

**Additional file 24: Sequences for the *NKAP* and *SPESPI* promoters used for luciferase assay.** 1500bp fragments of the respective promoters covering several CpG sites that exhibited differential DNA methylation in female versus male islets were cloned into a CpG-free luciferase reporter vector for the luciferase assay.

*NKAP*

5' -

GAGTGAGAGTACACTATTTTTTTTTTGGAAACACAGTCTCACTCTGTTGCC  
CAGGCTGGAGTGCAGTGGTGCATCTCACTCTCGGCTCACTGCAACCTCA  
GCCTCCCGGTTCAAGCGATTCTCGTGCCTCAGCCACCCTAGTAGCTGAG  
ATTACAGGCACGTGCCACCAGGCCAGCTAATTTTTGTATTTTAGTGGA  
GACAGGGTTTCGCCATGTTGGCCAGGCTGGTCTCAAACCTCTGACCTCAA  
GTGATCCACCCGCTCTGCCCTCCCAAAGTGTGGGATTACAGACGTGAGC  
CACCATAACCAGGCCGAGAGTACACTTAACAAAAATGTATTGTGCTCAGAT  
AATGGACACCTTAAATACCCTGACGTCATCACTACACATTATATACATGT  
AACAAAAATTTACATGTATCCCATAGATTTGTACAAATTTAAAAATAAT  
AAAAATTAGCTGTGCATGATGGCACATGTCTGTAATCCCAGCTACTCAG  
GAGGCTGAGGCAGGAGAATCACTTGAACCTGGGAGGCGGAGGTTGCAGTG  
AGCCAGGATAGCCACTGCACTCCAGCCTGGATGACAGAGGGAGCCCTTGT  
CTCAAAAAATAAAAAATAAAAAATAAATGACACTTTTTGGGGAAAAAAA  
TACAAGCCAGACGCAGTGGCTCACACCTATAATCCTAGCACTTTGGGAGG  
CCGAGGCTGGCGGATCGCTTGAGCCCAGGAGTTCAAGACCACCTGGGCAA  
CAAGGTGAAACCCGTGTTTCCCCGACCCCCCTCAAAAAAAAAAACTACCCA  
GGCTTGGTGTGCGATGCGCCTGTAATCCCAGCTATTCAGGAGGCTGAGGT  
GGGAGGATAGCTTGAGCCCAGGCGGAGGTTTGCAGGGAGCTGAGAT  
CTTGCCACTGTACTCCATCCTGGGCGACAGAGTGAGCAGAGTGAGTTCCA  
GTCTCAAAAAAAAAAAACCTCCTTTTGTGTTGGGCATATTTGGTGGAGACGG  
TGGCTAGGGGATAAGTATGCAGTTTTTCTCTAGGCGGAACTTAATTGA  
AGTTTATCAGGCGCGAGTCATTAACAAAAATTTGCGCCCTCTAAGCTAACA  
CGGCAATATGGGGCTTAGACACCATAGCTAATCCCCAGTCGCGAAAAACC  
CTCCCGATTTGCTTGGGATTGGAAAGAAAAAGAAAAATACACATTCATACT  
TTCATACATGACATACACACACACACACATTTATATATAAAATACACAC  
AGAAAGCACAGGAAACACAAGCAGAATTAACGTCTTGTTCATACGGCCA  
CTCAGTGAAATGTATACTGTATATTGTGTTTGAATATATACTTCCCTTC  
AAGTGTTCAGTTCAAGGCTGAGAAAGAACTTGGTCTCTTGCTTAGACT  
TGAGGAGCCTCACTCGGAAGTGAAGGATGCACGCAATCTAGTTGCCCA  
CCGGCTTATTTATATTGATGCACACATCGCTTCCCTGTGGTGACGACCGC

-3'

*SPESPI*

5' -

CAGGGAGCGGCGCTCCTCAGGGAGGCTCAGGCATGGCAGGCTGCAGGTCC  
CGAGCCCTGCCCTGCGGGGAGGCAGCTAAGGCCTGGCGAGAAATCGAGCA  
CAGCAGCTCCTGGCCCAGGTGCTAAGCTCCCCCAACTGCCCGTGGCCAG  
CGGGGACGGCCGGCCGCGCTGAGTGCCGGGCCACCAGCCCGCCGAGCC  
CACGCCCACCCGGAACCTCGGGCTGGCCCGCAAGCGCCGTGCGCAGTCTCA  
GTTTCCGCCGGCGCCTCTAGTCTTGCTTCCCTCCAGTCCATTTCTTCATGC  
TACAGGAAGAGTGAGTTTTCTGGAATACAAATCTAATCACAAACCGTTCCC  
AGCTCAAAACCTAGCAGTACTTAGTACTGGTGCCTCAGACTAAAATCCA  
AGCCCCTTGCTTCCCTGAGGCAGAGATGAGTGTACGTGAATTTTTAAAAAT  
AACCATACAGAAAAACAGATTCTTTGGGATGTGCAGTTCTGCGAATTTTT  
ATTTTTATTTATTTTTTTTTGAGGTGGAGTCTTGCTCTGTGCCCAGGCTGG

AGTGCAGTGGCACGATCTCGGCTCACTGCAACCTCTGCTTCCCAGGGTTCA  
AGTGATTCTCCTGCCTCAGTCTCCCAAGTAGCTGGGACTACAGGCGTGTG  
CCACCACCCACGCCTGGCTAATTTTGTATTTTGTAGTACCACGAAGTTTC  
ACTATGTTGGTCAGGCTGGTCTCGAACTCCTGACCTCAGGTGGTCCGCCC  
ACCTCGGCCTCCCAAAGTGCTGGGATTACAGGAGTGAGCCACCGTGCCCC  
GCCTTCTGTGAATTTTAACACATGTATAGATTCTTGTGGCCACTGCCATC  
TATTAGTCCCCAAAACAACCTCATGCTATCCTTTCATAGTCGTACTCTCC  
CTCATCCCTACCCCTATCTTTTTAAGAAGGTCAAAGAAATGGAATGTGAT  
CTTTTGAAAAACAAAAACACCCCAAGCCCCCTTAGGGCGTTTTTAATGCCCT  
TGCCCTACCTCTCCTCCCTGTCCCTCCAACAACCTGCCCTCCCAAGCCCCACA  
ATGCAACTCGCCGGAACATATGCTCAGTTCTTGGGGTGCTCCAAGCTGTCC  
TCCACTTAGCCAAGCTCCCCACCCGCTTCCGGGGTGGGTTTCCACTGTG  
CACAACAGTACCTAGCGCTTCCCCCACTACAGCCCCCTTTCACGCTGTGG  
TAATTGCCAGGTTATCTGCCTCTCCCATACAGTTCTTCTCCTCACAGGGA  
CCGCGTTTTAAACCACGGCGGTATCCCTACCGCGCAGGATGGGCCGAGCCC  
CGCACGCCCCGAGGCAGCACCCCGCACGCAGTAGCCGGGCGTCGAGGCGT  
TCCCAGCCCACACCAGGCGCGGACCTACGAAGGCGGAGCGAGCATGCGCA  
CTAGGAAGGGGCGGGGCGGGCGCGCGATCCCCCGCCCCCTGCACGCG  
GTCCCAGGAGGGGCGGGCCTTGGCCGCTCGCTCTCCCCTCCCCATGCCG

-3'