

Supplementary Figure S1. Nucleotide sequences from three exons of mouse *Redrum* are aligned with those of presumptive orthologues of other rodent species. Note that highest level of homology is seen in the 3rd exon.

1 Exon

Percent Identical: Naked_mole Rat 31%, Squirrel 39%

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Mouse      A G A C T G C T T T C T C A A G T G G C T T A G T G T C T C C A C T C A G G G G T G G T G G A G C T C T T C T T C T C A
Rat        -----
Kangaroo_Rat -----
Naked-mole -----
Guinea-pig -----
Squirrel   -----T C T A T T T T A T T
Rabbit     -----
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Mouse      C T G C T T C T T C T C A T T T T T T C A T G C T C T G G C C T A A T G T C T T G G T G G T A T T A G C C T A G C A C
Rat        -----
Kangaroo_Rat -----
Naked-mole -----
Guinea-pig -----
Squirrel   C T G C T T T C T T C C A T -----
Rabbit     -----
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Mouse      A A C T T C A G T T G C A C T G C A G G T T C T T C A T A A A A T T G A A A C A C T G T T T C - C A G A T T T G G A T T
Rat        -----
Kangaroo_Rat -----
Naked-mole -----A T A T G G T T G A A A A A T T G T T T C A T A G G T T T T C A T T
Guinea-pig -----
Squirrel   -----T T C C C C C A T C C A T C C C C
Rabbit     -----
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Mouse      T T C T T C T G C T C T G C C A T G G G T T G T T C A C A T T C T C T C A A G G T T G T T A C T A C T G T T T T A C C T
Rat        -----
Kangaroo_Rat -----
Naked-mole C A T T T G T A T T T C -----T T C T C T T A A G T A C A T T T T G A A G T T T T G G T C T
Guinea-pig -----
Squirrel   T C C C T G T A T T T C -----T T C T T T A A A G A A C A C T T T G A A T T C T T T G A C C
Rabbit     -----
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Mouse      T T T T C T A C T T G A T A A T T T T G G -----A A A C C G
Rat        -----
Kangaroo_Rat -----
Naked-mole T T T T T C T T T G T C C T T T T T C T -----A A C T A -
Guinea-pig -----
Squirrel   A T A T T T T C T T T C T T C T T T T T T T T T G T C T C T A A G T G A T A C T T
Rabbit     -----
```

2 Exon

Percent identical: Rat 87%, Kangaroo_Rat 57%, Naked_mole Rat 59%, Guinea-pig 55%, Squirrel 58%, Rabbit 28%

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Mouse      GCTTGATGGAGGCCCTACAGTGA  
Rat        GCTTGA-GGGAGACCTATAGTGA  
Kangaroo_Rat TCGTGA-CTGAGGCTTACAAGCGGAGTCCATCAGCCGAGGCTTAG---CTCTCTGTCTGG  
Naked_mole  TTATGA-TTGAGACTTACAAACTGGGCCTGTTAGCCCAATCTCAGAATGTCTGTAACAGG  
Guinea-pig  TCATGA-----GACATGAGAGCCATTAGCCCACTCACAGAACGTCTGTGGAAGG  
Squirrel    TCATGA-CTGAAACTTACAAACTGAGACCATTTGCC-AATCTCAGAATATCTACAGAAGA  
Rabbit      -----
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Mouse      ACCCTGAAAGAATGACCTGGCCGGAAGATTGTCCCATCCTGCATGAG  
Rat        ACCCTGAAAAAATGACCTTGCCAGAAGCTTGTACCATCTTTCATGAG  
Kangaroo_Rat CCTCCAGGAGGGATGTCTTGTGTCAGAAGCTTGGGCTGTTCTGCACGGG  
Naked_mole  AGCCTCAGAGGATGACCTCCTTGAAGTGGGAGTCATTCTGCATGAG  
Guinea-pig  AACCTCAGAGGAGGACCTCTTAGGAAGTATGGGTTCATTCTGCACGAG  
Squirrel    ATCCTAAGAGGATGACCTCACTAGAAGCTTGGTGC-TTCTACATGAA  
Rabbit      -----AGGGGATGGGCCGCGGGAAGCGGGGCTCATTCTGCCCAAG
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3 Exon

Percent identical: Rat 87%, Kangaroo_Rat 67%, Naked_mole Rat 73%, Guinea-pig 72%, Squirrel 76%, Rabbit 58%

Mouse GAGGGAAGAATGAGCCTCACTCTACACCCAGAATGCCAACTACATTTTCATCCAGTCCTC
Rat AAGGGAAGAATGAGCTTCATTCTCTAACCAGAATGCCAGCCACATTTCCATTTCAGTCCTG
Kangaroo_Rat AGGAAAAGAGTGCATCTGACTCTGCATCTGGGACATTGCCAATGCTTTTGCCTAACCCCA
Naked_mole AGGACAACACTGCACCTAACTACACACCCAGCATGTGGGCAATGTTTTTATCCAATCCTA
Guinea-pig AGGAGGAGACAGCACCTAACCATATACCCAGCATGTGAGCAACGATTCTATCCAGTCCTA
Squirrel AGGAGAAGAATGAATCTAACTATAACCCAGGATGTGAGCAATGTTTTTATCCAATGCCA
Rabbit AGGAGGAGGATGGATTTGAGTAGACACTCAG-----

Mouse AAAAAATATCATGCGCACCCAGATTCTCCTGGTCAGACCAACACTGTGGAAACCCACTGG
Rat AAAGGATATCATGTGTACCCAGATTCTC-----CTGTAGGAACCCAGTCG
Kangaroo_Rat GTCCAAGCTCAGGCTGACCAAGGTTCTCTTGATCAGA-TACTCCTGTGGAAACCAAATTT
Naked_mole GAGTAAACTCATGTTTACCCAGATTGTCTTGGTCATA-TGCGGCTGTAGAAACCAAGTTTA
Guinea-pig GAATAAACTCATGTTTACCCAGATTGTCTTGGTCATA-CGAGGCTTTGGGAATCCAATCA
Squirrel GAATAAACTCATGTGTACGCAGATTCTCCTGGTTGGA-GGTGGCTATG-----
Rabbit -----

Mouse ATGCATTTCAGAGGGATCACTGATAATGAAGAATGAGATGCCGTCATCCATCTGTAGGAAG
Rat ATGTCTTCAGAAGTATCCCTGATAATGAAGAATGAAATGCAGTCA----TCCACAGCAAG
Kangaroo_Rat GGTCATTTAGGGGCACTACTAGTAATACAAAATGTGAAGCCGTCACCAGTCCACAGGAAA
Naked_mole ATACATTCTGAGTTAGCATTAATAATGAAATATGACATACATTTCATAAGTCCACAGGAAG
Guinea-pig ATATATTCTGAGGTATCATTAAATAATGAAATATGAAATACATTTCACAAGTCCACAGGAAG
Squirrel ATGTTTTCTGAGGGAGCACTAATAATGAAGTATGAAACACCTCCATGAGTCCACAGGATG
Rabbit -----

Mouse ATGCTGCGTGTGCCATAGAACCCAAAAGTCATCTATTGCAAGAGA-GAATCGATTCTCCC
Rat ATGCCTTTTGAGTCATACAACCCAAAAGTAATCTATTGCA--AGA-GATTCAACCCTCCC
Kangaroo_Rat ATATTATCTATCTAATGCAATC-----TGCCTCA--AAGAATACAAAGTCTTAC
Naked_mole ATATTTTCTATCACATTCTACCAACAAGTATTTTTTCCCA--GAG-ATACCAAGTCTTCC
Guinea-pig ATATTTTCTGTATAGGCCACCAACAAGCATTTTTTTTCCA--AAA-ATACCAAGTGTTC
Squirrel ATACTTTCTATCACATACACCTACAAGGTTTTTATTTTTTCA--AAGAATACGAAGTTTTAC
Rabbit -----

Mouse AAGTAAACGGGGCCCTATTAGTTTTAAAACTAATGCAGCACAGAGAGAAATCAGGTTCCCT
Rat CGCTAAGCAGGGCCCTGTTTCGTTTTAAAACTGACACAATACA-GAGACAATCAGGTTCCCT
Kangaroo_Rat AAAGGAA--GGGTGCCATATA---CAAACAAGTGTACGTA-GGATGAGTCCAATCCCC
Naked_mole AAAGGAATAGAGTGTATTATA----AAAAAATATTTATACTCGTAAAGAAATTGGGTCCCT
Guinea-pig AAAGGAATGGGGTGTATTATAC---AAAAAATATTAATACTTGTAAGAAATTGGGTCCCT
Squirrel AAACCCAAAGGATGTTATCAT--AAAAAATACTGATACATGTGGAGGAGTCCAGGTTCCCT
Rabbit -----

Mouse CAGACAATGTTGATTCTGTTTCCTTTTGAACCATTAACAGCCTCACTTAAAGCCATGTAT
Rat CAGACAACACTGATTCCATTTCCCTTTTGAACCATTACCAGCTTCACTTAAAGCCATGTAT
Kangaroo_Rat ACAAAAAGGCTGATTCTG-TTGCTTTAAAAATATTAATTGCCTGA-TGATCGTCATATCT

Naked_mole GTGACAATGTTGA--CCGCTGCTTTCTAAAATATTAATTACCTTATTTATAGCTATATAT
Guinea-pig ATGACAATGCTGACTCTG-CTGCTTCTAAAATATCTGTGACCATATGTATATATAT----
Squirrel GCAACAAGACTGAATCTGCTGCTTTTTTAAAATACTAATTATCTCACTTATAGCCATATAT
Rabbit -----

Mouse TGAAAGCTGCGACTTAACGTTAACCACAGTTTCTAATGCATTAAACAAATGGCAAGGATG
Rat TGAAAGCTGTTGACTATCTTTAACCA--GTTTCTAATAAACTAAACAAATGTCGGGGATG
Kangaroo_Rat AAAAAGGT-CTATTTTTGTCTAACCATTGTTTGAAAAGGAGAGAGAAATAACAGACATG
Naked_mole TAAAATCTGTTCTTTTTGTCTAAACATTGTTTTTAAAGAACTTGGCCAAACAACACAGGTG
Guinea-pig ---GATCTGTTCTTTTTGTCTAAA---TGTTTTTAAAGAACTTGTCAAACAACACAAGTG
Squirrel AAAAAGCTGTTTCTTTTTGTTAAGCATTGTTTTTAGAGAAGTTAGCAAATAATGCA----
Rabbit -----GACGCGAGCCATAGCTG

Mouse ACTGTAGGTCATAGCCCCCTCCCTTCACACATTATACGCAAATGCTTATCTACTGGGTAT
Rat GCTGTAGGTCACAGCC----CCATTACATGTTATGCACGAATGCTTCTGTACTTGATAT
Kangaroo_Rat GTTCTAAGTCACAGCC----CTCTCTGAACATTCTGCTTCAGTGCTTCTGTATTTGGTAT
Naked_mole ATTCTAAGTTGTTGCC----ATATTTGCACACTTTACATTGGTGCTTCTGTATTTGATAC
Guinea-pig ACCCTGAGGTGACTCC----ATATCTGCACAGTTTCCATTGGTGCTTCTGTACTTGATAC
Squirrel -----GCT----CCATTTGCACAGTCTACATTGGTGTTTCTATACTTGGTAC
Rabbit GTTCTATGACACAGCC----CCATCTGCTCATCTGCACGGGTGCTTCCATGTTTGATAC

Mouse TTAAAGGAGAAAAGTTACATCTAAACTCACTCCATAATGTATGCTTTTCAGCGTGGGATGC
Rat TTAAAGAAGAAAAGTTACATCTAAACTCCTCCCGTAATGTATGCTTTTCAGAGTAGGATGC
Kangaroo_Rat TTAAAGAAGAAAAGCTATTTCTAGAATACTTCTGGCTTGTATGTTCT-----AGAGTTAC
Naked_mole TTAAAGATGAAAAGTACTTCTACATTTTCTTTCTAATGTAAGTATCCAGAGTGGGACCC
Guinea-pig TTACAGATGGAA----ATGTCCACATTTTTTCTGTAATGTAAGTATCTAGAGTGGAAACCC
Squirrel TTAAAGAAGGAA----ACTTCTAAAATTTTTTCTGTAATGTATGCTTCCAGAGTGGGATTC
Rabbit TTAAAGAAGGAGACTTGCATGTGAAATTTTCTGGGATGTGCGCTTCCCGAGTGGGGCAC

Mouse TAAGCAAGTTCTGATTTTGGCAGCTCAGAGTCACGCTAAATGCCGGGAATACAGGTTTCT
Rat TAATCAGGTTCTGATTTTGGGAAC-----TCATGCTGAATAACAGGAGTACAGGTT---
Kangaroo_Rat TATTCATACTGAAATCAAGTCATCTGAGACTCAAGTTGAGTCTCACAAGCAC-----
Naked_mole TTATCAAATTCAAATGG----ATCTCAGAGTCCAGCTGAATCTCAGAAATCCAATGATCT
Guinea-pig TAATCACATCCACATGG----AACTCAGAGCCATGCAGAATGTTGGAAGGACAGAGACCT
Squirrel TAATCAAATTCAAATCAAGTCAACTCAGAGTCAAATGAATCTCAGA-----TCT
Rabbit TACTCACAT-----TCAGGGCCAAGCTCAATCTCAGAAGCACAA---CCT

Mouse TCTCAGAAAGGGCGGGCGGCTTTGGCTAATGTCTGCTGGGGATGTCTTCAAATGCAAAGT
Rat ----AGAAAGGGCTGGTGGCTTTGGCTAATGTCTGCTGGTGGATGTCATCTAAATACAATGT
Kangaroo_Rat ----AGACAAGGCTGGTGGCCTT-----
Naked_mole TTCCAGAAAGGGCTGGAGGCT---GCAGCTGTACTTGGGGCTGCCTTTCAAACATTGCAT
Guinea-pig TTCCAGAAGGGCCAGA-GGTTGTAACAGCCGTGCTGGGCGCTGCCATCCAGACAAGGAAT
Squirrel TTCCAGAAAGGGCTGGTGGCTTTGGCAGCTGTACTGGGGTGCATCAGCCAAACATGAAAT
Rabbit TTCAAGCAATGGCTGCTGGCACTGGGGAATGTCTCGGG-----

Mouse GTGTGTCTGACCATGGCCATGGCAGTCTCAAGTTCCCTTTGCCAAGGACTTTGGGGAAATT
Rat GTGTGTCTGA-----TCATGGCACACTCAAATTCCTTTGCCAAGGACCTTGGGGAAATT
Kangaroo_Rat -----
Naked_mole GTGTGTCTGG-----TCTTGGCAGTCTCAAAGTTCTTAGCAAAGGATTTTGGGGACATC
Guinea-pig GCGTGTCTGG-----TCCTGGCAGTCTCAGAGCTCCTTCAAATGACTTGGGGAAAATC

Squirrel GTCTGTCTGG-----CTCTAGCAGTCCCAAACCCCATTACAAAGGGCTCTGGGGAAATC
Rabbit -----

Mouse CTTCCTCAGGAACTCACATAGCGGAAGAGCAAGAGAGTCCAAATAGTGCTTAAACCT
Rat CTTCCTCAGGAAAGTCACAGGGAAGGAAGAACAAGAGAGTCCAAATAGCGCTTAAACCT
Kangaroo_Rat -----TCAATACAACCACAAATAACCTGGAAATCT
Naked_mole CCTCCCCAGAGATTTCA---AGAAGCAAGACGGAAAGAGTCAAGTAAAGATACAAATTT
Guinea-pig CTTCCCCAGCAGTTTCA----AGGAGGAAACTGAAAGAGTCAAGCATAAGAAATAAATTT
Squirrel CCTCCCCAGGTATGTCCAGAGAAGGAAGAATAAGAGAGTCCATAGAACATTTAAATTT
Rabbit -----GAACTACAGAGTCCAAATAAAAATTAATTC

Mouse GGGGTCTATACCTTTTTAACTCTTCAAACAGACAACAGCAGTAAAAAGAGCTCTGCTGCCA
Rat GGGGTCTATACCTTTTTAAGTTTTCAAAAAGACAACAGCAGTAAAGAAGAGCGTTGTTCCCA
Kangaroo_Rat AAGACTGACAC----TACACTTTTTAAGGACACAGCAATGGCCATAAGATCCTTGTTCCCTA
Naked_mole AAGATT-----TGAGTTTTCAAGAAGACAGAAACTGCCAAAAGAGCTTTGTTCCCTA
Guinea-pig AAAATTTAC-----TTAGTTTTCAAGAAGACTGAAATAGCCCAAAGAGCTTTGTTCCCTA
Squirrel AAGTTTTACACTTTTTAAGTTTTCAAGAAGACAGCAACAACCAAAGAGCTTTATTCTGA
Rabbit AAGACTTACACTTTTTTTAGATTTCCAGAAGACAGCAGCAGCCAAAAG-GCTTTGTTCCCTG

Mouse GTCTTCAGAGTCTTAACTGAGTTGGAGGCGAACTATTGTGAAGTATAATGTAGTTAGTGA
Rat GTCTTCTAACTCTTCACCGATTCCGGAAGCAAACACTACTGTGAAGTATAAAGCAGTTAGTGA
Kangaroo_Rat GTCA---AAATCATGACTGGTCATGAAGCAAATTTGTTATAAACCATAAACTAGTTATTGG
Naked_mole GTCT---AAATTTTGATTGATTAGGAAGCAAACACTATTGTAAATCACAAATCAATTAATA-
Guinea-pig CTCT---AAATTTAGACTGATTAAGAAGCAAACCTTTATAAATCATAAGTGAATTAACA-
Squirrel GTCC---AAATTTTGATTGA-TAGATAGCCAACCATTTGTAAACCACAAACCAATTATTAA
Rabbit GTCT---ACATTTTGACTGCTTAGGACACAAAAGACTGCAAACCATAATGTGATCATTAA

Mouse CTCTGAAGTTAGTCCACAGAAAGCCATTCTTTTTAAATGGACCTACACAACAATTGCCCC
Rat CTCTGAAGTCACTCTACAGGAAGCCA---TTTTTAAATGGACCCACACGA---TTGGCGC
Kangaroo_Rat CCCTG-----ATGGACTCCCATAATCATTTTCTT
Naked_mole ---TGAAGTTAATATATTG-----TATTTTATATAAATTGACCTACATAATCATTTCCAT
Guinea-pig ---GGAAGTTAACATAGAG-----TATTTTATATAAATTGACCTACATAATCATTTCCAT
Squirrel CTTTGAAGTTAATATACAG-----TTCTTTATATTAATTGACCTACACAACCTGTTTACAT
Rabbit GGTGACGGCACCATCCAG-----TACTTTCTGTCCAGAGACTACAGCATC-TCAGCAT

Mouse GCACACAAACTGCACATGCAATATTCAAAGCCACTGCTAGGTGCGTTGCTGAGTGCAGAG
Rat GCACACAAACTGAACATGCACTATTCAATGCCACTGCTAGGTGCGTCGCTCAGTGCAG--
Kangaroo_Rat GTGC-CTGAGTGTGTGTGACTCTCTGACAAACCTCTAGTGGTGTGACTGTGTGGAT
Naked_mole TTTCACAAAATATGTGTGCAACATTCAGAGATAACCGCTAGGTGTGTGGCTGTGTACAGAT
Guinea-pig GTGCACAAAATACGTGTGTAGCATTTCAGAGATACTGGTAGGCGTG-----
Squirrel GTGCACAAAATGCATGTGC-TCATTCAGAGCTACTGTTAGGTATGTGGTAGTGTACAGA-
Rabbit GTGCACAAAATACACATGCAGTGCTCAGAGATAACAGCGAGCTGGGTGGCTGTGCACAG--

Mouse AGCTGTGCTCCCAGAACCATCAAGTCAACACGCCAGCTGCTCAGCATTATTTACAATATA
Rat AGCTGTGCTCCCAGAACCCTCGAGTCAACCGCGCCAGCTGTTTCAGCATTAGTTACAATATA
Kangaroo_Rat ACCTACACACACACAACCACCAAGCCAATAGACCAGCCACTCAGCAGTATTTACAATGTA
Naked_mole ACATACACACATAACAACCACGAAGTCAACACACCAGCTGTTCAACATTATTTACAATATA
Guinea-pig -----GCCGTGAAGTCAATACCCAACCTGTTCAACATTATTTATAATACA
Squirrel -----TACACACACAACCCTCAAGTCAACACACCAGCTGTTCCGCATTATTTACAATATA
Rabbit -----CCCCAGCCCCGAGTCAACACGCCAGCTGTTCCGTGTTATTTACAATGCA

Mouse TTGGCTTCACCACTGACCTAAAGAGCTGAAGAAAATAACAGGCCATATTTTCAGCTTGGT
Rat TTGGCTTCACCACTGACCTAAAGAGCTGAGGAAAATAACAGGCCATATTTTCAGCTTGGT
Kangaroo_Rat CTGGCATCTCTGCTGACCTCAAGAGTTGAAGGAAAATAACAGGCCGATATTTTCAGCTGAGT
Naked_mole TTGGCATCGCTGTTGACCTAAAGAGCTGGAGAAAATAACAGGCCATATTTTCAGCTTAGT
Guinea-pig TTGGCATCACTGTTGACCTAAAGAGCTGGAGAAAATAACAGGCCATATTTTCAGTTTAGT
Squirrel TTGGCATCACTGCTGACCTAAAGAGCTGAAGAAAATAACAGGCCATATTTTCAGCTTAGT
Rabbit CTGGCATCACTGCTGACCTAAAGCGCGGAAGAAAATAACAAGCCATATTTTCAGCTTAGT

Mouse AAAAGCCTGCAGTGGGGAGCCCTTTCACAACAATTACAAGCATTGCTCGGAATGCATTT
Rat AAAAGCCTGCAGTGGGGAGCCC-TTCAGAACAATTACAAGCATTGCTCGGAATGCATTT
Kangaroo_Rat AAAAGCCTGCAATAGGGAGCCCTTTCGAACAATTACAAGCATTGCTGGAAATACATTT
Naked_mole AAAATCCTGCAGTAGGGAGCCCTTACGAACAATTACAAGTATTTGCTGGAAATACATTT
Guinea-pig AAAACCCCTGCAGTAGGGAGCCCTTATGAACAATTACAAGTATTTGCTGGAAATACATTC
Squirrel AAAATCCTGCAGTAGGGAGCCCTTATGAACAATTACAAGCATTGCTGGAAATACATTT
Rabbit CAAACCCCTGCAAGAGGGAGCCCTTCTGACCAATTACAAGCGTTTGGCTGGAAATACATTG

Mouse GCTGATTTAACAAACTGGAGAGGACAAATGTTTAACATGCTGTCTGAGGCTGTTTCAGTC
Rat GCTGATTTAACAAACTGGAGAGGACAAATGTTTAACATGCTGTCTGAGGACGTTTCAGTC
Kangaroo_Rat GCTGATTTAACAAACTGGGTAGGACAAATGTTTAACATGCTGTCTGATAATGATGTTTCAGAT
Naked_mole GCTGATTTAACACACTGGGTAGAACAAATGTTTAACATGCTGTCTGATAATGATGTTTCAGAT
Guinea-pig ACTGATTTAAC-AACTGGGTAGGACAAATGTTTAACATGCTGTCTGATAATGATGTTTCAGAT
Squirrel GCTGATTTAACAAACTGGGTAGGACAAATGTTTAACATGCTGTCTGATAATGATGTTTCAGAT
Rabbit GCTGATTTAACAAACTGGCTGGGACAAATGTTTAACATGCTGTCTGATAATGATGTTTCAAAT

Mouse GCTTTTCTTGGTATCCGTTGATCTGAGATAATGTGTTCTTGCCCAATCATGCTACAAAGA
Rat GCTTCTCTTGGTATCCGTTGATCTGCGATAATGTGTTCTTGCCCAATCATGCTACAAAGA
Kangaroo_Rat GCTTTTCTTGGTATTCGTTGATCTGAGATAATGCGCTCTTGCCCAATCATGCTACAAAGA
Naked_mole GCTTTTCTTAGTATTCGTTGATCTGAGATAATGCGTTCTTGCCCAATCATGCTACAAAGA
Guinea-pig GCTTTTCTTAGGATTCGTTGATCTGAGATAATGTGTTCTTGCCCAATCATGCTACAAAGA
Squirrel GCTTTTCTTAGCATTCGTTGATCTGAGATAATGCGTTCTTGCCCAATCATGCTACAAAGA
Rabbit GCTTTTCTCAGTATTCCTTGATCTGAGATAATGCGTCCCCGCCCAATCACGCTACAAAGC

Mouse AGCAGCGGAAATAAATAAATAAATAGATGTAATGCGATGCGTTCCCACAATAGCTGAGCT
Rat AGCAGTGAAATAAATAAATAAATAGATGTAATGCGATGCGTTCCCACAATAGCTGAGCT
Kangaroo_Rat AGCAGCAGAAATAAATAAATAAATAGCTGTAATGTGATGCGCTCTCACAATAGCAGAGCT
Naked_mole AGCAGTGAAATAAATAAATAAATAGATGTAATGTGATGCACTCTCACAATAGCAGAGCT
Guinea-pig AGCAGCGGAAATAAATAAATAAATAGATGTAATGTGATGCGCTCTCACAATAGCAGAGCT
Squirrel AGCAGTGAAATAAATAAATAAATAGATGTAATGTGATGCGCTCTCACAATAGCAGGGCT
Rabbit CGCGGCGGAAATAAATAAATAAATACATGTAATGTGATGCGCTCTCACAATAGCAGAGCC

Mouse GCTGACGGCCCTGACAGATGGAAAGAAAAAAAAAAAAAAAAAGTCAATATGATGTCTGAGAC
Rat GCTGACTGCCCTGACAGATGG-----AAAAAAAAAAGTCAATATGATGTCTGAGGC
Kangaroo_Rat GCTGACTGGCCCTGACAGATGG-----GAGGGGGGAAAAGTCAATATGATGTCTGAGAC
Naked_mole GCTGACTGCCCTGACAGATGG-----GGAAAAAAGTCAATATGATGTCTGAGAC
Guinea-pig GCTGACTGCCCTGACAGATGG-----AAAAAAAAAAGTCAATATGATGTCTGAGAC
Squirrel GCTGACTGCCCTGACAGATGGAA--AAAAAAAAAAAAAAAAAGTCAATATGATGTCTGAGAC
Rabbit GCTGACTGCCCTGACAGATGG-----AAAAAAAAAAAAAAAAAGTCAATATGATGTCTGAGAC

Mouse AGCCCAGGCTCGGCACTGCAGAATAAATTACATGATTGCGCGAATGCTTGGGCCTCGCTC
Rat AGCCCAGGCTCCGCACCGCAGAATAAATTACATGATTGCGCGAATGCTTGGGCCTCGCTC
Kangaroo_Rat AAGCCGGGGTCAGCACTGCAGAATAAATTACATGATTGCGTGAATGCCGCGGCTTCGCTC
Naked_mole AGCCCAGGTTTGGCATTGCAGAATAAATTACATGATTGCGTGAATGCCGCGGCTTCGCTC

Guinea-pig AGCCCAGGCTTGGCATTGCAGAATAAATTACACGATTTCGCTGAATGCTGGGGCTTCGCTC
Squirrel AGCCCAGGCTTGGCACTGCAGAATAAATTACATGATTTCGCTGAATGCCTGGGGCTTCGCTC
Rabbit AGGCCAGGCTCAGCACTGCAGAATAAATTACATGATTCACTGAATGCCTGGGGCTTCGCTC

Mouse AGACATTCAAAAAAAAAAAAAAAAAATTGGAAAGATAAAAAGCTTGCATTGGCTTCAGATGATAT
Rat AGACATTCAAAAAAAAAAAAAAAAAATTGGAAAGATAAAAAGCTTGCATTGGCTTCAGATGATAT
Kangaroo_Rat AGACATAC-----AAAAAATTGGAAAGATAAAAAGCTTGCATTGGTTTCAGATGATAT
Naked_mole AGACGTAC-----ACAAAATTGGAAAGATAAAAAGCTTGGACTGGCTTCAGATGATAT
Guinea-pig AGACATAC-----AAAAAATTGGAGAGATAAAAAGCTTGCATTGGCTTCAGATGATAT
Squirrel AGACATAC-----AAAAAATTGGAAAGATAAAAAGCTTGCATTGGCTTCAGATGATAT
Rabbit AGACGTAC-----AAAAAATTGGAAAGATAAAAAGCTTGCATTGGCTTCAGATGATAT

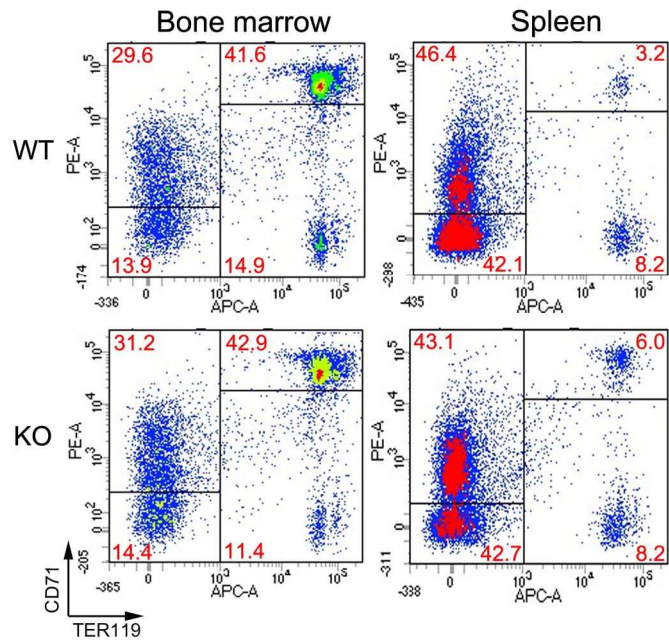
Mouse TTACTGCTTGATGGATTTACTAGCAGCACCAGTACAGTCGACTGTATTGAATTATTGGC
Rat TTACTGCTTGATGGATTTACTAGCAGCCCCAGTACAGTCGACTGTATTGAATTATTGGC
Kangaroo_Rat TTACTGCTTGATGGATTCACTAGCAGCCCCAGTCCGGTCGACTGTATTGAATTATTGGC
Naked_mole TTACTGCTTGATGGTTTACTAGCAGCCCCAGTACAGCCGTGTTGTATTGAATTATTGGC
Guinea-pig TTACTGCTTGATGGATTTACTAGCAGCCCCAGTGCAGTCCTACTGTATTGAATTATTGGC
Squirrel TTACTGCTTGATGGATTTACTAGCAGCCCCAGTACAGTCGACTGTATTGAATTATTGGC
Rabbit TTACTGCTTGATGGATTCACTAGCAGCCCCGTACAGCCGTACTGTATTGAATTATTGGC

Mouse CTCTATTTAGCTGTGTGTCTGTCTGGCGCTCGAGTGTCCATTTAAGCATAAGTGAGCTGGA
Rat CTCTATTTAGCTGTGTGTCTCGTCTGGCGCTCGAGTGTCCATTTAAGCATAAGTGAGCTGGA
Kangaroo_Rat CTCTATTTAGCTGTGTGTCTCGTCTGAAGCTTGAGTGTCCGTTTAAGCCTAAGTGAGCTGGA
Naked_mole CTCTATTTAGCTGTGTGTCTCGTCTGGAGCTGGAGTGTCCATTTAAGGATAAGTGAGTTGGA
Guinea-pig CTCTATTTAGCTGTGTGTCTGTCTGGAGCTCGAGTGTCCATTTAAGCATAAGTGAGTTGGA
Squirrel CTCTATTTAGCTGTGTGTCTCGTCTGGAGCTTGAGTGTCCATTTAAGCATAAGTGAGCTGGA
Rabbit CCCTATTTAGCTGTGTGTCTGTCTGGAGCTTGAGTGTCCATTTAAGCGTAAGTGAGCTGGA

Mouse GACCTGCCAAGCCCCTTTGAGGCTCCGGGTGCAGAGAAAGACGCAGGCTAATGGCCACCA
Rat GGCCCTGCCAAGCCCCGTGTGAGGCTCTGGGTGCAGAGAAAGACGCAAGCTAATGACCACCA
Kangaroo_Rat GGCTTGCCAAACCTCTCAGAGACTCTGGGTGCACAGAAAGACACGAGCTAATGGCCGCCA
Naked_mole GGCTGGCCAAGCCTCTCGGAGGCTCTGGGTGCAGAGACAGGAGTGAGCTGATGGCCCCCA
Guinea-pig GGCTGGCCAAGCCTCTTGAGGCTCTGGGTACAGAGAGAGACGTGAGCTAATGGCCACCA
Squirrel GGCCCGCCAAGCCTCTCCGAGGCTCTGGGTACAGAGAAAGACAAGAGCTAATGGCCACCA
Rabbit GGCTGGCCAAGGCTCTCGGCGGCTCGGGTCCAGAGAAGCG-GCGAGCTCACGGCCACCA

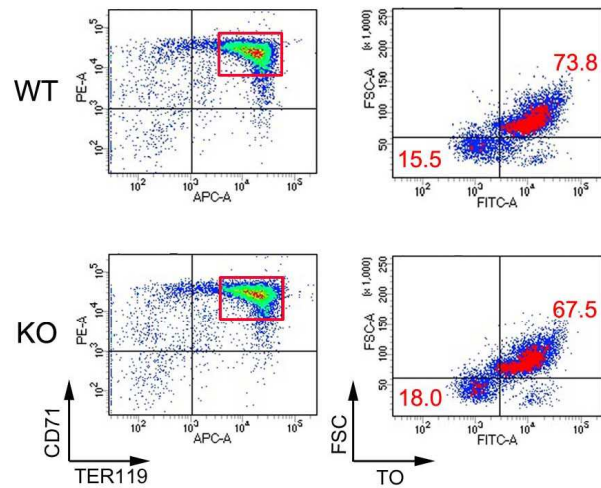
Mouse GCTTGAATAACAGGGAGTGTAAGGACATTGGGGGAGGCAACAAAGCCCAGCTACAAAGTA
Rat GCTTGAATAACAGGGAGTGTAAGGACATTGGGGGAGGCAATGAAGCCCATCTACAAAGTA
Kangaroo_Rat GCTTGAATAACAGGGA-TCAGGGGACACCGGGGAGGCAGGAAAGGCCAGCTACACAGTC
Naked_mole GCTGGAATAACAGGGAGCACGAGGACACTGGGG--AGCTACCAGGCTCAGCTACAAAGTA
Guinea-pig GCTTGAATAACAGGGAGCTTGAGGACATCGGGGAGGCTACAAGGCTCAGCTACAAAGTA
Squirrel GCTTGAATAACAGGGTGTCTGAGGACATTGGGGGAGGCAACAAAGCCCAGCTACAAAGTA
Rabbit GCTTGACTACATGGGAGTTGGAGGACACTGGTGGAGGCGAC-GCCCCAGCTCCAGGGGA

Mouse CTTGCTTATCAATATTAATGCCAAAATAAATATTAATGGAGGCTGCCCGGCATAGC
Rat CTTGCTTATCAATATTAATGCCAAAATAAATATTAATGACGGCTACCCGGCAGAGC
Kangaroo_Rat CTTTCTTATCAATATTAATGCCAAGATAAATATTAATGCAGCCTGCCTG-CATACC
Naked_mole CTTTCTTATCAATATTAATG-CAAAATAAATATTAATGGAGGCTGCCTGGCATAACC
Guinea-pig CTTGCTTATCAATATTAATGCCAAGATAAATATTAATGCAGGCTGCCTGGCATAACC
Squirrel CTTTCTTATCAATATTAATGCCAAAATAAATATTAATGGAGGCTGCCCGGCATACC
Rabbit CTTTCTTATCAATATTAATGCCAAAATAAATATTAATGGAGGCTGCCCTGTGCACC

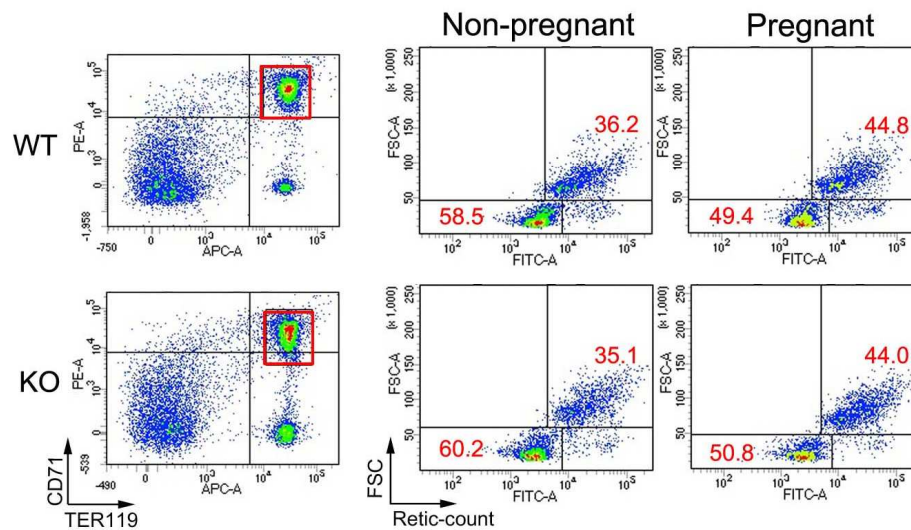


Supplementary Figure S2. Flow cytometric analysis of erythropoiesis in adult bone marrow and in the spleen. Cells were labelled with APC-conjugated anti-mouse TER119 and PE-conjugated CD71. Each quadrant represents distinct stages of development. Note the lack of difference between wild type and homozygous mutant mice (n=6).

A



B



Supplementary Figure S3. Flow cytometric analysis of erythroblast maturation. CD71⁺ TER119⁺ erythroblasts were isolated and stained with TO or Retic Count. FSC^{high} and TO^{high}/Retic Count^{high} cells represent uncondensed cells prior to enucleation, and FSC^{low} and TO^{low}/Retic Count^{low} cells represent condensed and enucleated cells. Fetal liver cells at E12.5 (A, n=3) and bone marrow cells from non-pregnant and pregnant adults were examined (B, non-pregnant WT and KO, n=6 & pregnant WT, n=12, pregnant KO, n=7). Note the similar proportions of the two populations in wild type and homozygous mutant mice.

Gene	log2 fold	in-situ hybridization			
		EST clone ID	Oligonucleotide primers	probe size(kb)	in-situ signal
H19	-5.85	3592592	–	1.1	o
2700038G22Rik	-1.48	635638	–	0.5	o
Mirg	-1.39	6430152	–	0.6	o
Rian	-1.44	5366080	–	0.5	o
AI662270	-6.83	2749177	–	0.5	x
2700023E23Rik	-2.31	464419	–	0.5	o
AI854517	3.27	5686650	–	1.3	o
2900079G21Rik	3.38	571035	–	1.1	x
A930011O12Rik	2.30	5357993	–	3.8	o
Miat	1.64	4318150	–	0.7	o
9430076G02Rik (Redrum)	-5.49	–	F: GAATGAGCCTCACTCTACACC, R: ACTTGATGGTTCTGGGAGCAC	1	o
Gm17370	2.05	–	F: GGTGGTGATGGAGTCACTTAG, R: CTCTGTCTGTACTGGACTTGG	0.9	x
2700033N17Rik	1.38	–	F: AGTCAAAGGCACCCTTGACAG, R: TCTTGGCTCCTGCCTAACTG	0.6	x
Gm17446	-2.70	–	F: TCCAGCATACGGTCTACCATTC, R: CCTGCCACTTGGCCCATC	1	x
Gm3764	1.55	–	F: AGAGCAGCGGCCAAGGCTGAG, R: GGTTGCTATGGCAACATAGCG	1	x
Mir1900	-4.17	–	F: GCTAAGTATGGGAGCCACGC, R: TCAGTCTCTGCCTTACGGTTC	0.9	x
Gm16869	1.74	–	F: AGAAATGTCCACTGTAGGACAGGG, R: TCCTCGCCATATTTACGTC	0.5	x
Gm16707	1.69	–	F: GGATGGGTTAAGTGTCTTAGC, R: ATTGACGGCAGGCAGAGAC	1	x
Gm12063	2.44	–	F: CCTAATTTCCAGGGAAGGTCTG, R: AAGTTTGGAGGGTCGCGTG	0.6	x

Supplementary Table S1. Candidate lncRNAs with tissue specific expression and functions. Listed are the 19 most highly differentially expressed lncRNAs (see Results). The log₂ fold value for each lncRNA indicates the ratio of expression levels in the telencephalon and whole body. For those with EST clones, ID is given. For those without, oligonucleotide primers used for RT-PCR are listed. Probe sizes and *in situ* results are provided.

Supplementary Table S2. Oligonucleotide primers used in generation of the gene targeting vector.

fragment	Forward primer sequence Reverse primer sequence
5' arm	5' - GCTGTCTGCGAATTGTCC- 3' 5' - TCACCTGTGACCAGCAGCTTC- 3'
3' arm	5' - TGGCTGGAAATGACTGTGTGA- 3' 5' - GTTGCCAAGATGCACAAGAAC- 3'
Poly A	5' - CGACTGTGCCTTCTAGTTGC- 3' 5' - CCATAGAGCCCACCGCATC- 3'

Supplementary Table S3. Oligonucleotide primers used for generation of the probe for Southern blotting and for PCR genotyping (see Fig.3)

	fragment	primer sequence
Southern blot probe	Forward	5'-TCTCTCACTGAAGCCTCGTT-3'
	Reverse	5'-AGCAGTTGTAAAGGGTGCCT-3'
Genotyping	F1	5'-GTGGTCATCTTTGAAGCTG-3'
	R1	5'-AGTGAGGCTCATTCTTCCCT-3'
	R2	5'-TCTAGGACAAGAGGGCGAGA-3'