**Supplementary Table 1 | Primers used in this study.**

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| Primer ID | Sequence (5’ à 3’) | Purpose |
| hAMDHD2\_I38T\_for | ggccgcaCTttggacccagagaagc | site-directed mutagenesis |
| hAMDHD2\_I38T\_rev | gggtccaaagtgcggcctccgcgca | site-directed mutagenesis |
| hAMDHD2\_G102D\_for | tcgcacgAcgtcacctccttctgcc | site-directed mutagenesis |
| hAMDHD2\_G102D\_rev | gaggtgacgtcgtgcgacaggatcc | site-directed mutagenesis |
| hAMDHD2\_G130R\_for | aagagtCGtggtccccatggggcag | site-directed mutagenesis |
| hAMDHD2\_G130R\_rev | tggggaccacgactcttcacaggga | site-directed mutagenesis |
| hAMDHD2\_L142F\_for | ctgcacTtCgagggccccttcatca | site-directed mutagenesis |
| hAMDHD2\_L142F\_rev | gggccctcgaagtgcagcccgagga | site-directed mutagenesis |
| hAMDHD2\_F146L\_for | ggccccttGatcagccgggagaagc | site-directed mutagenesis |
| hAMDHD2\_F146L\_rev | cggctgatcaaggggccctccaggt | site-directed mutagenesis |
| hAMDHD2\_A154P\_for | gggcCcAcaccccgaggcccacct | site-directed mutagenesis |
| hAMDHD2\_A154P\_rev | tcggggtgtgggccccgcttctccc | site-directed mutagenesis |
| hAMDHD2\_T185A\_for | atcgtgGcTctggccccagagttgg | site-directed mutagenesis |
| hAMDHD2\_T185A\_rev | ggggccagagccacgatgcggacat | site-directed mutagenesis |
| hAMDHD2\_S208T\_for | tgcgtgAcTctagggcactcagtgg | site-directed mutagenesis |
| hAMDHD2\_S208T\_rev | tgccctagagtcacgcagatgccac | site-directed mutagenesis |
| hAMDHD2\_G226E\_for | tggagcgAagccaccttcatcaccc | site-directed mutagenesis |
| hAMDHD2\_G226E\_rev | aaggtggcttcgctccacacagcat | site-directed mutagenesis |
| hAMDHD2\_H242A,R243A\_for | cctttccacGCcGCcgacccaggcatcgtg | site-directed mutagenesis |
| hAMDHD2\_H242A,R243A\_rev | gggtcgGCgGCgtggaaaggcagcatggc | site-directed mutagenesis |
| hAMDHD2\_G265V\_for | ttctatgTCatgattgcagatggcacgc | site-directed mutagenesis |
| hAMDHD2\_G265V\_rev | gcaatcatgacatagaagatgcagcggc | site-directed mutagenesis |
| hAMDHD2\_G265R\_for | ttctatCgTatgattgcagatggcacgc | site-directed mutagenesis |
| hAMDHD2\_G265R\_rev | gcaatcatacgatagaagatgcagcggc | site-directed mutagenesis |
| hAMDHD2\_I280E\_for | cctgcggGAAgcccaccgtgcccatc | site-directed mutagenesis |
| hAMDHD2\_I280E\_rev | gtgggcTTCccgcagggcggcggg | site-directed mutagenesis |
| hAMDHD2\_I280R\_for | ctgcggCGTgcccaccgtgcccatc | site-directed mutagenesis |
| hAMDHD2\_I280R\_rev | gggcACGccgcagggcggcggg | site-directed mutagenesis |
| hAMDHD2\_D294A\_for | gtcaccgCtgccatccctgcc | site-directed mutagenesis |
| hAMDHD2\_D294A\_rev | ggcaGcggtgaccagcaccag | site-directed mutagenesis |
| hGFAT2-300-His6\_SDM\_for | cgctcggccagtCATCACCATCACCATCACgatgacccatctcgagccatccagaccttgcagatggaac | integration of internal His6tag in GFAT-2 |
| mGFAT1\_G451E\_guide 1 | GAGTCGGCAGTTCTATATCA | CRISPR/Cas9 |
| mGFAT1\_G451E\_guide 2 | GGTGGGGATCACAAATACAGT | CRISPR/Cas9 |
| mAMDHD2\_guide1 | GTTCATCAGCCGGGAAAAGCG | CRISPR/Cas9 |
| mAMDHD2\_guide2 | GCATTGGCTTCAAAGGAGCGG | CRISPR/Cas9 |
| mAMDHD2\_guide3 | GAGGAGCGGAGGTAGGCCTCG | CRISPR/Cas9 |
| mAMDHD2\_guide4 | GCTTTTCCCGGCTGATGAAT | CRISPR/Cas9 |
| mAMDHD2\_guide5 | GCCCTCCAAGTGCACCCCTGA | CRISPR/Cas9 |
| mGFAT1\_G451E\_repair template | GGCGAGACAGCTGACACCCTGATGGGACTTCGTTACTGTAAGGAGAGAGGAGCCTTAACTGTGGGCATCACTAATACAGTCGAAAGTTCCATATCAAGAGAGACAGATTGCGGGGTTCATATTAATGCTGGTCCTGAGATTGGCGTGGCCAGTACAAAG | CRISPR/Cas9 |
| mGFAT1\_G451E\_geno\_for | AGTCGGTTGGTTTTTCGTGT | Genotyping |
| mGFAT1\_G451E\_geno\_rev | ACTGCCCCACAGATCAGAGT | Genotyping |
| mAMDHD2\_geno\_for | GGCCTTCATCTTCAGCTCCT | Genotyping |
| mAMDHD2\_geno\_rev | TGAGATCAGTTTCTGCAGCAG | Genotyping |
| DS | GAGCCAGAACCAGAAGGAACTTGAC | Genotyping |
| US | GTGACTGGAGTTCAGACGTGTGCTCTTC | Genotyping |
| mAMDHD2\_geno\_for (transgenic mice) | TCTAGCTGTTTGGCCAAAGC | Genotyping |
| mAMDHD2\_geno\_rev (transgenic mice) | AGAGACACACGGATGCCTTG | Genotyping |
| *mGfat1*\_qPCR\_for | AAAGGAAGCTGCGGTCTTTCCC | qPCR |
| *mGfat1*\_qPCR\_rev | GTGTGCTCTATCACGGCACTTG | qPCR |
| *mGfat2*\_qPCR\_for | CTACAGAACAGGAGACAAGAGATC | qPCR |
| *mGfat2*\_qPCR\_rev | GTTATATCCCCGTCCCATCAC | qPCR |
| *mAmdhd2*\_qPCR\_for | CTTGCGCCCAAAGCTTG | qPCR |
| *mAmdhd2*\_qPCR\_rev | ACCCACAGATCCTCCCTG | qPCR |
| *mNanong*\_qPCR\_for | ATGAAGTGCAAGCGGTGGCAGAAA | qPCR |
| *mNanong*\_qPCR\_rev | CCTGGTGGAGTCACAGAGTAGTTC | qPCR |
| *mKlf4*\_qPCR\_for | ACAGGCGAGAAACCTTACCACTGT | qPCR |
| *mKlf4*\_qPCR\_rev | GCCTCTTCATGTGTAAGGCAAGGT | qPCR |
| *mGapdh*\_qPCR\_for | GGCATGGACTGTGGTCATGAG | qPCR |
| *mGapdh*\_qPCR\_rev | TGCACCACCAACTGCTTAGC | qPCR |