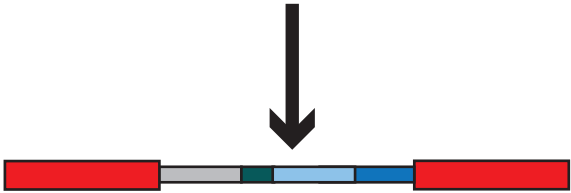


Supplementary Figure 1

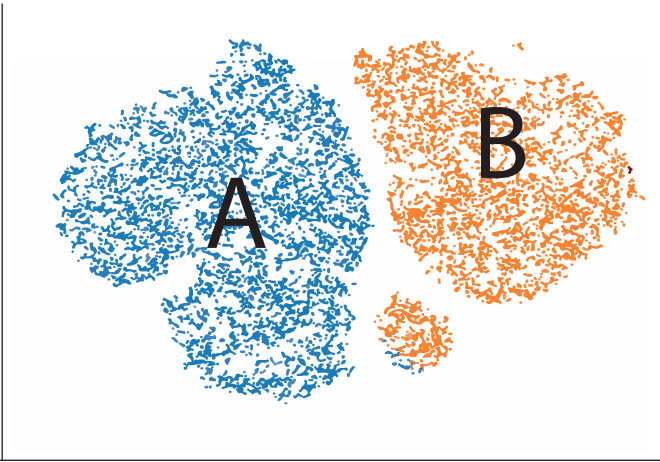
10X Genomics cDNA



Fragmentation and Illumina Library Prep

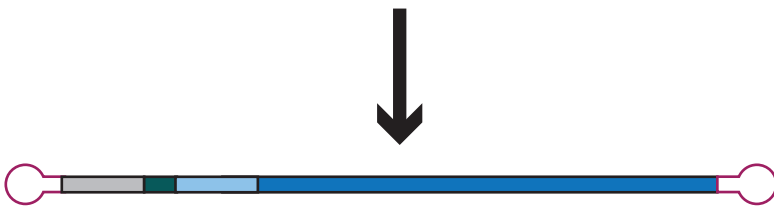


Short-read Sequencing
Cell-type Identification

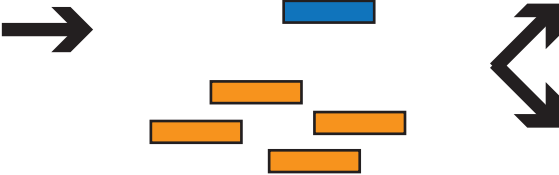


Cell-type clustering

PacBio Library Prep

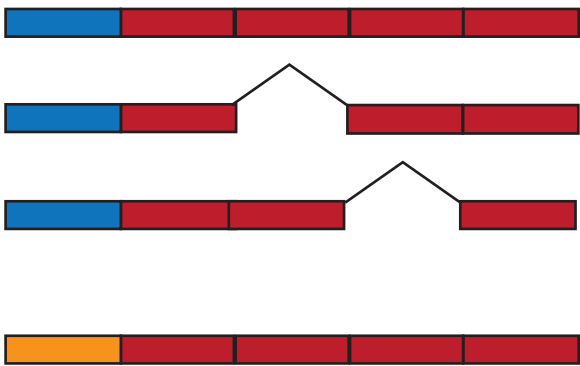


Assigning Isoforms to cells
using cell barcodes



Long-Read Sequencing
Isoform identification

A



B



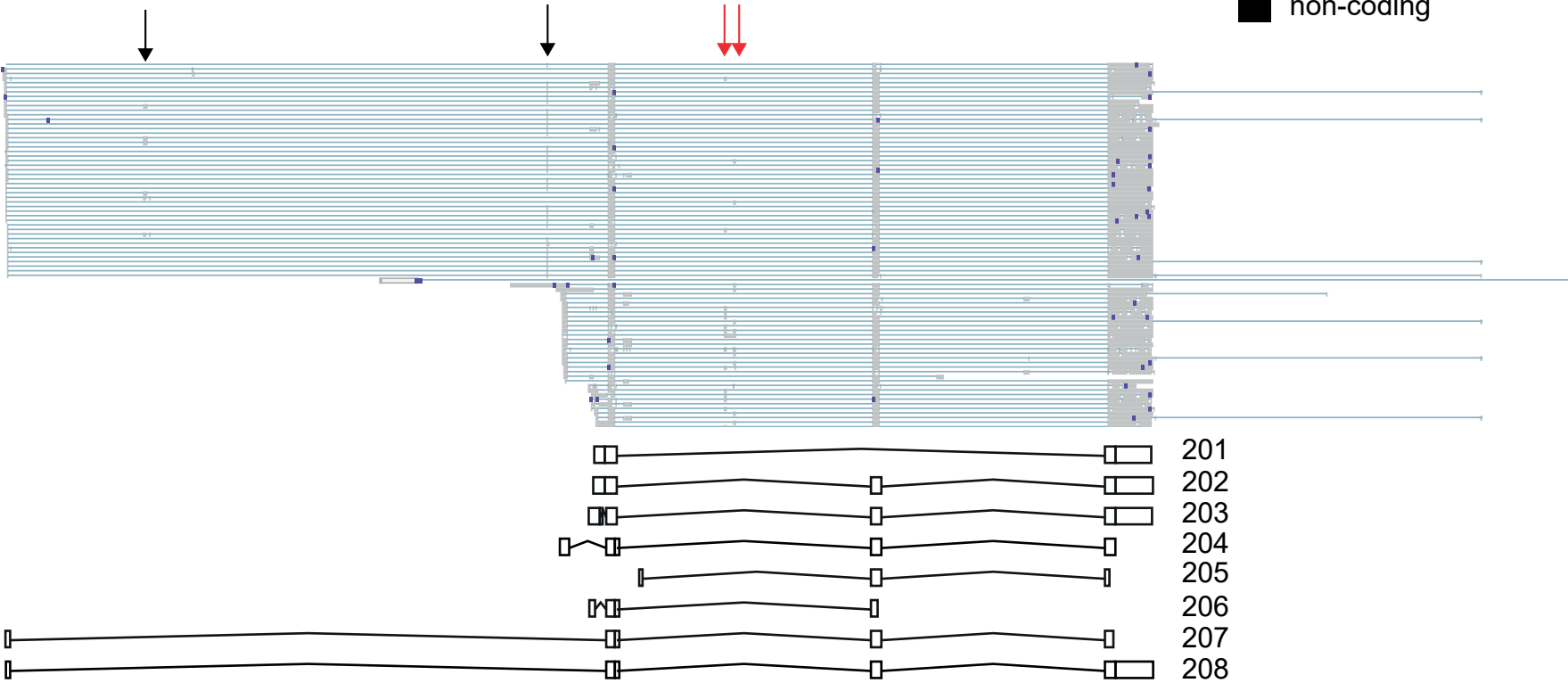
Supplementary Figure 2

Lmo2 (ENSMUSG00000032698)

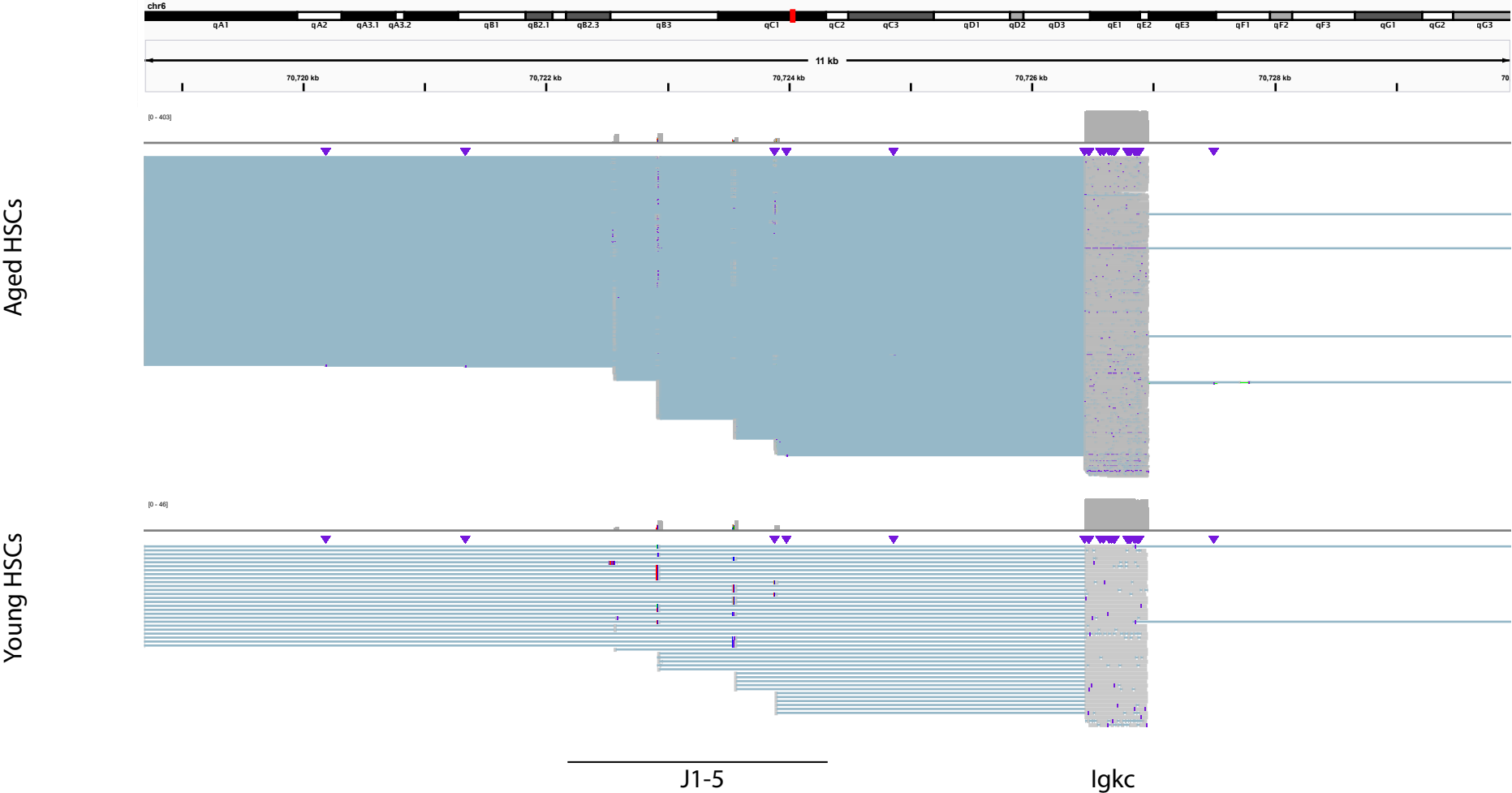
■ coding
■ non-coding

Pacbio Reads

Ensembl
Isoforms



Supplementary Figure 3



Supplementary table 2

Sample	1	2	3	4	5	6	Total	Percentage of Total
Sample Type	Young	Aged	Young	Aged	Young	Aged		
Population	LK	LK	LK	LK	LK	LK		
Total CCS Reads	4071427	3388930	2541774	2145704	2970009	2785355	17903199	100
Reads mapped to genome	4033063	3375190	2522092	2127518	2945575	2763413	17766851	99.23841544
Reads mapped to transcriptome	3355466	2756682	1920347	1581424	2615797	2174030	14403746	80.4534765
Reads without polyT	1188556	1043010	1036137	933035	1328830	1012957	6542525	36.54388805
Demultiplexed Reads	1880923	1378487	876906	606000	530814	541317	5814447	32.47713998

Supplementary table 4

Gene_ID	p_val	avg_logFC	pct.1	pct.2	p_val_adj
Rpl35	2.10E-13	-0.52565	0.996	1	3.72E-09
Uba52	4.07E-13	-0.68704	0.861	1	7.22E-09
Apoe	6.27E-11	0.82492	0.92	0.682	1.11E-06
Sult1a1	1.21E-10	1.105505	0.642	0.167	2.16E-06
Tmsb10	2.56E-10	-0.7455	0.653	0.879	4.54E-06
Gpx1	1.17E-09	-0.54654	0.869	0.97	2.08E-05
Plac8	1.70E-09	-0.75332	0.58	0.833	3.02E-05
Nupr1	1.81E-09	1.02424	0.595	0.182	3.21E-05
H2-D1	4.45E-09	0.430493	0.993	0.985	7.90E-05
Malat1	8.18E-09	0.442587	1	1	0.000145
Cd34	1.69E-08	-0.70669	0.182	0.515	0.0003
Igkc	9.79E-08	1.658329	0.606	0.242	0.001738
mt-Atp6	1.08E-07	0.777093	0.759	0.455	0.001913
Trim47	4.39E-07	0.694759	0.551	0.212	0.007801
Gmfg	8.80E-07	-0.59115	0.482	0.742	0.015628
Rpl24	9.62E-07	0.339829	0.978	0.97	0.017089
Ubb	1.21E-06	-0.36832	0.971	0.985	0.021425
Rps27rt	1.25E-06	0.559416	0.781	0.545	0.022138
Fam117a	1.39E-06	-0.64241	0.073	0.273	0.024707
Gm10076	1.51E-06	-0.64434	0.467	0.727	0.026872
Sox4	1.85E-06	-0.74789	0.358	0.621	0.03278