpar4	90	90	48	-19	44	-13
	Ltb4r1	61	60	72	59	82	86
	Ltb4r2	-32	-57	-48	-36	6	-45
	Mas1	-69	-82	-93	-79	-12	-21
	Mc1r	-62	-59	32	-24	-52	-58
	Mc2r	-29	-55	-73	-84	-46	-43
	Mc3r	-41	-85	-15	0	76	-14
	Mc5r	-62	-78	-75	-75	-62	-18
	Mchr1	74	75	43	-62	14	-13
	Mtnr1a	-48	11	-45	-66	-1	-27
	Niacr1	84	77	93	56	87	96
	Nmbr	-1	-45	-34	14	1	4
	Npffr2	-41	-47	-47	-56	-25	-41
	Ntsr1	-46	-49	-73	-88	-12	-43
	Ntsr2	-66	-65	-90	-69	-35	-60
	Oprd1	-94	-78	-69	-83	-44	-69
	Oprk1	-60	-50	-34	-74	-41	-23
	Oprl1	-92	-78	-64	-72	-25	-49
	Oprm1	22	-1	44	8	57	14
	Oxtr	-82	-55	-14	-58	56	-90
	P2ry1	-54	-70	-42	-61	-94	-78
	P2ry10	-3	-7	21	80	81	81
	P2ry12	-4	-16	18	-58	-24	-43
	P2ry13	91	89	92	11	84	87
	P2ry14	80	79	70	80	67	64
	P2ry2	-24	-15	-39	-50	-26	-53
	P2ry4	37	61	-26	12	55	54
	P2ry6	75	73	76	75	69	79
	Ppyr1	-34	-20	-37	-44	-68	26
	Prokr1	-32	-33	-35	-28	-17	-36
	Prokr2	-61	-81	-92	-66	-85	-58
	Ptafr	-39	-38	-25	-3	-10	-15
	Ptgdr	-13	-43	-35	-13	62	-19
	Ptger1	-40	-13	-3	-32	66	8
	Ptger2	61	59	64	12	27	47
	Ptger3	43	41	31	-13	-8	-9
	Ptger4	33	35	53	93	73	68
	Ptgfr	-55	-82	-65	-78	-19	-67
	Ptgir	-37	-53	-30	11	86	80
	Qrfpr	-82	-35	-90	-67	-64	-99
	Rho	-26	-66	-46	-22	-36	-56
	Rrh	-40	-73	-31	-56	-44	-44
	S1pr1	25	32	-32	-82	-1	16
	S1pr2	92	89	68	-21	96	67
	S1pr3	68	67	32	-73	6	-35
	S1pr4	-9	-9	7	-7	86	77
	Sstr1	-95	-76	-76	-77	-41	-33
	Sstr2	-47	-63	-61	-24	-55	-29
	Sstr3	-96	-82	-73	-27	-53	-25
	Sstr4	0	-4	-33	-55	-17	4
	Sstr5	-17	5	-68	-22	15	-10
	Sucnr1	-88	-69	-25	-34	-48	-93
	Tacr1	-39	-73	-44	-70	-27	-38
	Tacr2	-43	-20	-59	-28	-33	-71
	Tacr3	-80	-48	-77	-91	-43	-65
	Tbxa2r	67	70	-13	-22	14	21
	Trhr	-67	-60	-74	-97	-24	-55
	Uts2r	-50	-69	-29	-8	-24	-68
	Cxcr3	-34	-22	-26	50	23	31
	Cxcr4	26	12	50	21	87	72
	Cxcr5	-63	-63	-29	-23	53	15
	Cxcr6	-64	-60	-84	-18	-34	-1
	Cxcr7	74	72	36	-26	9	-9
	Cxcr2	41	57	98	-4	99	99
	Fam188a	-19	-27	67	-11	29	27
	Fpr2	77	76	84	51	66	74
	Fpr-rs3	-43	-40	-59	-46	48	-32
	Fpr-rs4	8	-33	-32	-61	71	-22
	Gcap14	31	36	36	85	36	53
	Gm266	-15	-19	-28	-78	-39	-95
	Gpr151	-85	-62	-97	-93	-28	-62
	Gpr153	-17	-25	-27	-70	-31	-64
	Gpr165	-11	10	-31	-36	24	3
	Hsd17b1	-37	-71	-66	-98	-57	-36
	Oxgr1	-79	-47	-84	-93	-97	-89
	Pkhd1l1	-60	-59	-36	-18	-40	-55
	Trhr2	-74	-29	-78	-84	-10	-44
	Gpr137	-55	-52	-58	-20	-58	-50
	Gpr137b	79	79	93	92	79	80
	Pth1r	35	52	-9	-90	-76	-58
	Pth2r	-67	-95	-83	-94	-65	-79
	Calcrl	80	80	64	-26	60	61
	Crhr1	-48	-34	-19	-2	-45	-25
	Crhr2	-59	-95	-73	-54	-37	-93
	Celsr1	6	33	40	94	-11	-1
	Celsr2	-3	-3	-48	-15	-44	-71
	Celsr3	-13	-9	4	-21	-20	-4
	Bai1	-97	-89	-89	-63	-61	-66
	Bai2	-77	-61	-88	-94	-68	-67
	Bai3	-54	-82	-97	-75	-56	-65
	Cd97	27	30	64	81	71	85
	Eltd1	49	48	-24	-47	-9	7
	Emr1	78	77	82	65	68	80
	Emr4	84	80	94	85	100	100
	Gpr110	-39	-31	-74	-83	-6	-21
	Gpr114	-69	-65	-76	3	28	21
	Gpr115	-74	-76	-75	-87	-77	-81
	Gpr116	70	70	59	61	61	48
	Gpr123	-66	-75	-79	-62	-57	-98
	Gpr124	26	34	-18	-11	-51	-59
	Gpr125	9	22	35	16	-68	-56
	Gpr126	78	79	65	45	3	-1
	Gpr133	-4	24	-37	-95	-42	-36
	Gpr56	-22	-30	-22	37	-74	-42
	Gpr64	51	56	17	-94	-20	-82
	Gpr97	-4	-4	24	-29	24	14
	Lphn1	-1	7	-41	-79	-38	-57
	Lphn2	76	79	18	-1	23	-13
	Lphn3	29	21	-8	-87	-36	-48
	Adcyap1r1	-86	-81	-72	-70	-7	-78
	Calcr	-35	-62	-47	-69	-58	-78
	Gcgr	-92	-90	-63	-37	-24	-77
	Ghrhr	-96	-94	-58	-59	-31	-66

Receptor expression in bipotent progenitors (BP) and AT2 cells relative to cells in GEXC

-100 ↔ -80	-80 ↔ -60	-60 ↔ -40	-40 ↔ -20	-20 ↔ 20	20 ↔ 40	40 ↔ 60	60 ↔ 80	80 ↔ 100

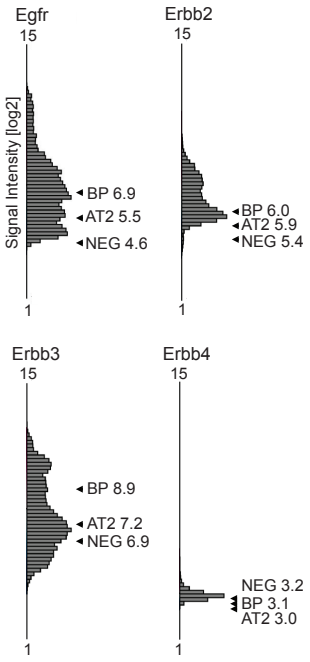
	Gene	BP 1	BP 2	BP 3	AT2 1	AT2 2	AT2 3
GPCR	Gipr	22	-8	10	-61	65	-51
	Glp1r	6	-33	-26	-36	-24	-79
	Gpr98	-39	-44	-52	-11	-14	-46
	Sctr	-73	-78	-62	-54	-51	-16
	Vipr1	-52	-46	-84	-4	0	-5
	Vipr2	-42	-68	-61	-69	-49	-59
	Casr	-51	-14	-63	-1	-21	-26
	Gabbr1	-14	-10	-17	-19	-49	-25
	Gpr158	-66	-73	-64	-49	-51	-78
	Gpr179	-63	-63	-70	-32	-39	30
	Gprc5b	-35	-22	-48	-19	-31	-51
	Gprc5c	-38	-22	-73	53	-57	-41
	Gprc5d	-73	-72	-65	-19	-27	-80
	Gprc6a	-5	-24	-45	-63	-77	-66
	Grm1	-57	-67	-78	-66	-52	-51
	Grm2	-38	-38	-70	-83	-57	-66
	Grm3	-49	-82	-88	-52	-35	-91
	Grm4	-69	-77	-66	-26	-56	-61
	Grm5	-58	-56	-83	-95	-19	-67
	Grm7	-78	-61	-78	-71	-25	-62
	Grm8	-77	-73	-90	-78	-31	-45
	Gprc5a	45	45	74	19	-7	-16
	Gpr143	-46	-61	-74	-86	-51	-47
	Gpr108	-23	-34	-4	10	-76	-9
	Gpr107	98	99	78	58	49	72
	Tmem87a	-25	-35	-22	-9	-47	-35
	Tmem87b	67	71	77	15	13	37
	Gpr155	11	9	11	97	46	21
	Gpr89	-78	-77	-95	-75	-84	-82
	Tpra1	-8	-4	-36	-67	-74	-11
Hedgehog	Npc1	58	62	65	71	-29	71
	Ptch1	86	85	80	4	6	-42
	Ptch2	97	98	66	44	62	70
	Smo	23	28	-12	-43	-65	-64
Inositol	Itpr1	-1	-4	-19	41	-10	-1
	Itpr2	37	28	51	64	79	82
	Itpr3	-17	-1	-19	7	8	35
LDLR	C6	-11	-11	-46	-4	-74	-20
	C8a	-80	-92	-92	-35	-29	-27
	C8b	-74	-61	-49	-33	-34	-40
	C9	-72	-88	-63	-63	-35	-60
	Cd320	-30	-91	-12	-37	0	-19
	D18Ertd653e	8	31	-49	-10	-22	-17
	Dgcr2	51	54	-47	-69	-49	-38
	Ldlr	69	70	85	52	65	84
	Ldlrad3	80	74	18	-45	65	71
	Lrp1	41	48	85	-21	41	-16
	Lrp10	-2	0	46	52	48	47
	Lrp11	-41	-30	-81	-18	-60	-72
	Lrp12	55	54	81	23	-73	3
	Lrp1b	-62	-35	-68	-58	31	-21
	Lrp2	-8	-7	-54	-8	-37	-23
	Lrp3	-85	-90	-95	-91	-59	-86
	Lrp4	63	55	66	58	-44	-8
	Lrp8	10	15	20	-35	25	-15
	Prkcsh	-60	-55	-61	-41	-78	-72
	Vldlr	47	48	40	-59	-53	-75
	Sspo	-24	-28	5	-7	-45	-8
Netrin	Dcc	-49	-48	-91	-84	-40	-63
	Neo1	90	90	78	14	43	-14
	Unc5a	-45	-49	-56	-69	6	-35
	Unc5b	68	55	-30	-71	-51	-64
	Unc5c	41	37	6	-71	-18	-69
	Unc5cl	-12	-17	-18	-22	69	53
	Unc5d	-48	-35	-54	-54	-27	-63
Notch	Dner	-6	-9	-20	-18	-13	-25
	Notch1	38	43	60	47	57	50
	Notch2	78	78	86	87	89	85
	Notch3	22	23	-36	-14	-30	-65
	Notch4	49	58	-9	65	-31	-32
Hor-mone	Ogfr	-27	-43	38	12	34	22
	Ogfrl1	59	54	87	40	90	93
PTPR	Ptprc	53	48	83	80	82	71
	Ptprk	95	96	31	-39	36	91
	Ptprm	70	70	71	7	-49	-42
	Ptprt	-49	-35	-59	-54	-47	-61
	Ptprd	43	51	37	-49	-8	-63
	Ptprf	91	92	98	90	17	25
	Ptprs	35	33	-34	-52	-8	-49
	Ptpru	53	17	-39	-58	87	19
	Ptprb	70	73	48	-67	29	26
	Ptprj	-14	-17	91	69	92	79
	Ptpro	58	43	32	72	67	97

	Gene	BP 1	BP 2	BP 3	AT2 1	AT2 2	AT2 3
	Ptprv	-68	-74	-64	-63	-6	-34
	Ptpra	-58	-16	-39	-33	17	-16
	Ptpre	63	59	91	86	82	93
	Ptprg	88	86	36	-45	-34	-36
	Ptprz1	-19	-29	-44	17	-46	-52
	Ptprr	-21	-23	-44	-93	-37	-67
	Ptprn	-74	-70	-66	-84	-69	-60
	Ptprn2	-29	-68	-13	-20	46	-58
Axl	Axl	48	41	64	17	-46	-22
	Mertk	59	53	68	61	-1	5
	Tyro3	-24	3	-70	38	-58	-59
EGF	Egfr	-14	-17	24	-49	-83	-94
	Erbb2	-34	-15	-36	-6	-51	-77
	Erbb3	27	34	14	-4	-40	-39
	Erbb4	-68	-83	-86	-95	-69	-86
Ephrin	Epha1	44	20	-11	-24	-7	-43
	Epha10	-55	-41	-32	-81	-20	-24
	Epha2	55	59	65	40	4	-5
	Epha3	78	78	72	-99	-30	-85
	Epha4	19	30	26	-69	-14	-9
	Epha5	-9	-10	-51	-92	-55	-97
	Epha6	-67	-79	-60	-94	-39	-75
	Epha7	23	39	11	-39	-36	-28
	Epha8	-22	-53	-40	-30	38	-29
	Ephb1	-16	-10	-33	-81	-32	-71
	Ephb2	-41	-32	-70	-69	-76	-86
	Ephb3	74	57	44	-19	-35	-68
	Ephb4	60	63	-32	-83	-89	-62
	Ephb6	-42	-29	-71	-31	-49	-25
FGF	Fgfr1	-25	-20	-11	57	-29	-17
	Fgfr2	73	79	28	28	-17	-14
	Fgfr3	62	59	32	70	-49	-29
	Fgfr4	66	68	53	36	47	46
	Fgfrl1	0	27	14	-30	22	-50
HGF	Met	45	51	32	53	6	10
	Mst1r	-15	-3	-29	-82	-20	-73
Insulin	Alk	-70	-45	-86	-56	-50	-34
	Ddr1	76	78	67	78	53	7
	Ddr2	2	-2	-8	-67	-51	-42
	Igf1r	82	85	90	64	79	81
	Igf2r	79	74	69	84	45	39
	Insr	49	48	66	18	51	18
	Insrr	-58	-19	-77	-87	40	-9
	Ltk	-38	-43	-45	34	55	-6
	Ntrk1	-38	-35	-86	-87	-14	-76
	Ntrk2	-29	-43	-48	-89	-79	-55
	Ntrk3	-5	-8	-51	-97	-68	-42
	Ptk7	-19	-31	-59	-50	-53	-67
	Ros1	-58	-64	-58	-72	-65	-62
VEGF	Csf1r	82	80	90	76	88	90
	Flt1	75	78	63	17	32	63
	Flt3	-49	-42	-51	92	80	85
	Flt4	29	41	-2	-65	-23	-50
	Kdr	92	91	63	74	-4	15
	Kit	53	58	61	71	-19	-10
	Pdgfra	51	48	49	-65	-22	-43
	Pdgfrb	69	68	23	-67	44	-5
	Pdgfrl	-1	-3	-24	-20	-89	-93
RTK	Musk	-74	-65	-77	-73	-81	-94
	Ryk	60	50	1	-31	-64	-57
Ang	Ror1	57	52	-2	-69	-67	-63
	Ror2	51	44	11	-74	-35	-92
	Tek	69	74	9	-75	-24	-19
	Tie1	63	60	-19	-96	-46	-48
Sema	Nrp1	92	90	87	79	63	69
	Nrp2	70	69	81	25	7	-20
	Plxdc1	-11	-6	-21	76	83	77
	Plxdc2	95	95	99	75	56	53
	Plxna1	-57	-51	-33	-36	-60	-67
	Plxna2	77	82	87	80	-11	-24
	Plxna3	-42	-24	-47	-20	-8	-40
	Plxna4	-27	-25	-1	-23	-53	-13
	Plxnb1	90	91	82	95	13	-27
	Plxnb2	33	39	35	59	22	47
	Plxnb3	33	43	34	-72	-77	-52
	Plxnc1	74	74	78	91	86	74
	Plxnd1	68	73	56	60	22	39
Robo	Robo1	77	81	39	-58	-19	-95
	Robo2	-27	-36	-19	-82	-73	-44
	Robo3	11	-20	-47	-1	50	-2
	Robo4	58	51	-5	-73	-25	-16
	Gfra1	-41	-35	-57	52	-45	-57
	Gfra2	93	92	41	72	66	-7

	Gene	BP 1	BP 2	BP 3	AT2 1	AT2 2	AT2 3
	Gfra3	16	-19	-39	21	6	-34
	Gfra4	-76	-85	-92	-70	-83	-60
TGFβ	Acvr1	66	65	67	83	-14	22
	Acvr1b	11	13	15	27	18	-37
	Acvr1c	-29	-18	-60	-31	-54	-53
	Acvrl1	59	59	5	56	-7	18
	Bmpr1a	31	33	49	17	-34	-40
	Bmpr1b	-10	5	-72	52	-46	-60
	Tgfbr1	71	63	89	76	56	76
	Ret	-32	-37	-71	-28	-21	-14
	Acvr2a	72	78	58	-82	-10	-32
	Acvr2b	-46	-3	-2	-22	-71	-76
	Amhr2	0	11	31	-54	-9	-37
	Bmpr2	56	54	62	23	22	29
	Tgfbr2	58	54	84	66	42	61
	Eng	58	61	-21	-46	0	-4
	Tgfbr3	37	34	27	-40	4	21
TNF	Cd27	-52	-79	-77	-71	-3	-2
	Cd40	42	30	9	84	83	77
	Eda2r	-53	-56	-64	-83	-50	-77
	Edar	-46	-67	-44	-33	-34	-18
	Fas	-34	-33	-5	14	-32	-11
	Ltbr	-3	2	11	11	-24	24
	Ngfr	-60	-67	-83	-56	-94	-44
	Ngfrap1	-18	-19	-22	4	-41	-42
	Relt	91	91	69	53	75	80
	Tnfrsf10b	-61	-53	-92	-36	-6	-36
	Tnfrsf11a	-1	-21	-6	-12	-27	-11
	Tnfrsf11b	-6	-1	-49	-38	-51	-82
	Tnfrsf12a	0	4	13	-14	-19	9
	Tnfrsf13b	18	11	11	33	-2	33
	Tnfrsf13c	-83	-95	-57	-17	38	23
	Tnfrsf14	-53	-70	-26	-73	-16	-13
	Tnfrsf17	-89	-77	-60	81	48	91
	Tnfrsf18	-26	-19	-30	33	32	62
	Tnfrsf19	20	23	12	-49	-34	-59
	Tnfrsf1a	86	80	98	73	100	99
	Tnfrsf1b	87	84	93	89	93	97
	Tnfrsf21	74	69	83	65	-5	77
	Tnfrsf22	-24	-51	-29	-37	-47	-11
	Tnfrsf23	-49	-65	-49	-59	-66	-32
	Tnfrsf25	-29	-14	-18	-18	35	32
	Tnfrsf4	-39	-51	-13	-5	-16	-8
	Tnfrsf8	-93	-79	-83	-85	-20	-64
	Tnfrsf9	-70	-61	-23	-4	-15	-7
Toll	Cd180	-12	-3	-18	-2	26	-9
	Tlr1	-4	-8	-6	-3	37	38
	Tlr12	-48	-55	-76	-12	-14	-59
	Tlr13	36	36	50	13	49	65
	Tlr2	85	84	99	84	75	84
	Tlr3	53	50	24	97	-2	-3
	Tlr4	74	72	86	53	62	67
	Tlr5	-11	0	36	83	14	34
	Tlr6	33	30	36	1	99	98
	Tlr7	0	-4	15	-5	30	31
	Tlr8	-43	-59	-19	-69	-41	18
	Tlr9	-66	-44	-49	-21	6	43
TRP	Trpc1	43	44	-23	-22	-21	-35
	Trpc2	70	70	-20	-17	88	25
	Trpc3	-31	-30	-98	-78	-13	-95
	Trpc4	-43	-76	-56	-68	-70	-60
	Trpc5	-56	-46	-80	-22	-10	-38
	Trpc6	-26	-11	-61	-80	-35	-72
	Mcoln1	39	42	32	43	-28	26
	Mcoln2	-32	-29	-42	9	-13	0
	Mcoln3	-19	-19	17	68	-10	21
	Trpc7	-70	-33	-76	-71	-63	-35
	Trpm1	-60	-31	-35	53	55	40
	Trpm2	52	54	80	30	79	90
	Trpm3	-16	-13	-35	-85	-29	-54
	Trpm4	14	16	-30	58	-30	-33
	Trpm5	-58	-25	-7	-54	-48	-70
	Trpm6	18	31	28	77	-15	-13
	Trpm7	97	97	100	100	73	98
	Trpm8	-77	-50	-82	-59	-8	-36
	Trpa1	-39	-33	-4	-13	-11	-6
	Trpv1	-86	-75	-98	-78	-74	-53
	Trpv2	62	57	83	92	66	79
	Trpv4	-39	-25	-51	-6	-43	-16
	Trpv6	73	88	-30	-36	-33	-40
	Fzd1	27	30	46	30	-45	-40
	Fzd10	-42	-76	-76	-72	-42	-59
	Fzd2	67	73	47	-89	-28	-58

	Gene	BP 1	BP 2	BP 3	AT2 1	AT2 2	AT2 3
Wnt	Fzd3	1	-6	-42	37	-48	-35
	Fzd4	22	32	-9	-15	-27	-41
	Fzd5	74	74	79	52	43	66
	Fzd6	57	54	51	72	-32	-46
	Fzd7	70	68	54	19	-17	13
	Fzd8	66	67	27	16	-47	-70
	Fzd9	-93	-87	-73	-77	-41	-72
	Lrp5	-89	-96	-86	-90	-87	-68
	Lrp6	-41	-26	-20	-26	-18	-20

b



Supplementary Table 2. (a) Gene expression profiles of alveolar bipotent progenitors and LysM-lineage alveolar type 2 (AT2) cells. Expression levels of genes encoding receptors. Muc1+/Pdpn+ bipotent progenitor (BP) cells from E18 wild type lungs and Tomato+/EpCAM+ AT2 cells from adult LysM-Cre> tdTomato lungs were FACS purified then RNA was extracted and processed for analysis on Affymetrix DNA microarrays. Chart displays all 698 known and predicted receptor genes (H. Espinoza and M.K. unpublished) organized by receptor family in rows and biological replicates in columns. Each bin shows the percentile (-100 to +100) and heat map-coded level of expression of the corresponding gene in BP or AT2 cells relative to levels observed in >11,000 archived microarray experiments (representing hundreds or thousands of different cell and tissue types) using the identical probe, as determined from Gene Expression Commons[1] (GEXC). (b) Expression levels of EGF receptor family members. Representative GEXC probe set intensity histograms of expression levels for Egfr, Erbb2, Erbb3, and Erbb4, with the average intensity indicated by arrows for BP cells, AT2 cells, and for a control cell type (B cell) believed not to express any EGF receptors[2,3] (NEG, negative). Note that the histogram of expression levels for the Erbb4 probe is low and narrow indicating it does not provide useful Erbb4 expression information. E, embryonic day.

1 Seita, J. et al. Gene Expression Commons: an open platform for absolute gene expression profiling. PLoS One 7, e40321 (2012).
2 Yu, X. et al. Ligand-independent dimer formation of epidermal growth factor receptor (EGFR) is a step separable from ligand-induced EGFR signaling. Mol Biol Cell 13, 2547-2557 (2002).
3 Moroni, M. et al. Epidermal growth factor receptor expression and activation in nonseminomatous germ cell tumors. Clin Cancer Res 7, 2770-2775 (2001).

a

Selectively expressed genes

BP

Gene	%	Gene	%
Osm	100	Poldip3	93
Pik3cd	99	**Ski**	93
Sftpc	99	Jhdm1d	93
Ddx6	99	**Tgfbi**	93
Abcg1	99	**Lrrfip1**	93
Trpm7	99	Myo7a	93
Ets2	99	Kctd12b	93
Usf2	98	**Mospd2**	93
Cotl1	98	Spsb2	93
Tcf7l2	98	**Cmtm6**	93
Zdhhc14	98	Fras1	93
Dag1	98	**Dnajb14**	93
Nlrx1	97	Sf3b4	93
Runx1	97	**Cyfip1**	93
Trim25	97	Cd8a	92
Trem1	97	Cyr61	92
C77027	97	**Bnip2**	92
Ptpn12	97	Stard9	92
Ear2	97	**Cybasc3**	92
Mapre1	97	Sema3f	92
Eepd1	97	Hhip	92
Cx3cr1	97	Fam124b	92
Nfkbiz	97	Clec4a3	92
Gan	97	**Fam38a**	92
Gpr107	97	Vamp3	92
Irs2	97	**Klf6**	92
Naaa	96	**Lemd2**	92
Fosl2	96	**Il6ra**	92
Spty2d1	96	Cyp4f18	92
Zeb2	96	**Mef2a**	92
Nr4a2	96	Zkscan3	92
Plxdc2	96	Cttnbp2nl	92
Sf1	96	**Cpeb2**	92
Sh3bp5	96	Kank2	92
Diap2	96	Ptch2	92
Slc35a5	96	Uxs1	92
Kdm6b	96	Ergic3	92
Dusp16	96	Eif2ak2	91
Ctsh	96	**Map3k3**	91
E2f5	96	Akap5	91
Sfxn2	95	Tnfrsf1a	91
Clec7a	95	Adora2b	91
Edn3	95	**Glt25d1**	91
Per1	95	Gadd45gip1	91
Maff	95	**Dnajb9**	91
Rabgef1	95	Shh	91
Usp25	95	Pxdn	91
Kif13a	95	**Cd44**	91
Cpne3	95	**Pqlc1**	91
Gatad2a	95	**Rgs2**	91
Arrdc1	95	**Alcam**	91
Bcl2l11	95	Hif1an	91
Pde7a	95	**Spef1**	91
Trib1	95	**Cyth1**	91
Crybb1	95	**Fosb**	91
Hif3a	95	Lyst	91
Mapkapk3	95	Myo1c	91
Slc25a29	95	**Ndel1**	91
Tiparp	94	Lipo1	91
Pcsk5	94	**Fam129a**	91
Hexim1	94	**Junb**	91
Frat2	94	**Acbd3**	91
Bach1	94	Hgsnat	91
Egr1	94	**Ap3b1**	91
Crem	94	P2ry13	91
Sertad1	94	**Diap1**	91
Atp7a	94	**Pum1**	91
Frmd4a	94	**Egr2**	91
Klhdc4	94	Lnpep	91
Amz1	94	**Pde4b**	91
Rbms3	94	Chst5	90
Zswim6	94	Dgat1	90
Cd300lf	94	**Eif2c3**	90
Socs3	94	**Mthfs**	90
Myh9	94	Senp7	90
Ptprf	94	**Picalm**	90
Mcl1	94	Ccr1	90
Ier2	94	Irak4	90
Nab1	94	Ap1s2	90
Zfp36	94	Cd33	90
Adamtsl2	94	Naip2	90
Flrt3	93	Pik3r6	90
Csrnp1	93	**Jun**	90
Btg2	93	**Btbd7**	90
Tmem164	93	**Fos**	90
Ctsc	93	Tmod3	90
Rap2a	93	Mfsd7c	90

AT2

Gene	%	Gene	%	Gene	%	Gene	%	Gene	%	Gene	%	Gene	%	Gene	%
Odf3b	100	Ctsb	98	**Clec7a**	97	Nbas	96	Tekt2	94	Sema4f	93	Pcyt1a	92	Pvr	91
Dnajb14	100	**Cyfip1**	98	Taok3	97	Ezr	96	Mobkl2b	94	**Ptpn12**	93	Gpr33	92	Ly75	91
Fam183b	100	Chd4	98	**Cpeb2**	97	Kif13b	96	**Socs3**	94	Cmtm8	93	Tppp3	92	Ap3d1	91
AU021034	100	Gm1574	98	Sf3b2	97	Pi4k2a	96	Srf	94	Cbr3	93	Ccdc12	92	Tnfaip2	91
Dnahc6	100	Iqgap1	98	Tmem50b	97	Amac1	96	Klrb1b	94	Stk30	93	Slc25a36	92	Il1a	90
Trpm7	100	**Cotl1**	98	**Btg2**	97	Bat5	96	Fam167a	94	Ccdc52	93	Ift57	92	Ttf1	90
Ddx6	100	Reep3	98	Ccl22	97	Dync2li1	96	Usp19	94	Irf8	93	Hes6	92	Enkur	90
Dnahc9	100	Fam149a	98	Ing3	97	**Bach1**	95	Lrrc23	94	Zzef1	93	Col23a1	92	Nudt9	90
Lrrc48	100	Ear3	98	**Fosb**	97	Ccdc108	95	Scaper	94	Zfp474	93	Rab36	92	Dnajc1	90
Cd83	100	**Spty2d1**	98	Cdhr4	97	Col4a3bp	95	**Ctsh**	94	Mobkl1b	93	Cd80	92	Cyp39a1	90
Cd207	100	Wdr66	98	Fam164a	97	**Jun**	95	**Rap2a**	94	Efcab1	93	Ep400	92	Arrdc1	90
Ces1d	100	Stim1	98	Laptm5	97	Ttc12	95	Galnt11	94	Uhrf1bp1l	93	Fam119a	92	Entpd4	90
Etv3	100	Tctex1d4	98	**Tiparp**	97	Gm1060	95	Actg1	94	Atp13a3	93	Tekt4	92	Slc41a1	90
Tmem107	100	Zfp800	98	Hspa4l	97	Cd86	95	Igh-VJ558	94	Il13ra1	93	Armc3	92	Irf5	90
Lpar3	100	Nav2	98	Igj	97	Cbfa2t3	95	Ifi35	94	Prkar2a	93	Ptpn13	92	Dnajc17	90
Cpne3	100	Parp4	98	Mgl2	97	Aldh1a7	95	Zc3h12c	94	**Socs3**	93	Atp2b1	92	Rgnef	90
Spag16	100	Ttll3	98	Unc119b	97	Chchd6	95	BC013712	94	Caps2	93	Chka	92	Fam105a	90
Akap14	100	Skil	98	Rnf215	97	Mycbp	95	Dusp1	94	Rassf7	93	Atp6v0a2	92	Rbpj	90
Eno4	100	Aldh3b1	98	Tmbim1	97	Ptpn11	95	Far1	94	**Csrnp1**	93	Gtpbp4	92	Cpd	90
Ftsjd2	100	C030046G05	98	Dnaic2	96	**Gan**	95	Cd209a	94	Agps	93	Trpv2	92	Zfp704	90
Alcam	100	Ptchd1	98	H2-Ab1	96	Dcxr	95	Gdi2	94	Mical1	93	Chi3l3	92	Odc1	90
Endog	100	Rsph4a	98	Atf3	96	**Klf6**	95	Gna13	94	Slc29a3	93	**Per1**	92	Pdlim5	90
Ubc	100	Ccr10	98	Wdr19	96	Ccdc153	95	Tmem109	94	Rc3h2	93	Cyb561	92	Tor1aip1	90
Naaa	100	Dynlrb2	98	Limd1	96	Cd209c	95	Ucp2	94	Ap1s3	93	AW555355	92	Yipf6	90
Nr4a2	99	Pkib	98	Rtdr1	96	Naga	95	Ift81	94	Gm5918	93	Prr5l	92	Dnajb2	90
Fam179a	99	Ubl3	98	Alas1	96	Tbc1d8	95	Cldn3	94	Dab2ip	93	Wdr16	92	Fgl2	90
Gga1	99	Arih2	98	Dync2h1	96	Ccdc74a	95	**Fosl2**	94	Stx6	93	Arf4	92	Rtn4	90
C77027	99	Arpc2	98	Hectd1	96	Pnrc1	95	**Bcl2l11**	94	Tbca	93	Hspa2	92	Ccnd1	90
Irs2	99	Ier5	98	Nr4a3	96	**Atp7a**	95	Porcn	94	Fbxw11	93	**Rabgef1**	91	Trio	90
Slc16a11	99	Hspb11	98	Ppp1r16a	96	**Il6ra**	95	Tnfsf9	94	Ccrl2	93	Rpgr	91	Hnrnph2	90
Kif6	99	**Zeb2**	98	Sh3pxd2b	96	Oscp1	95	Cab39	94	Xist	93	Rnf166	91	Orai1	90
Fam47e	99	**Glt25d1**	98	Tnfaip3	96	**Ndel1**	95	Efr3a	94	Tmem176a	93	Mll5	91	Skap2	90
Slc35a5	99	Camk1d	98	Tob2	96	H2-Eb1	95	Chuk	94	Ttc7	93	Mvp	91	Skap2	90
Lrrk1	99	Grasp	98	Mga	96	Cetn4	95	Mycbp	94	Agrp	93	Pdcd6ip	91	Aldh16a1	90
Wdyhv1	99	**Egr2**	98	**Nab1**	96	Leprot	95	Lztfl1	94	Kif21a	93	Ifrd1	91	Ddhd1	90
Abcg1	99	**Cd44**	98	Kcnmb2	96	Nfe2l2	95	Tctn2	94	Ctnna1	93	Zfp318	91		
Ppt1	99	Wdfy4	98	Lasp1	96	Brd2	95	**Btbd7**	94	Lonrf3	93	Gdpd1	91		
Kdm6b	99	H47	98	Tpr	96	**Fam38a**	95	Carkd	94	**Trim25**	93	Snx6	91		
Cyp2f2	99	Zfp36l1	98	Rsph3a/b	96	Cdhr3	95	Akap9	94	Klf4	93	Bcap31	91		
Trib1	99	Ttc34	98	D19Ertd744e	96	D15Wsu126e	95	Nphp1	94	Rsf1	93	Gm5480	91		
Cmtm6	99	Ubxn4	98	Crebbp	96	Tbc1d22a	95	Arl13b	94	Rsph10b2	93	Mapk14	91		
Cdc14a	99	Btg1	98	**Maff**	96	Rp2h	95	**Ski**	94	Foxa2	93	**Dusp16**	91		
Morn1	99	Fbrsl1	98	Hfe	96	Lrrc51	95	Fign	94	Jdp2	93	Crlf2	91		
Fam20b	99	Myo1g	98	Dnahc7a	96	Mbp	95	Gm2a	94	Pgap2	93	D19Ertd652e	91		
Cetn2	99	Nek5	98	**Eif2c3**	96	**Mospd2**	95	Atp7b	94	**Bnip2**	93	Gpr137b-ps	91		
Ppil6	99	**Mthfs**	98	Fam154b	96	Twf2	95	Ctss	94	Arl3	93	Itga4	91		
Runx1	99	Itgae	98	**Picalm**	96	**Tgfbi**	95	Arhgdig	94	Dusp5	93	Rsph1	91		
Nfkbia	99	Cib4	97	Elof1	96	Eif1	95	Igh-6	94	Scnn1b	93	Erlin1	91		
H2-DMa	99	Cyp2s1	97	Hydin	96	Wnk1	95	Apoa1bp	94	Traf3ip1	93	Cxcl2	91		
Spp2	99	Gns	97	AU017263	96	**Mapre1**	95	Tle1	94	Actb	93	Creb5	91		
Irx5	99	**Sfxn2**	97	Sh3bgrl	96	Trp73	95	Pbrm1	94	Hsp90b1	93	Foxa1	91		
Ttc21a	99	Mapk15	97	Tmem219	96	Rela	95	St3gal1	94	Pvr	93	Ttc25	91		
Ttc30b	99	**Amz1**	97	Osgin2	96	**Tcf7l2**	95	Nfkbid	94	Plek	93	Abca7	91		
H2-Aa	99	Ppm1m	97	Gadd45b	96	Rps28	95	Batf3	94	Gnai2	93	Jak2	91		
Hes1	99	Ifi30	97	**Crem**	96	Iffo2	95	Ubn1	94	Mfsd6	93	AA408251	91		
Osbpl6	99	**Nfkbiz**	97	Lca5	96	Zfp445	95	Fam69a	94	Csde1	93	Ubxn11	91		
Ak7	99	Map3k5	97	Mfsd6l	96	Ighg	95	Gng10	94	Rab11b	93	Slc23a2	91		
AB041803	99	Sec24b	97	**Pde4b**	96	**Lrrfip1**	95	Egr3	94	Rock1	93	Pip4k2a	91		
Dock10	99	Irak1	97	Ccdc151	96	Gapvd1	95	Srrm2	94	Ccnd2	92	Ammecr1l	91		
Ear2	99	Aftph	97	Foxj1	96	T2	95	Hepacam2	94	Ccdc114	92	Hdc	91		
Gas2l2	99	Lrrc45	97	**Fos**	96	Ccdc40	95	Akap13	94	Htr7	92	Ift88	91		
H2-DMb1/2	99	**Lemd2**	97	**Mapkapk3**	96	Tagln2	95	Rbm39	94	Ang3	92	Smarca4	91		
Egr1	99	Ddx5	97	**Junb**	96	**Diap2**	95	Hspa1b	94	Wdsub1	92	Muc20	91		
Ccl17	99	Pcbd2	97	Cldnd1	96	Gtl3	95	Kctd12	94	Mak	92	Rassf9	91		
Osm	99	Ift172	97	**Ap3b1**	96	Map2k3	95	Ccdc146	94	Uggt1	92	Shfm1	91		
Syngr2	99	Rnaset2a/b	97	**Fam129a**	96	Sdc1	95	Id2	94	Slc26a2	92	P2rx4	91		
Acbd3	98	Gm101	97	Arl6ip1	96	Wdr78	95	Celsr1	94	Sypl	92	Paqr7	91		
Capsl	98	Scgb1a1	97	Endod1	96	Dnajb1	95	Dpcd	94	Rnf6	92	Vps52	91		
Ier2	98	Pole3	97	Uvrag	96	Kcnj13	95	Prkx	94	Lsp1	92	Slc12a2	91		
Tmem123	98	**Mef2a**	97	Rsph9	96	Cc2d2a	95	**Rgs2**	94	Tmed10	92	Tssc4	91		
Ccdc30	98	Tbc1d4	97	Gm6377	96	Dnahc7b	95	**Diap1**	94	Zbtb46	92	Nsmaf	91		
Zfp36	98	Spag9	97	Tyk2	96	**Cyth1**	95	Csf2rb	94	Srp14	92	Mtf1	91		
Tm7sf4	98	Tlr3	97	Antxr2	96	**Kif13a**	95	Nudt14	94	Il18	92	Plxnc1	91		
Itgb1	98	Iqce	97	**Cybasc3**	96	Gm4368	95	Arc	94	Flt3	92	Usp6nl	91		
Flii	98	Hps1	97	Bhlhe40	96	Ik	95	Efhc1	94	Dusp18	92	Fhdc1	91		
Spef1	98	**Mcl1**	97	Cytip	96	Nr4a1	95	Arsb	93	Gpr137b	92	Slc22a15	91		
Gas8	98	Emp1	97	Gsto1	96	Cep164	95	Usp7	93	Cdh1	92	Fars2	91		
Xcr1	98	Tmem212	97	Arhgap5	96	Mettl7a1	95	**Pum1**	93	AU040972	92	**Nlrx1**	91		
Ccdc162	98	Nme5	97	Hspa1a	96	Spag6	95	Gpr120	93	Itgax	92	Fndc7	91		
Adrbk2	98	Gpr155	97	Plbd1	96	Actr3	95	Man2b1	93	Il10ra	92	Sbno1	91		
Selenbp1	98	Dnahc1	97	Larp4b	96	Cdkn1a	95	Ddx3x	93	Nxph3	92	Acot1	91		
Ide	98	Gabrp	97	Wwc1	96	Cass4	95	Rabl2	93	Arid4b	92	Eml3	91		
Kdm6a	98	Wdr34	97	**Map3k3**	96	BC017612	95	Hexb	93	Itsn2	92	Sec23b	91		
Zbtb42	98	Iqca	97	Dyx1c1	96	Plxnb1	95	Tnfaip8	93	**Pqlc1**	92	Dennd1b	91		
Hps4	98	Aldh1a1	97	Wnt11	96	**Sftpc**	95	Cckar	93	Relb	92	Acss1	91		
Pik3cd	98	Sema4a	97	Rab43	96	Appl2	94	Ptger4	93	Baz2a	92	Hbxip	91		
Fam13a	98	Tor1b	97	Fhad1	96	**Dnajb9**	94	Rgnef	93	Hipk2	92	AV249152	91		

Receptor

Transcription Factor

Nuclear Receptor

b

Classes of genes most selectively expressed

BP		
Gene annotation	Fold enrichment	p-value
IPR011616:bZIP transcription factor, bZIP-1	25	1.1E-04
IPR004827:Basic-leucine zipper (bZIP) transcription factor	16	2.5E-04
SM00338:BRLZ	12	5.0E-04
domain:Leucine-zipper	9.2	8.3E-04
DNA-binding region:Basic motif	6.4	1.6E-02
GO:0003700~transcription factor activity	2.7	1.7E-02
phosphoprotein	1.4	1.3E-02

AT2		
Gene annotation	Fold enrichment	p-value
IPR000837:Fos transforming protein	24	1.4E-03
cilium biogenesis/degradation	16	9.2E-07
GO:0035085~cilium axoneme	11	1.2E-03
IPR011616:bZIP transcription factor, bZIP-1	11	2.0E-04
GO:0005930~axoneme	11	2.6E-06
IPR004827:Basic-leucine zipper (bZIP) transcription factor	7.7	7.5E-05
cilium	7.2	1.3E-06
mmu04672:Intestinal immune network for IgA production	6.9	1.1E-04
SM00338:BRLZ	6.3	1.2E-04
GO:0005929~cilium	5.6	3.8E-08

Supplementary Table 3. (a) Genes highly selectively expressed by bipotent progenitor (BP) and AT2 cells. Genes expressed in BP cells (average of three replicates) and AT2 cells (replicate 1) at the 90th percentile or higher (calculated by GEXC), totaling 174 genes for BP and 644 genes for AT2, 93 of which (bold type) are shared by these cell types. Genes that encode transcription factors (yellow), receptors (blue), and nuclear receptors (green) are highlighted. (b) DAVID[1] gene annotation enrichment analysis (http://david.abcc.ncifcrf.gov/) of the genes, identifying classes that are significantly overrepresented ($p < 0.015$ with Bonferonni correction) among genes selectively expressed by BP cells and AT2 cells. The BP selective genes are enriched for bZIP transcription factors and phosphoproteins, whereas the AT2 selective genes are enriched for Fos and other bZIP genes, and cilium biogenesis genes.

1 Huang, D.W. et al. Systematic and integrative analysis of large gene lists using DAVID Bioinformatics Resources. Nat Protoc 4(1), 44 -57 (2009).