

Supplementary Tables

Table S1. List of genotyping primers used.

	Forward	Reverse
<i>INS</i> 5' homology arm	TGACCGCAGATTCAAGTGTT	GCATGGCGGACTTGAAGAA
<i>INS</i> 3' homology arm	GCACCATCTTCTTCAAGGAC GAC	AGCTCATGGTGCCATCTGAC
<i>GCG</i> 5' homology arm	AGTAGTCACTGGTCCACATG GGTT	CAGGATGTCCCAGGAGAAG GGCAG
<i>GCG</i> 3' homology arm	CAGAAGCTGGTCGAGATCCG GAAC	AGAACGGCTACAAGGCATG ATGGG

Table S2. Media formulations.

Stage	Day	Base Media	Morphogens
1	0	RPMI-1640; 1/200 Pen/Strep; 1x Glutamax	0.2% FBS; 1:5,000 ITS; 0.100ng/ml Activin A; 3µM CHIR99021; 1µM JNJ
	1		0.2%FBS; 1:2000 ITS; 100ng/ml Activin A; 1 µM JNJ
2	2		0.2%FBS; 1:1000 ITS; 25ng/ml KGF
	3-4		0.4%FBS; 1:1000 ITS; 25ng/ml KGF
3	5	DMEM; 1/200 Pen/Strep; 1x Glutamax; 1x NEAA; 1mM Sodium Pyruvate	1:100 B27; 3nM TTNPB; 250nM SANT-1; 250nM PdBU; 250nM LDN; 0.5mM 2-P-L-AA
	6		1:100 B27; 3nM TTNPB; 0.5mM 2-P-L-AA
4	7-9		1:100 B27; 50ng/ml EGF; 50ng/ml KGF; 0.5mM 2-P-LAA
5	10-14	DMEM; 1/200 Pen/Strep; 1x Glutamax; 1x NEAA; 1mM Pyruvate; 1% BSA; 1x ITS; 10 µg/ml Heparin; 2µM NAC; 10 µM Zn Sulphate; 1.75 µl β-ME/500ml	10µM Alk5i (RepSox); 2µM T3; 0.5µM LDN; 1µM Xxi
6.1	15-20	CMRL; 1/200 Pen/Strep; 1x Glutamax; 1x NEAA; 1mM Pyruvate; 1% BSA; 1x ITS; 1x HEPES; 10 µg/ml Heparin; 2µM NAC; 10 µM Zn Sulphate; 1.75 µl β-ME/500ml (pH 7.4)	10µM Alk5i (RepSox); 2µM T3; 0.155mM 2-P-L-AA
6.2	21-26		2µM T3; 0.155mM 2-P-LAA
7	27+		2µM T3; 1:2000 Trace A; 1:2000 Trace B; 1:2000 Lipid Conc; 0.5µM ZM447439

Table S3. List of TAQMAN primers used.

Target Gene	Probe	Primer 1	Primer 2
<i>INS</i>	CGG CGG GTC TTG GGT GTG TA	CTA GTG TGC GGG GAA CG	CAC GCT TCT GCA GGG AC
<i>NKX6-1</i>	TGC TTC TTC CTC CAC TTG GTC CG	TCG TTT GGC CTA TTC GTT GG	TGT CTC CGA GTC CTG CTT C
<i>PCSK1</i>	TCC CGA AGA GGA GAC CTT CAT GTC A	CTA TCA AGT CCC TGG AGC ATG	TGT ATC CCG TTC TCT TTC AGC
<i>GCG</i>	ATG GCG CTT GTC CTC GTT CAT CT	ACG TTC CCT TCA AGA CAC AG	GTC CAG ATA CTT GCT GTA GTC AC
<i>ARX</i>	CGG CAT TCG GCA GGC TCT TTT C	CTG AGC ACT TTC CTC GGA G	TGT GGG CTG TCT CAG GAG
<i>IRX2</i>	CTG ATC CCT TCG TCC TCT GCC G	GAG AAA CAA AAG CGA AGA TGA GG	CGA GTG ATC CGT GAG CG

Table S4. List of NanoString target gene sequences.

Target Gene	Target Sequence
<i>INS</i>	GGGTCCTGCAGAAGCGTGGCATTGTGGAACAATGCTGTACCAGC ATCTGCTCCCTCTACCAGCTGGAGAACTACTGCAACTAGACGCAGC CCGCAGGCA
<i>GCG</i>	TGGA CTCCAGGCGTGCCCAAGATTTTGTGCAGTGGTTGATGAATAC CAAGAGGAACAGGAATAACATTGCCAAACGTCACGATGAATTTGA GAGACATGC
<i>NKX6-1</i>	CTGGCCTGTACCCCTCATCAAGGATCCATTTTGTGTTGGACAAAGACG GGAAGAGAAAACACACGAGACCCACTTTTCCGGACAGCAGATCT TCGCCCTGG
<i>ARX</i>	TGCACTCAGCGTGGTATGGTAAAAGTTTGTCTCCCGTAGATTCTT ACTGTGTTGTAGATACGGTAGGGTTCCTAGACAAATATTTATGTAC TCAAGCCC
<i>PCSK1</i>	AGTGCAAAGCTCAACATCCCTTATGAAAACCTTCTACGAAGCCCTGG AAAAGCTGAACAAACCTTCCCAGCTTAAAGACTCTGAAGACAGTC TGTATAATG
<i>CHGA</i>	CTGCGCCGGGCAAGTCACTGCGCTCCCTGTGAACAGCCCTATGAAT AAAGGGGATACCGAGGTGATGAAATGCATCGTTGAGGTCATCTCC GACACACTT
<i>PAX4</i>	CTGCCCATTTGTCCTTACCGTCCTGCCCATACAGACTGTGGCTCCTTC CTCCTTCCTGTGATTGCTCCCTCCTGTGTGGACGTTGCCTGGCCCTG CCTCGA
<i>SLC30A8</i>	CAGATGCAACCAATTCATTCAGTCCACGAGCATGATGTGAGCACTG CTTTGTGCTAGACATTGGGCTTAGCATTGAAACTATAAAGAGGAAT CAGACGCA