Supplementary information

Haploid embryonic stem cells can be enriched and maintained by simple filtration

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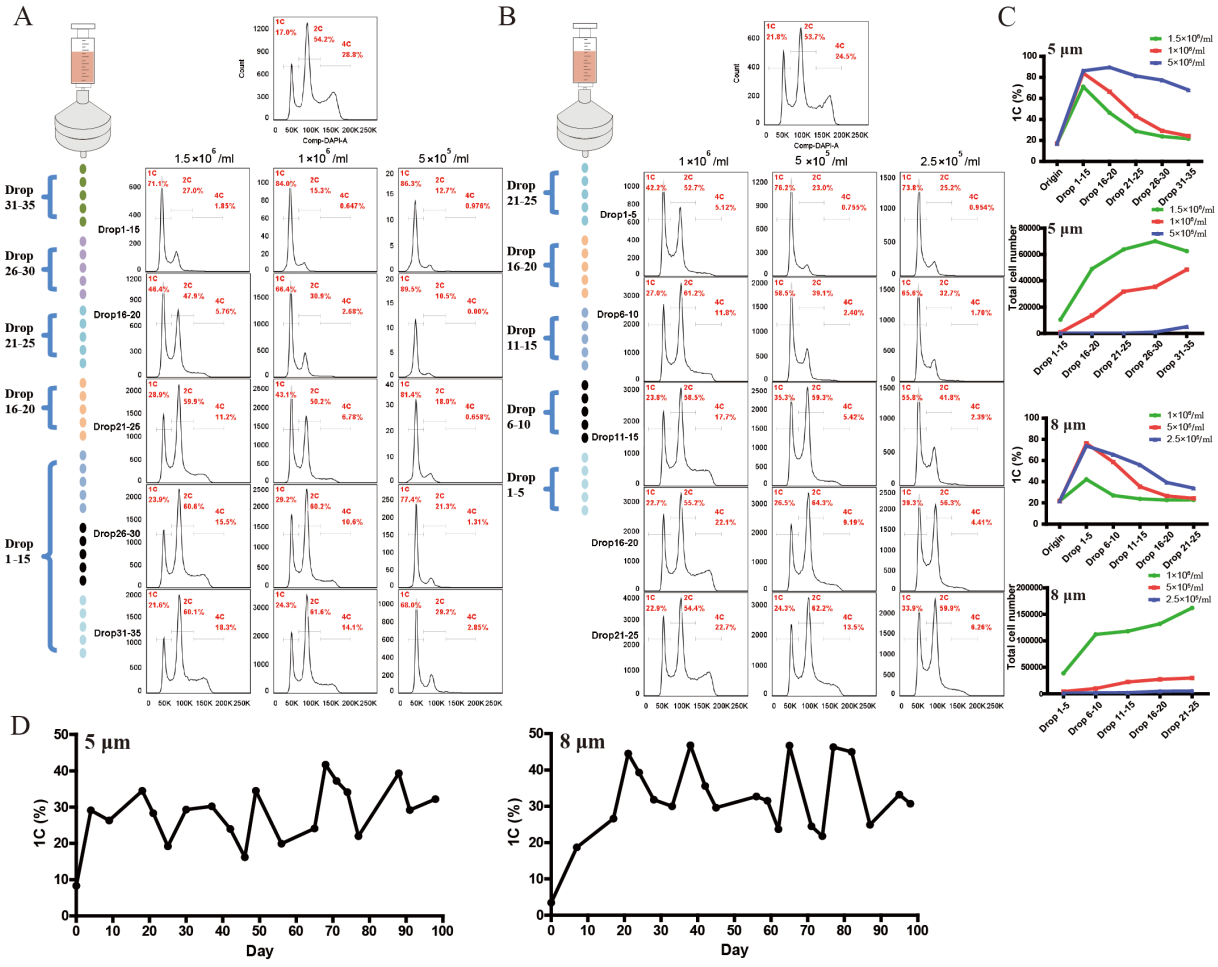

Figure S1. Optimizing the filtration conditions for long-term maintenance of mouse haESCs.
(A) Diagram of filtrates collection strategy when using filters with 5 μm membranes (left) and results of 1C, 2C and 4C ratios in filtrates of different drops (right). Cell suspensions with concentrations of 1.5×10^6/ml, 1×10^6/ml and 5×10^5/ml were shown here.
(B) Diagram of filtrates collection strategy when using filters with 8 μm membranes (left) and results of 1C, 2C and 4C ratios in filtrates of different drops (right). Cell suspensions with concentrations of 1×10^6/ml, 5×10^5/ml and 2.5×10^5/ml were shown here.
(C) The concentrations of cell suspensions and pore sizes of membranes affected the distribution of 1C ratio and cell numbers in filtered drops.

(D) Filters with 5μm (left) and 8μm (right) membranes could be used to long-term maintain the haploidy of another cell line, *H19*$^{\Delta DMR}$-*IG*$^{\Delta DMR}$-AGH-OG3.

Table S1. Summary of gene editing in *H19*$^{\Delta DMR}$-*IG*$^{\Delta DMR}$-AGH cells enriched by filtration.

Targeted gene	Cell enrichment method	Transfection efficiency (%)	Established cell lines	Cell lines with expected mutation (%)	Cell lines with other mutations (%)	WT cell lines (%)
Iqgap2	FACS	7.69	22	3 (13.64%)	15 (68.18)	4 (18.18）
Iqgap2	5 μm filtered	6.15	21	4 (19.05)	15 (71.43)	2 (9.52）
Crygc	5 μm filtered	ND[a]	28	8 (28.57)	12 (42.86)	8 (28.57)
Crygc	8 μm filtered	ND[a]	29	6 (20.69)	14 (48.28)	9 (31.03)

[a] not determined

Table S2. Primer information

Sequence Name	Sequence (5'-3')	Application
Iqgap2 sgRNA-1 F	CACCGAGGTCACATCAGATTACATC	Targeting exon 17 of *Iqgap2*
Iqgap2 sgRNA-1 R	AAACGATGTAATCTGATGTGACCTC	
Iqgap2 sgRNA-2 F	CACCGACGTCATACTTGCTTGTCA	Targeting exon 30 of *Iqgap2*
Iqgap2 sgRNA-2 R	AAACTGACAAGCAAGTATGACGTC	
Iqgap2 F	TTGGCTGCTGTTAAATCTGTC	Genotyping of 35kb deletion
Iqgap2 R	TCATCTGCTGGTTTGATGGA	
Iqgap2-exon17 F	GCTGTCCCTTTCATTTCCTAA	Genotyping of mutations in exon 17
Iqgap2-exon17 R	GGTAGTTGATGGTGCTGTCTTC	
Iqgap2-exon30 F	GAGGCCCGTAAATCTCCCA	Genotyping of mutations in exon 30
Iqgap2-exon30 R	GCAGACATGGACCATTAGCC	
Crygc sgRNA F	CACCGTCAAGAGTACCGGCGCTTCC	Targeting *Crygc*
Crygc sgRNA R	AAACGGAAGCGCCGGTACTCTTGAC	
Crygc/HDRP/1 F	CCCGGGGATCCTCTAGAGATTAGGTAGTTGG GAATGGGAGAGTAAT	Amplification of left arm from genome
Crygc/HDRP/1 R	GTCCTGGAAGGCCGGTACTCTTGAGGCC	
Crygc/HDRP/2 F	GAGTACCGGCCTTCCAGGACTGGGGCTCT	Amplification of right arm from genome
Crygc/HDRP/2 R	CATGCCTGCAGGTCGACGATTATCTCTCCAC GGTCTGCTCT	
Crygc F	TCGACCACACTCACCCATTG	Genotyping of mutations of *Crygc*
Crygc R	ACAGAAGTCAGGGTTTGCCA	