

Supplementary Table 1. The correlation of ion channel gene expression with developmental stage

Sheet1

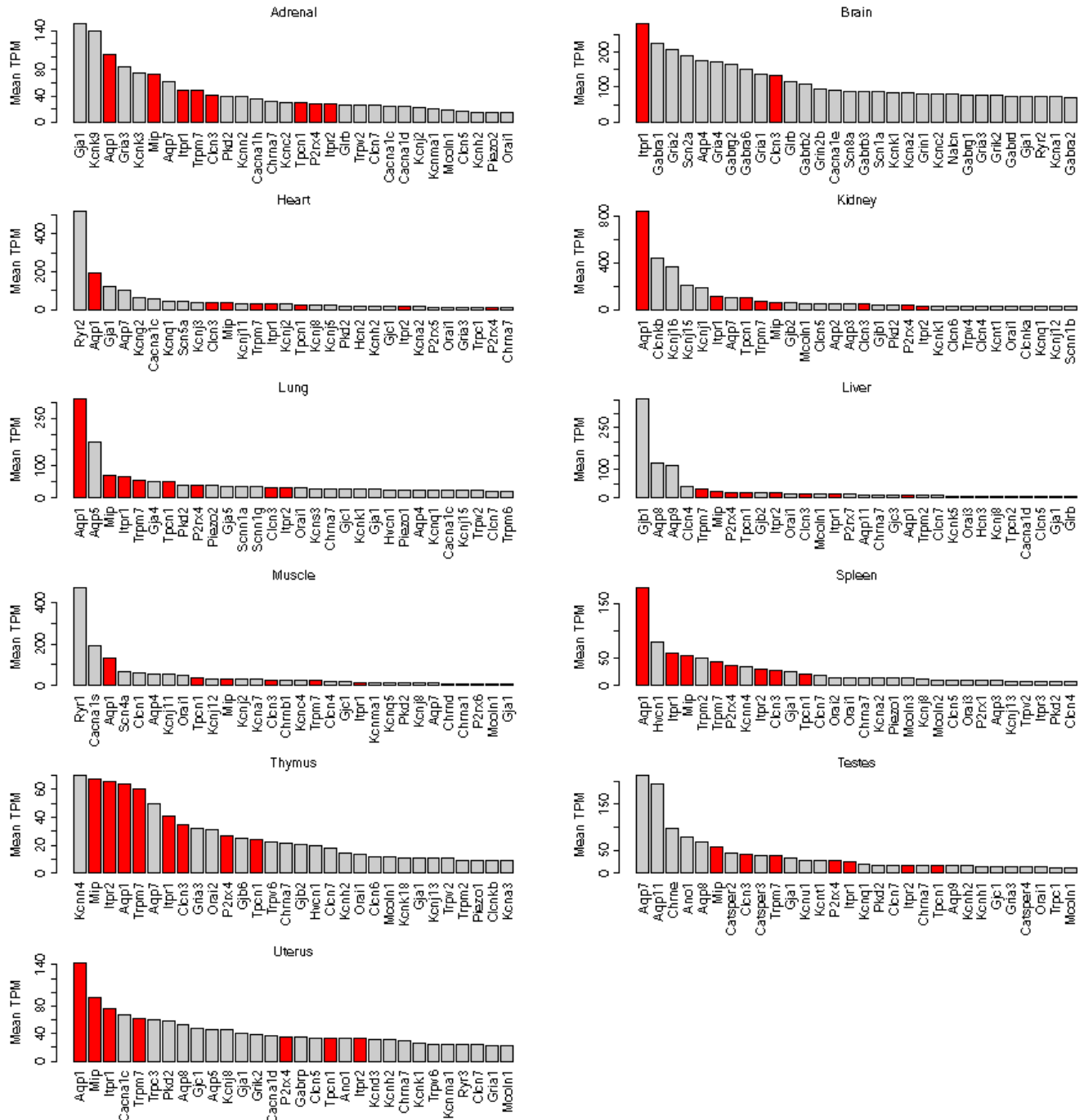
Gene	Adrenal gland		Brain		Heart		Kidney		Lung		Liver		Muscle		Spleen		Thymus		Testes		Uterus	
	ρ	Adjusted P	ρ	Adjusted P	ρ	Adjusted P	ρ	Adjusted P	ρ	Adjusted P	ρ	Adjusted P	ρ	Adjusted P	ρ	Adjusted P	ρ	Adjusted P	ρ	Adjusted P	ρ	Adjusted P
Ano1	-0.0693	2.28E-03	0.1362	1.00E+00	-0.7023	1.82E-03	-0.7265	6.13E-04	-0.7962	1.24E-05	-0.6206	3.73E-02	0.4883	1.00E+00	0.5994	6.96E-02	0.8446	2.94E-07	0.3032	1.00E+00	-0.7020	5.61E-01
Agp1	0.0859	4.03E-08	0.0325	1.00E+00	-0.1928	1.00E+00	-0.4753	1.00E+00	0.3114	1.00E+00	0.0399	1.00E+00	-0.4329	1.00E+00	-0.5025	7.50E-01	0.9687	1.00E+00	-0.1334	1.00E+00	0.8710	3.94E-03
Agp11	0.1332	1.00E+00	0.4026	1.00E+00	-0.4238	1.00E+00	0.2028	1.00E+00	-0.3966	1.00E+00	0.0699	1.00E+00	-0.4820	1.00E+00	-0.0848	1.00E+00	-0.1362	1.00E+00	0.0970	1.00E+00	-0.4729	1.00E+00
Agp2	-0.1318	1.00E+00	0.1535	1.00E+00	-0.0476	1.00E+00	-0.6145	4.07E-02	0.1181	1.00E+00	0.0458	1.00E+00	-0.0304	1.00E+00	-0.4388	1.00E+00	-0.1737	1.00E+00	0.0849	1.00E+00	0.2993	1.00E+00
Agp3	0.2846	1.00E+00	-0.2634	1.00E+00	-0.2603	1.00E+00	-0.5933	7.51E-02	0.4208	1.00E+00	-0.4361	1.00E+00	-0.1473	1.00E+00	-0.4753	1.00E+00	0.1604	1.00E+00	-0.3881	1.00E+00	0.2668	1.00E+00
Agp4	-0.2240	1.00E+00	-0.6902	2.93E-03	-0.7235	7.12E-04	-0.3966	1.00E+00	-0.0484	1.00E+00	-0.0454	1.00E+00	0.4087	1.00E+00	0.1937	1.00E+00	0.5691	1.14E-01	-0.5336	1.00E+00	-0.6427	1.00E+00
Agp5	-0.3963	1.00E+00	-0.1365	1.00E+00	-0.0426	1.00E+00	0.0757	1.00E+00	0.0781	2.22E-05	0.1665	1.00E+00	0.2120	1.00E+00	-0.2062	1.00E+00	0.5914	6.56E-02	-0.0121	1.00E+00	0.3395	1.00E+00
Agp6	-0.2778	1.00E+00	-0.1105	1.00E+00	-0.8658	4.16E-08	0.0605	1.00E+00	-0.1215	1.00E+00	-0.0387	1.00E+00	-0.0153	1.00E+00	-0.3856	1.00E+00	-0.2602	1.00E+00	-0.2708	1.00E+00	0.1470	1.00E+00
Agp7	-0.1726	1.00E+00	0.1196	1.00E+00	-0.3300	1.00E+00	0.0636	1.00E+00	-0.1453	1.00E+00	-0.8507	1.87E-07	-0.6727	2.14E-02	0.1604	1.00E+00	0.8779	1.04E-08	0.1334	1.00E+00	-0.8125	3.33E-02
Agp8	-0.5056	6.10E-01	0.0806	1.00E+00	-0.6217	3.31E-02	-0.1271	1.00E+00	-0.1393	1.00E+00	-0.4480	1.00E+00	-0.5272	3.59E-01	-0.0727	1.00E+00	0.2514	1.00E+00	0.2425	1.00E+00	0.4487	1.00E+00
Agp9	-0.4987	7.29E-01	0.1847	1.00E+00	-0.3602	1.00E+00	-0.3602	1.00E+00	-0.7780	4.18E-05	-0.3575	1.00E+00	0.1332	1.00E+00	0.6963	1.93E-03	0.0728	1.00E+00	-0.3881	1.00E+00	-0.4861	1.00E+00
Asic1	-0.3999	1.00E+00	-0.5177	4.58E-01	-0.6630	8.39E-03	-0.6630	8.39E-03	-0.5711	1.26E-01	-0.2864	1.00E+00	-0.2876	1.00E+00	-0.0300	1.00E+00	-0.1576	1.00E+00	-0.1576	1.00E+00	-0.1576	1.00E+00
Asic2	0.2785	1.00E+00	-0.6963	2.29E-03	-0.0561	1.00E+00	-0.5964	6.91E-02	0.1937	1.00E+00	-0.1817	1.00E+00	0.2695	1.00E+00	-0.6872	3.51E-03	0.7309	4.30E-04	-0.8853	1.32E-03	-0.1819	1.00E+00
Asic3	-0.3542	1.00E+00	0.1332	1.00E+00	0.0852	1.00E+00	-0.0303	1.00E+00	-0.2119	1.00E+00	0.0679	1.00E+00	-0.2535	1.00E+00	0.1878	1.00E+00	-0.2997	1.00E+00	-0.4154	1.00E+00	-0.2184	1.00E+00
Cacna1a	0.2936	1.00E+00	-0.4511	1.00E+00	-0.7179	5.78E-05	-0.3663	1.00E+00	0.1937	1.00E+00	0.0000	1.00E+00	0.7053	1.48E-03	0.2059	1.00E+00	0.8597	7.20E-08	-0.9216	1.03E-04	-0.2425	1.00E+00
Cacna1b	0.2815	1.00E+00	-0.6660	7.37E-03	-0.2180	1.00E+00	-0.4452	1.00E+00	-0.4571	1.00E+00	0.1856	1.00E+00	-0.0878	1.00E+00	-0.1544	1.00E+00	0.7205	6.91E-04	-0.6063	1.00E+00	-0.2425	1.00E+00
Cacna1c	-0.2603	1.00E+00	-0.2755	1.00E+00	-0.4813	8.98E-01	-0.7326	4.64E-04	-0.8779	1.07E-08	-0.4511	1.00E+00	-0.8385	5.20E-07	-0.2422	1.00E+00	0.7810	3.04E-05	-0.8367	1.33E-02	0.1213	1.00E+00
Cacna1d	-0.5298	3.66E-01	-0.3663	1.00E+00	-0.5600	1.83E-01	-0.2059	1.00E+00	-0.9203	2.45E-11	-0.3118	1.00E+00	-0.4601	1.00E+00	-0.1877	1.00E+00	0.7629	8.64E-05	-0.2910	1.00E+00	-0.0121	1.00E+00
Cacna1e	-0.5510	2.25E-01	-0.8143	3.68E-06	-0.6599	9.33E-03	-0.7477	2.18E-04	-0.5661	1.44E-01	-0.1726	1.00E+00	0.1332	1.00E+00	-0.3905	1.00E+00	0.2301	1.00E+00	-0.8974	6.30E-04	0.4772	1.00E+00
Cacna1f	-0.6217	3.25E-02	-0.0969	1.00E+00	0.0796	1.00E+00	0.3997	1.00E+00	0.0121	1.00E+00	-0.0627	1.00E+00	-0.0485	1.00E+00	0.2354	1.00E+00	0.5812	8.50E-02	-0.0492	1.00E+00	0.1910	1.00E+00
Cacna1g	-0.8476	2.40E-07	-0.6630	8.17E-03	-0.2876	1.00E+00	-0.7205	8.10E-04	-0.8749	1.50E-08	-0.2119	1.00E+00	-0.8174	2.81E-06	-0.3814	1.00E+00	0.6539	9.38E-03	-0.3881	1.00E+00	-0.2668	1.00E+00
Cacna1h	-0.5116	5.42E-01	0.0315	1.00E+00	-0.4390	1.00E+00	-0.6176	3.72E-02	0.3114	1.00E+00	0.0314	1.00E+00	-0.0636	1.00E+00	0.1150	1.00E+00	0.0272	1.00E+00	-0.9338	3.33E-05	-0.3638	1.00E+00
Cacna1i	-0.3058	1.00E+00	0.2331	1.00E+00	-0.4632	1.00E+00	-0.2684	1.00E+00	-0.1241	1.00E+00	-0.1635	1.00E+00	0.6539	1.06E-02	-0.1998	1.00E+00	-0.4420	1.00E+00	0.0121	1.00E+00	-0.3395	1.00E+00
Catsper1	0.1226	1.00E+00	0.0067	1.00E+00	-0.1738	1.00E+00	0.1154	1.00E+00	0.1418	1.00E+00	0.2763	1.00E+00	0.2519	1.00E+00	0.0316	1.00E+00	0.0418	1.00E+00	0.1992	1.00E+00	0.3202	1.00E+00
Catsper2	0.4147	1.00E+00	0.0848	1.00E+00	0.3118	1.00E+00	0.5056	6.07E-01	0.0817	1.00E+00	-0.2240	1.00E+00	-0.4208	1.00E+00	0.0363	1.00E+00	0.2543	1.00E+00	-0.0970	1.00E+00	-0.4487	1.00E+00
Catsper3	0.0364	1.00E+00	0.0808	1.00E+00	-0.0627	1.00E+00	-0.3796	1.00E+00	-0.0487	1.00E+00	0.0417	1.00E+00	-0.4432	1.00E+00	-0.1092	1.00E+00	-0.2044	1.00E+00	0.1455	1.00E+00	0.1824	1.00E+00
Catsper4	-0.1608	1.00E+00	0.1723	1.00E+00	0.6632	8.35E-03	-0.3875	1.00E+00	0.0727	1.00E+00	0.3206	1.00E+00	0.8631	5.36E-08	-0.0092	1.00E+00	0.4550	1.00E+00	0.0728	1.00E+00	-0.4915	1.00E+00
Ctr	-0.1271	1.00E+00	0.4208	1.00E+00	0.0121	1.00E+00	-0.0545	1.00E+00	-0.8476	2.37E-07	0.4420	1.00E+00	-0.1453	1.00E+00	0.0515	1.00E+00	0.4753	8.19E-01	-0.3385	1.00E+00	-0.0970	1.00E+00
Chna1	-0.4995	6.89E-01	-0.1060	1.00E+00	0.4117	1.00E+00	-0.3663	1.00E+00	-0.3814	1.00E+00	-0.0424	1.00E+00	-0.7719	5.51E-05	-0.2573	1.00E+00	-0.2331	1.00E+00	-0.3881	1.00E+00	-0.5093	1.00E+00
Chna10	-0.1915	1.00E+00	-0.0731	1.00E+00	0.2198	1.00E+00	-0.1010	1.00E+00	0.2301	1.00E+00	-0.3551	1.00E+00	0.1665	1.00E+00	0.0730	1.00E+00	-0.4239	1.00E+00	-0.4215	1.00E+00	-0.4296	1.00E+00
Chna2	0.3330	1.00E+00	0.1150	1.00E+00	-0.5449	2.57E-01	0.6418	1.72E-02	0.4087	1.00E+00	0.0306	1.00E+00	0.3242	1.00E+00	-0.3481	1.00E+00	-0.4691	1.00E+00	-0.0535	1.00E+00	0.1698	1.00E+00
Chna3	0.1516	1.00E+00	-0.4913	9.40E-01	-0.0443	1.00E+00	-0.4718	1.00E+00	-0.3789	1.00E+00	-0.2322	1.00E+00	-0.0991	1.00E+00	-0.0382	1.00E+00	0.3219	1.00E+00	0.8962	6.94E-10	0.3155	1.00E+00
Chna4	-0.8779	1.09E-08	-0.4208	1.00E+00	0.0212	1.00E+00	-0.7810	3.41E-05	-0.5025	6.11E-01	0.1549	1.00E+00	-0.4738	1.00E+00	0.6115	4.89E-02	0.3815	1.00E+00	-0.1213	1.00E+00	-0.8367	1.38E-02
Chna5	0.3481	1.00E+00	-0.6509	1.24E-02	-0.4057	1.00E+00	-0.4934	7.76E-01	-0.3391	1.00E+00	-0.7084	1.46E-03	-0.2634	1.00E+00	0.0605	1.00E+00	-0.2603	1.00E+00	0.2304	1.00E+00	-0.4608	1.00E+00
Chna6	-0.0322	1.00E+00	0.1483	1.00E+00	0.2251	1.00E+00	0.4826	9.33E-01	0.1326	1.00E+00	0.0606	1.00E+00	-0.1400	1.00E+00	-0.3462	1.00E+00	0.5110	4.09E-01	0.0809	1.00E+00	0.0907	1.00E+00
Chna7	0.3663	1.00E+00	0.0394	1.00E+00	-0.2694	1.00E+00	-0.2725	1.00E+00	-0.3058	1.00E+00	0.2876	1.00E+00	-0.1150	1.00E+00	0.0636	1.00E+00	0.1120	1.00E+00	-0.3638	1.00E+00	-0.5215	1.00E+00
Chna9	-0.3511	1.00E+00	0.1791	1.00E+00	-0.0606	1.00E+00	0.1676	1.00E+00	0.3823	1.00E+00	0.1547	1.00E+00	-0.3842	1.00E+00	-0.1089	1.00E+00	0.2748	1.00E+00	0.8918	8.89E-04	-0.1991	1.00E+00
Chnb1	0.6599	9.13E-03	-0.3330	1.00E+00	-0.5479	2.40E-01	-0.2210	1.00E+00	-0.2210	1.00E+00	-0.0908	1.00E+00	0.0151	1.00E+00	0.2240	1.00E+00	0.5721	1.05E-01	-0.5336	1.00E+00	0.1576	1.00E+00
Chnb2	0.3542	1.00E+00	-0.6539	1.12E-02	-0.1787	1.00E+00	-0.0848	1.00E+00	-0.6888	2.96E-03	-0.1084	1.00E+00	-0.3378	1.00E+00	-0.0091	1.00E+00	0.4723	8.57E-01	-0.3881	1.00E+00	-0.1153	1.00E+00
Chnb3	-0.4920	7.92E-01	0.4813	9.46E-01	0.3804	1.00E+00	0.0340	1.00E+00	-0.0636	1.00E+00	-0.1278	1.00E+00	0.0304	1.00E+00	-0.2252	1.00E+00	0.1194	1.00E+00	0.3881	1.00E+00	-0.5340	1.00E+00
Chnb4	0.3269	1.00E+00	0.4934	7.56E-01	0.0443	1.00E+00	-0.4121	1.00E+00	0.0243	1.00E+00	-0.0022	1.00E+00	-0.0382	1.00E+00	0.3219	1.00E+00	0.8962	6.94E-10	0.3155	1.00E+00	0.1769	1.00E+00
Chnd	0.1154	1.00E+00	0.3025	1.00E+00	0.2573	1.00E+00	-0.1080	1.00E+00	-0.3203	1.00E+00	-0.1757	1.00E+00	0.0091	1.00E+00	-0.0622	1.00E+00	-0.4740	8.34E-01	0.0425	1.00E+00	0.2359	1.00E+00
Chne	-0.0394	1.00E+00	-0.4450	1.00E+00	0.2573	1.00E+00	0.1483	1.00E+00	0.4632	1.00E+00	0.5631	1.00E+00	-0.9061	1.10E-09	0.2967	1.00E+00	0.4					

Sheet1

Gm2d	-0.2180	1.00E+00	-0.4662	1.00E+00	-0.1514	1.00E+00	-0.3693	1.00E+00	0.3481	1.00E+00	-0.1332	1.00E+00	-0.6266	2.59E-02	0.0182	1.00E+00	0.6932	2.18E-03	-0.3881	1.00E+00	-0.5457	1.00E+00
Gm3a	-0.5740	1.27E-01	-0.8234	1.88E-06	-0.5481	2.40E-01	-0.4852	8.92E-01	-0.7023	1.72E-03	0.0877	1.00E+00	-0.8779	1.07E-08	-0.5434	2.99E-01	-0.2039	1.00E+00	-0.2913	1.00E+00	-0.3517	1.00E+00
Gm3b	-0.1574	1.00E+00	0.2815	1.00E+00	-0.1029	1.00E+00	-0.5933	7.51E-02	0.0061	1.00E+00	-0.2059	1.00E+00	-0.3572	1.00E+00	-0.4026	1.00E+00	0.4692	9.04E-01	-0.2547	1.00E+00	-0.6791	8.78E-01
Hcn1	0.4057	1.00E+00	0.0969	1.00E+00	-0.0394	1.00E+00	-0.2724	1.00E+00	-0.2968	1.00E+00	0.0888	1.00E+00	-0.2725	1.00E+00	-0.1545	1.00E+00	-0.9445	1.24E-13	0.1213	1.00E+00	-0.8246	2.18E-02
Hcn2	-0.5449	2.00E-01	0.3239	1.00E+00	0.6145	4.13E-02	-0.3269	1.00E+00	0.1332	1.00E+00	0.0822	1.00E+00	-0.0696	1.00E+00	0.2906	1.00E+00	0.3088	1.00E+00	-0.0121	1.00E+00	-0.6870	1.00E+00
Hcn3	-0.2997	1.00E+00	-0.2915	1.00E+00	-0.4178	1.00E+00	-0.4026	1.00E+00	0.0721	1.00E+00	0.0039	1.00E+00	-0.1287	1.00E+00	-0.4571	1.00E+00	0.1241	1.00E+00	-0.7940	1.37E-01	-0.8125	3.33E-02
Hcn4	-0.2664	1.00E+00	-0.5681	1.51E-01	0.8416	4.15E-07	-0.2694	1.00E+00	0.6145	3.95E-02	-0.1561	1.00E+00	0.4208	1.00E+00	-0.0383	1.00E+00	0.5843	7.89E-02	-0.6796	8.62E-01	0.3395	1.00E+00
Htr3a	0.1741	1.00E+00	0.4178	1.00E+00	0.4038	1.00E+00	0.6598	9.25E-03	-0.0669	1.00E+00	0.0479	1.00E+00	0.1280	1.00E+00	0.3578	1.00E+00	-0.0806	1.00E+00	-0.6063	1.00E+00	-0.4571	1.00E+00
Htr3b	0.0313	1.00E+00	0.1054	1.00E+00	0.0816	1.00E+00	-0.3462	1.00E+00	0.1758	1.00E+00	-0.0053	1.00E+00	-0.1896	1.00E+00	-0.0803	1.00E+00	-0.2555	1.00E+00	0.0436	1.00E+00	0.1155	1.00E+00
Hvn1	-0.2180	1.00E+00	0.5843	9.42E-02	0.0273	1.00E+00	0.0424	1.00E+00	0.5146	4.75E-01	0.0333	1.00E+00	0.8446	3.09E-07	-0.0454	1.00E+00	0.9475	5.80E-14	0.1576	1.00E+00	0.2910	1.00E+00
ltp1	0.6176	3.69E-02	0.6902	2.93E-03	-0.3935	1.00E+00	-0.4662	1.00E+00	0.5056	5.75E-01	-0.5782	1.27E-01	0.1090	1.00E+00	0.3209	1.00E+00	0.9475	5.80E-14	0.1940	1.00E+00	0.0849	1.00E+00
ltp2	-0.4723	1.00E+00	-0.5116	1.57E-01	-0.3148	1.00E+00	-0.5388	3.01E-01	0.4813	9.41E-01	-0.7780	1.41E-03	0.1604	1.00E+00	0.7356	3.45E-04	0.3395	1.00E+00	-0.6791	8.78E-01	-0.6971	8.78E-01
ltp3	0.4601	1.00E+00	0.7386	3.41E-04	0.2089	1.00E+00	-0.2422	1.00E+00	0.6720	5.67E-03	-0.1816	1.00E+00	-0.7750	4.63E-05	-0.0484	1.00E+00	0.5328	2.57E-01	-0.0485	1.00E+00	0.5821	1.00E+00
Kma1	0.3269	1.00E+00	0.6418	1.68E-02	0.1439	1.00E+00	0.0238	1.00E+00	-0.2513	1.00E+00	0.0162	1.00E+00	-0.7931	1.51E-05	-0.3063	1.00E+00	-0.0999	1.00E+00	-0.1477	1.00E+00	0.5457	1.00E+00
Kma10	0.0803	1.00E+00	-0.3859	1.00E+00	0.2107	1.00E+00	0.1374	1.00E+00	0.2556	1.00E+00	-0.0067	1.00E+00	0.0938	1.00E+00	0.1489	1.00E+00	0.1082	1.00E+00	-0.3833	1.00E+00	0.2071	1.00E+00
Kma2	0.2422	1.00E+00	0.0000	1.00E+00	0.6963	2.33E-03	0.0061	1.00E+00	0.4238	1.00E+00	-0.0727	1.00E+00	-0.7417	2.80E-04	0.2846	1.00E+00	0.6902	2.43E-03	-0.6185	1.00E+00	-0.4972	1.00E+00
Kma3	0.7027	2.16E-04	-0.5661	1.51E-01	0.0666	1.00E+00	0.4178	1.00E+00	0.3542	1.00E+00	0.3330	1.00E+00	-0.5903	7.59E-02	-0.4329	1.00E+00	0.2392	1.00E+00	-0.5093	1.00E+00	0.0728	1.00E+00
Kma4	-0.5525	6.49E-01	0.1665	1.00E+00	-0.2755	1.00E+00	0.5237	4.19E-01	-0.3845	1.00E+00	0.1329	1.00E+00	-0.4530	1.00E+00	0.0738	1.00E+00	0.4227	1.00E+00	0.0487	1.00E+00	-0.7397	2.58E-01
Kma5	-0.6297	2.55E-02	0.5267	3.77E-01	-0.7326	6.46E-04	-0.6418	1.72E-02	-0.6902	8.26E-03	-0.2291	1.00E+00	-0.6690	6.16E-03	-0.0212	1.00E+00	0.6872	2.74E-03	-0.4854	1.00E+00	-0.7276	3.40E-01
Kma6	0.0908	1.00E+00	0.1604	1.00E+00	-0.6569	1.04E-02	0.2514	1.00E+00	0.5540	1.96E-01	0.3173	1.00E+00	-0.1605	1.00E+00	0.2907	1.00E+00	0.4228	1.00E+00	-0.5803	1.00E+00	-0.6185	1.00E+00
Kma7	-0.0757	1.00E+00	-0.3512	1.00E+00	0.7962	1.29E-05	0.1241	1.00E+00	0.2240	1.00E+00	0.2846	1.00E+00	0.8567	1.01E-07	0.0424	1.00E+00	0.3591	1.00E+00	-0.6427	1.00E+00	0.2062	1.00E+00
Kmb1	-0.1271	1.00E+00	-0.1241	1.00E+00	-0.3693	1.00E+00	0.4087	1.00E+00	0.6569	9.75E-03	0.8083	5.80E-06	-0.6932	2.43E-03	0.4541	1.00E+00	0.7962	1.17E-05	-0.6912	6.92E-01	0.1698	1.00E+00
Kmb2	-0.1362	1.00E+00	-0.1847	1.00E+00	-0.5148	5.06E-01	-0.6872	3.35E-03	-0.7326	4.43E-04	0.0522	1.00E+00	0.6093	1.00E+00	-0.2755	1.00E+00	0.6366	1.66E-02	0.1338	1.00E+00	-0.7640	1.42E-01
Kmc1	0.5237	4.15E-01	0.2482	1.00E+00	0.2740	1.00E+00	0.0151	1.00E+00	-0.0121	1.00E+00	0.2846	1.00E+00	-0.4934	7.27E-01	-0.1150	1.00E+00	-0.0454	1.00E+00	0.1334	1.00E+00	-0.4972	1.00E+00
Kmc2	-0.1090	1.00E+00	0.5479	2.34E-01	0.5207	4.52E-01	-0.1953	1.00E+00	-0.1332	1.00E+00	0.1606	1.00E+00	0.2513	1.00E+00	0.5298	4.15E-01	0.5389	2.25E-01	-0.4123	1.00E+00	-0.3881	1.00E+00
Kmc3	-0.0817	1.00E+00	0.2210	1.00E+00	0.5873	9.02E-02	0.0151	1.00E+00	-0.1271	1.00E+00	0.0676	1.00E+00	0.2969	1.00E+00	-0.1759	1.00E+00	0.4822	7.32E-01	-0.6548	1.00E+00	0.7640	1.42E-01
Kmc4	0.4601	1.00E+00	0.0333	1.00E+00	-0.0272	1.00E+00	0.8628	5.65E-08	0.2694	1.00E+00	-0.1186	1.00E+00	-0.5116	5.06E-01	0.1393	1.00E+00	0.2377	1.00E+00	-0.2425	1.00E+00	-0.8610	4.84E-03
Kmd1	-0.2392	1.00E+00	-0.3542	1.00E+00	-0.5086	5.63E-01	-0.4087	1.00E+00	-0.2936	1.00E+00	-0.4412	1.00E+00	-0.5661	1.43E-01	0.5752	1.32E-01	0.5549	2.02E-01	-0.4487	1.00E+00	-0.8246	2.18E-02
Kmd3	0.2997	1.00E+00	0.4632	1.00E+00	0.4783	1.00E+00	-0.4178	1.00E+00	0.4723	1.00E+00	0.5116	6.44E-01	-0.2240	1.00E+00	0.7568	1.37E-04	0.7568	1.37E-04	-0.5336	1.00E+00	-0.2183	1.00E+00
Kmf1	-0.1574	1.00E+00	-0.7296	5.28E-04	-0.1399	1.00E+00	0.0636	1.00E+00	-0.3996	1.00E+00	0.2134	1.00E+00	-0.6236	2.84E-02	0.2545	1.00E+00	0.4088	1.00E+00	0.1213	1.00E+00	0.6791	8.78E-01
Kmg1	-0.5388	2.98E-01	-0.3330	1.00E+00	0.0538	1.00E+00	0.1695	1.00E+00	0.3012	1.00E+00	0.2698	1.00E+00	-0.4102	1.00E+00	0.2240	1.00E+00	0.5328	2.57E-01	-0.1942	1.00E+00	-0.3881	1.00E+00
Kmg2	-0.8840	5.31E-09	0.1453	1.00E+00	0.0787	1.00E+00	-0.7326	6.46E-04	0.2331	1.00E+00	-0.4398	1.00E+00	-0.7810	3.22E-05	0.2936	1.00E+00	0.9233	1.36E-11	-0.3032	1.00E+00	-0.4487	1.00E+00
Kmg3	0.3058	1.00E+00	-0.4874	8.44E-01	-0.3634	1.00E+00	-0.1135	1.00E+00	0.4087	1.00E+00	-0.0063	1.00E+00	-0.5602	1.64E-01	0.6539	1.22E-02	-0.3875	1.00E+00	-0.7397	2.48E-01	-0.2183	1.00E+00
Kmg4	-0.5570	1.99E-01	0.6024	5.67E-02	-0.4208	1.00E+00	-0.3693	1.00E+00	-0.0727	1.00E+00	-0.4571	1.00E+00	-0.2059	1.00E+00	-0.2059	1.00E+00	0.3592	1.00E+00	-0.3032	1.00E+00	-0.6912	7.07E-01
Kmh1	-0.2903	1.00E+00	0.1302	1.00E+00	0.3930	1.00E+00	-0.5897	1.00E+00	0.1847	1.00E+00	0.0587	1.00E+00	0.4541	1.00E+00	0.8295	1.05E-02	0.6789	1.00E+00	-0.5457	1.00E+00	-0.5457	1.00E+00
Kmh2	0.4662	1.00E+00	0.2482	1.00E+00	-0.5116	5.39E-01	-0.5752	1.22E-01	-0.1968	1.00E+00	-0.5600	1.64E-01	0.1635	1.00E+00	-0.5903	6.73E-02	-0.3274	1.00E+00	-0.1091	1.00E+00	-0.1091	1.00E+00
Kmh3	0.0848	1.00E+00	-0.1060	1.00E+00	-0.1594	1.00E+00	-0.0896	1.00E+00	0.5328	3.23E-01	-0.0738	1.00E+00	0.2742	1.00E+00	0.5177	5.47E-01	-0.3935	1.00E+00	-0.3395	1.00E+00	-0.6446	1.00E+00
Kmh4	-0.4450	1.00E+00	-0.4450	1.00E+00	0.0562	1.00E+00	-0.1974	1.00E+00	0.4238	1.00E+00	-0.0063	1.00E+00	-0.2672	1.00E+00	0.2543	1.00E+00	-0.2361	1.00E+00	-0.2183	1.00E+00	-0.3395	1.00E+00
Kmh5	-0.2694	1.00E+00	-0.3451	1.00E+00	-0.2967	1.00E+00	-0.1937	1.00E+00	-0.1393	1.00E+00	-0.0757	1.00E+00	-0.0484	1.00E+00	0.3663	1.00E+00	-0.1968	1.00E+00	-0.1334	1.00E+00	-0.4002	1.00E+00
Kmh6	-0.3451	1.00E+00	-0.2119	1.00E+00	-0.0533	1.00E+00	0.1761	1.00E+00	0.8143	3.57E-06	0.2621	1.00E+00	-0.2671	1.00E+00	-0.2652	1.00E+00	-0.0715	1.00E+00	-0.1455	1.00E+00	-0.1554	1.00E+00
Kmh7	-0.2089	1.00E+00	-0.5086	5.50E-01	0.0136	1.00E+00	-0.4772	1.00E+00	-0.3755	1.00E+00	-0.2252	1.00E+00	0.2069	1.00E+00	0.4351	1.00E+00	-0.0560	1.00E+00	0.4002	1.00E+00	0.3459	1.00E+00
Kmh8	-0.5358	3.20E-01	-0.8264	1.48E-06	0.0324	5.94E-02	-0.3036	1.00E+00	-0.6781	4.51E-03	-0.0953	1.00E+00	0.2693	2.15E-03	-0.2037	1.00E+00	-0.4208	1.00E+00	-0.2668	1.00E+00	-0.5340	1.00E+00
Kmj1	0.0582	1.00E+00	-0.0576	1.00E+00	-0.3463	1.00E+00	-0.0212	1.00E+00	-0.1696	1.00E+00	0.0758	1.00E+00	0.0167	1.00E+00	-0.3602	1.00E+00	0.1241	1.00E+00	-0.3034	1.00E+00	0.4487	1.00E+00
Kmj10	0.1544	1.00E+00	-0.2876	1.00E+00	-0.5661	1.57E-01	-0.3269	1.00E+00	0.0757	1.00E+00	-0.0121	1.00E+00	-0.5025	6.05E-01	-0.2573	1.00E+00	-0.0938	1.00E+00	-0.3517	1.00E+00	-0.8489	8.34E-03
Kmj11	0.2906	1.00E+00	0.4571	1.00E+00	0.6872	3.35E-03	-0.5146	5.01E-01	0.2270	1.00E+00	0.2728	1.00E+00	0.7889	6.54E-05	-0.1181	1.00E+00	0.					

Sheet1

Scn3a	0.0908	1.00E+00	-0.8264	1.48E-06	-0.8658	4.16E-08	-0.5237	4.19E-01	-0.8900	2.46E-09	-0.2694	1.00E+00	-0.6024	5.38E-02	-0.6509	1.36E-02	0.4057	1.00E+00	-0.2547	1.00E+00	-0.1213	1.00E+00
Scn4a	-0.2028	1.00E+00	0.5449	2.51E-01	-0.3693	1.00E+00	-0.5540	2.11E-01	0.0817	1.00E+00	-0.3451	1.00E+00	0.6811	3.90E-03	-0.3088	1.00E+00	0.3875	1.00E+00	0.0970	1.00E+00	0.0243	1.00E+00
Scn5a	-0.7326	4.58E-04	-0.0242	1.00E+00	0.6509	1.28E-02	0.0121	1.00E+00	-0.1271	1.00E+00	-0.3451	1.00E+00	-0.4450	1.00E+00	-0.3935	1.00E+00	0.0908	1.00E+00	-0.7640	1.37E-01	-0.6791	8.78E-01
Scn8a	-0.3572	1.00E+00	-0.4420	1.00E+00	-0.4026	1.00E+00	0.6478	1.41E-02	0.2803	1.00E+00	0.3148	1.00E+00	-0.2180	1.00E+00	0.5843	1.05E-01	0.3027	1.00E+00	-0.3881	1.00E+00	-0.4608	1.00E+00
Scn9a	0.7084	1.38E-03	0.3148	1.00E+00	-0.0515	1.00E+00	0.0607	1.00E+00	-0.5873	8.52E-02	-0.3427	1.00E+00	-0.4844	8.69E-01	-0.2647	1.00E+00	-0.6569	8.46E-03	-0.5093	1.00E+00	-0.6063	1.00E+00
Scnn1a	-0.1271	1.00E+00	0.3209	1.00E+00	0.0469	1.00E+00	-0.3118	1.00E+00	0.6478	1.33E-02	-0.1695	1.00E+00	-0.1302	1.00E+00	-0.0727	1.00E+00	0.7508	1.65E-04	-0.4244	1.00E+00	0.1940	1.00E+00
Scnn1b	-0.4480	1.00E+00	0.1090	1.00E+00	-0.0817	1.00E+00	-0.5358	3.23E-01	-0.3814	1.00E+00	-0.0712	1.00E+00	0.1393	1.00E+00	-0.3602	1.00E+00	0.7659	7.32E-05	0.2547	1.00E+00	0.2547	1.00E+00
Scnn1g	0.2039	1.00E+00	0.1211	1.00E+00	0.0190	1.00E+00	-0.6990	6.72E-03	0.2422	1.00E+00	-0.1022	1.00E+00	-0.2500	1.00E+00	-0.0698	1.00E+00	0.5267	2.91E-01	0.5093	1.00E+00	0.2062	1.00E+00
Trp1	-0.8446	3.14E-07	-0.3148	1.00E+00	-0.1695	1.00E+00	-0.5762	1.12E-01	-0.2513	1.00E+00	-0.3875	1.00E+00	-0.8658	4.07E-08	-0.6085	5.35E-02	0.7417	2.57E-04	-0.3881	1.00E+00	-0.5942	1.00E+00
Trp2	-0.0272	1.00E+00	-0.0515	1.00E+00	-0.2694	1.00E+00	-0.3239	1.00E+00	0.5207	4.21E-01	-0.3572	1.00E+00	-0.6932	2.43E-03	-0.2028	1.00E+00	0.5449	2.02E-01	-0.4123	1.00E+00	0.2304	1.00E+00
Trp1	0.0587	1.00E+00	-0.4329	1.00E+00	-0.2028	1.00E+00	0.0000	1.00E+00	0.3239	1.00E+00	0.0164	1.00E+00	0.4789	9.67E-01	0.8120	4.38E-06	0.5461	1.98E-01	0.0243	1.00E+00	0.2785	1.00E+00
Trp1	-0.2240	1.00E+00	-0.1181	1.00E+00	-0.6993	2.06E-03	-0.3330	1.00E+00	-0.2543	1.00E+00	-0.1332	1.00E+00	-0.2452	1.00E+00	-0.0848	1.00E+00	0.8174	2.67E-06	-0.8489	8.08E-03	-0.3881	1.00E+00
Trp2	-0.4026	1.00E+00	0.6872	3.27E-03	-0.0908	1.00E+00	-0.1362	1.00E+00	0.4753	1.00E+00	-0.3663	1.00E+00	0.3633	1.00E+00	-0.2815	1.00E+00	-0.7477	1.92E-04	-0.2668	1.00E+00	-0.1091	1.00E+00
Trp3	-0.4632	1.00E+00	-0.5661	1.51E-01	-0.5691	1.46E-01	-0.7629	9.80E-05	-0.6145	3.95E-02	0.0651	1.00E+00	-0.6115	4.13E-02	-0.4299	1.00E+00	0.6630	6.86E-03	-0.2910	1.00E+00	0.3153	1.00E+00
Trp4	-0.7508	1.85E-04	-0.8022	8.64E-06	-0.4420	1.00E+00	-0.0696	1.00E+00	-0.8113	4.43E-06	0.0618	1.00E+00	-0.5661	1.43E-01	-0.1521	1.00E+00	0.1877	1.00E+00	-0.6670	1.00E+00	0.4972	1.00E+00
Trp5	0.6266	2.80E-02	-0.8174	2.95E-06	-0.5328	3.43E-01	0.8658	4.14E-08	-0.6024	5.60E-02	-0.1544	1.00E+00	-0.1665	1.00E+00	-0.2195	1.00E+00	-0.0666	1.00E+00	-0.6063	1.00E+00	-0.3638	1.00E+00
Trp6	0.6963	2.28E-03	0.6630	8.17E-03	-0.5812	1.06E-01	0.7962	1.31E-05	-0.7205	7.80E-04	0.0394	1.00E+00	-0.8022	8.26E-06	-0.8597	7.70E-08	0.5752	9.76E-02	0.3395	1.00E+00	-0.1940	1.00E+00
Trp7	0.3935	1.00E+00	-0.6085	4.80E-02	0.3481	1.00E+00	-0.5056	6.07E-01	-0.1635	1.00E+00	0.0242	1.00E+00	-0.3724	1.00E+00	0.1786	1.00E+00	0.5784	9.03E-02	-0.6670	1.00E+00	-0.2062	1.00E+00
Trpm1	-0.3888	1.00E+00	0.4450	1.00E+00	0.4482	1.00E+00	0.0878	1.00E+00	0.0727	1.00E+00	0.3102	1.00E+00	0.7265	5.80E-04	0.7386	3.52E-04	0.8537	1.29E-07	0.1698	1.00E+00	-0.0243	1.00E+00
Trpm2	0.8900	2.49E-09	0.7508	1.85E-04	0.8083	5.66E-06	0.9051	3.02E-10	0.8809	7.50E-09	0.6085	5.41E-02	0.2936	1.00E+00	0.4662	1.00E+00	0.9566	0.00E+00	0.2789	1.00E+00	0.5457	1.00E+00
Trpm3	-0.3935	1.00E+00	-0.3633	1.00E+00	0.4178	1.00E+00	0.1271	1.00E+00	-0.3875	1.00E+00	0.4450	1.00E+00	-0.5086	5.38E-01	0.1029	1.00E+00	0.8355	6.41E-07	-0.3881	1.00E+00	0.1091	1.00E+00
Trpm4	0.4359	1.00E+00	-0.7417	2.94E-04	-0.1483	1.00E+00	-0.3179	1.00E+00	0.5691	1.35E-01	-0.0394	1.00E+00	0.5086	5.38E-01	-0.0605	1.00E+00	0.7962	1.17E-05	0.0000	1.00E+00	0.2547	1.00E+00
Trpm5	-0.8174	2.88E-06	-0.3250	1.00E+00	0.1514	1.00E+00	-0.3027	1.00E+00	0.0787	1.00E+00	0.0151	1.00E+00	-0.5875	8.19E-02	-0.5792	1.23E-01	0.4117	1.00E+00	-0.2425	1.00E+00	-0.5700	1.00E+00
Trpm6	0.3391	1.00E+00	-0.4329	1.00E+00	-0.0303	1.00E+00	0.3027	1.00E+00	0.4238	1.00E+00	0.6599	1.00E-02	-0.2634	1.00E+00	0.1271	1.00E+00	0.7780	3.62E-05	-0.3153	1.00E+00	0.5215	1.00E+00
Trpm7	-0.3572	1.00E+00	0.0787	1.00E+00	-0.5540	2.09E-01	-0.3391	1.00E+00	0.1029	1.00E+00	-0.7084	1.46E-03	-0.5691	1.33E-01	0.1120	1.00E+00	-0.5056	4.59E-01	-0.3881	1.00E+00	-0.5578	1.00E+00
Trpm8	-0.5863	9.18E-02	-0.5782	1.10E-01	-0.6690	6.75E-03	-0.7538	1.60E-04	0.0938	1.00E+00	-0.3875	1.00E+00	0.0212	1.00E+00	0.1574	1.00E+00	0.4026	1.00E+00	0.7761	9.88E-02	0.2910	1.00E+00
Trpv1	0.3209	1.00E+00	0.4329	1.00E+00	0.2452	1.00E+00	0.4934	7.76E-01	0.0363	1.00E+00	0.0303	1.00E+00	-0.5358	2.94E-01	0.0333	1.00E+00	0.7326	3.98E-04	-0.2668	1.00E+00	0.1698	1.00E+00
Trpv2	0.8022	8.47E-06	-0.6266	2.74E-02	0.8567	1.03E-07	0.5933	7.51E-02	0.8870	3.60E-09	0.3663	1.00E+00	0.2452	1.00E+00	0.5116	6.22E-01	0.2906	1.00E+00	-0.3517	1.00E+00	-0.0364	1.00E+00
Trpv3	-0.3875	1.00E+00	-0.0848	1.00E+00	0.3693	1.00E+00	0.0151	1.00E+00	0.4692	1.00E+00	-0.5421	3.19E-01	-0.3754	1.00E+00	-0.1665	1.00E+00	0.8628	5.35E-08	-0.6306	1.00E+00	-0.1576	1.00E+00
Trpv4	0.5328	3.42E-01	0.0454	1.00E+00	0.5600	1.83E-01	-0.3935	1.00E+00	0.4359	1.00E+00	0.1847	1.00E+00	0.0272	1.00E+00	0.2846	1.00E+00	0.7447	2.23E-04	0.1213	1.00E+00	0.4608	1.00E+00
Trpv5	-0.2015	1.00E+00	0.2119	1.00E+00	-0.1470	1.00E+00	-0.6932	2.64E-03	-0.1441	1.00E+00	-0.0742	1.00E+00	0.0529	1.00E+00	-0.6660	7.94E-03	-0.5600	1.43E-01	0.2749	1.00E+00	0.3881	1.00E+00
Trpv6	-0.5479	2.42E-01	-0.5388	2.87E-01	-0.3481	1.00E+00	0.0605	1.00E+00	-0.4692	1.00E+00	0.5903	9.10E-02	-0.4874	8.20E-01	-0.5994	6.96E-02	-0.8628	5.35E-08	-0.3881	1.00E+00	0.7155	4.38E-01



Supplementary Fig. 1. The “housekeeping” ion channel genes defined by more stringent criteria. For each tissue type, the top 20 ion channel genes with the highest expression were prioritized. The genes highlighted in red are the “housekeeping” ion channel genes, which are among the top 20 list in at least eight tissue types, including *Aqp1*, *Clcn3*, *Itpr1*, *Itpr2*, *Mip*, *P2rx4*, *Tpcn1*, and *Trpm7*. TPM, transcripts per million.

