

## Supplemental information

*Real-time RT-PCR*- The primers used in real-time RT-PCR experiments were as follows:

ASPHD1 forward primer: GAAGGACCTAGGACGGAAGG, reverse primer:  
GCTGAAGGCAGGTCTGGTAG; GRIA2 forward primer:  
GTGGCTAGAGTGCGGAAGTC, reverse primer: ACGCCTTGCTCACTGAGTTT;  
KCNC2 forward primer: ACCAGTCATCAATGGCACAA, reverse primer:  
GAAAGGTAGGATGGCCACAA; KCNQ2 forward primer:  
GCAAGCTGCAGAATTTCTC, reverse primer: AGTACTCCACGCCAAACACC;  
OGDHL forward primer: TCTCTCTGCGGGAGATCATT, reverse primer:  
CAAACCGCTTCTCTGAGGAC; SEZ6L2 forward primer: CCCTATCCCCCGTGATCTAT,  
reverse primer: ACTCAGGGTCCGTGGTAGTG; SYT14 forward primer:  
GCGATTGAAGGTGGAGAGAG, reverse primer: CCCCAACAGCTGACAAAAAT;  
KDM2B forward primer: ACTCAGGAGGTTCTGCTCCA, reverse primer:  
TAAAATCGCATCAGGGAAGG; SCG10 forward primer:  
AACAGCAATGGCCTACAAGG, reverse primer: AGGTTCCGGGTAAAAGCAAG;  
VGF forward primer: AGGAGGAGGACGGGGAAG, reverse primer:  
TCTGCGGATCCATCTCCTC; MYT1 forward primer: GCAGAATGAAGCCCTGT TTC,  
reverse primer: GGATATTGGCGAGACTTTGG; NERUROD1 forward primer:  
TGAGACGCATGAAGGCTAAC, reverse primer: CTCGATTTTGACAGCTTCTG; EZH2  
forward primer: TTCGTGCCCTTGTGTGATAG, reverse primer:  
GGAAAGCGGTTTTGACACTC; EED forward primer: TGGCCATGGAAATGCTATC,  
reverse primer: CCTCCAAATATTGCCACCAG; SUZ12 forward primer:  
TGCAGTTCACTCTTCGTTGG, reverse primer: GAACCAGGCTTGTTTTCTG; CDYL  
forward primer: AAGCACTAAAATGGCAGAAGC, reverse primer:  
CATTAGCCCAAACCACATCG; GAPDH forward primer:  
GAAGGTGAAGGTCGGAGTC, reverse primer: GAAGATGGTGATGGGATTTTC.

*ChIP and ChIP re-ChIP assays*- ChIP and ChIP re-ChIP assays were performed as previously described (34,37,42). The primers used in ChIP assays were as follows: MYT1 ChIP-qPCR forward primer: ACAAAGGCAGATACCCAACG, reverse primer: GCAGTTTCAAAAAGCCATCC; FBXO32 ChIP-qPCR forward primer: CTTCATCCAAGCAACGACTG, reverse primer: CCCTGCACCCTTAAATTGAC; VGF ChIP-qPCR forward primer: GTAGGAGCGACGGTCGAG, reverse primer: CCCTTTATAAGGCGGTGGAG SCG10 ChIP-qPCR forward primer: TTTCAGCACCAAGGAGAGTG, reverse primer: GCAGCTTTCTGTCCAATCAC; HoxA2 ChIP-qPCR forward primer: AGGAAAGATTTTGGTTGGGAAG, reverse primer: AAAAAGAGGGAAAGGGACAGAC; NEUROD1 ChIP-qPCR forward primer: TCACAGGGCCAAGATAAAGC, reverse primer: AAGAGCGAGCATCTGTTTCC; BRMS1 ChIP-qPCR forward primer: TGCGACTTACGTGGTAGTGC, reverse primer: TATAAAACAGGGCCGACGAG; BASE ChIP-qPCR forward primer: GGAGAGACGGAGACCATGAA, reverse primer: AGGAAGCCACTCGGTCTTCT; DBC1 ChIP-qPCR forward primer: CGAGCTAGCCAGAATGATCC, reverse primer: CCACCAGGCGAAAATAGAAA; JIP1 ChIP-qPCR forward primer: GAGCCCACTGACATCCTCTC, reverse primer: ATCCGACATCGACTCTCCTC. The MYT1 and BASE primers were also used for the conventional semi-quantitative ChIP assay.