

Supplementary Tables

Supplementary Table 1

Primer Set	Primer	Sequence (5' -3')
Intron VII-Exon 8	Intron VII-forward	ATTGAGTCATTGAAAAATTACAG
	Exon 8-reverse	GCCAACTATGCAGAAAAATC
Exon 7	Exon 7-forward	GCCAGGACTTGATCAACCTAACC
	Exon 7-reverse	CCATTGGCATGGCCGTTCTTG
Intron V	Intron V-forward	TGACTGGACTTTTCTATGTCTTGTG
	Exon V-reverse	GCTACCAGCTTCTCCCATG
Exon 5-Exon 6	Exon 5-forward	AAGACGAGAACCTGCCTCAGCA
	Exon 6-reverse	AGTTCATCACCTGCAACAGCC
Intron I	Intron I-forward	CACCGTCTTAACCCGAACTC
	Intron I-reverse	TGACAACCCTTATCCCGATT
Intron II	Intron II-forward	AAGCAGGAAGATGTGAACTTT
	Intron II-reverse	TCCAAAATACATCTGGATTGGAG
Intron VI	Intron VI-forward	AAACTTGGTGCCCCAGGAAC
	Intron VI-reverse	GAGGCAGTGTCTCTGGAAAG
β - Actin	β - Actin-forward	ATTGGCAATGAGCGGTTC
	β - Actin-reverse	GGTAGTTTCGTGGATGCCACA
Promoter - 7	Promoter 7-forward	TTCTGTGAGTTGCTGTATGTTATG
	Promoter 7-reverse	ATGGTCAGGGCAGTTTTTAAA

Supplementary Table 2

Adaptor sequence

Transcriptional start site

TSS I (Clone: MP1-720 #10)

>NNNNNNNNNNNNNNNGGGCGNNTTGGGCCCTCTAGATGCATGCTCGAGCGGCCGCCAGTGTGATG
GATATCTGCAGAATTCGCCCTT**GCCGGATCCGAACACTGCGTTTGCTGGCTTTGATGAAAAATCGG**
CGCAGCCCTGAACTGGACAGTCTCTCCAGGACGCCGCTTTTCCGTGACAGAGGGGGTCTGCGCTAT
CCCCAGCGACGTGTCAAGGGCAAACAGCAGCAGCAGCGGCTGCCTCTCCACCGTCTTAACCC
GAACTCGGGCTTGTGGCGTCCCTCCCGTGGGCCGGATAGAGTGCCTAGTCCAGCTAACGGATTCA
GCCTGGAGCGTTCTGGTGAATGCTGCTTTCCTCTTGGTGCCGCGAAGTAGAAATCGGGATAAGGG
TTGTCATGGCCGGAGGGAGCGAAGAGAATCCAGCGTGACGACAGCATGTACGATCCCTGAATGGG

CCCGTGGGCATATTTAGTCATTCATTTTTGATCAGGAGAAAGAAGACAGCCATCATTTGAAAGAA
GGAAGAATCCTGCTCAAAAATGAGGTGAATTAATACTTGGGCGCTCAGGAACCCTGGACAGCTAC
ATGAGGTGTTTAAAAACTGCCCTGACCATCTTGCCAAACAAGTCTCTGCTCATGAGGCCCCACAGG
ATGAACGAGCCGAGGCAGGACAGTGTCTGCTGCTGCGGAACAGTGACTGCTGACCTGCCAAGAG
AGAGCTGGGGACTGCCTGCTGTCTGCCAGTACAATGAAGGAAGTGGTTTATTGGTCACCCAAGAA
GGTGGCAGACTGGCTGCTGGAGAATGCTATGCCAGAATACTGTGAGCCTCTGGAGCATTTCACAG
GCCAGGACTTANGGNGAATTCCAGCACACTGGCGGGCCGTTACTAGTGGNTCCNAGCTCGGTACC
AAGCTTGGCGTAATCATGGNCATAGCTGTTTCCTGNGTGAAATTGTNATCCGCTCNCNATTCNCN
CAANNNTACGANCCNGAAGCNTNAAGNNNNAANNCCCTGGNNNNGCCTAATGN

TSS II (52) (Clone: MP8-R1 # 4a)

>NNNNNNNNNNNTAGGGCGANTTGGGCCCTCTAGATGCATGCTCGAGCGGCCGCCAGTGTGATGG
ATATCTGCAGAATTCGCCCTTCGCGGATCCGAACACTGCGTTTGCTGGCTTTGATGAAAAAGCAG
GAAGATGGTGAACCTTATGCAATTCTGAGTTGACTCCAATCCAGATGTATTTTGGAACTAGGTAGA
ATATGACTGGTAAAGCTTCAGCGACTGAAGGAGTGTGGACTTTTTGAATTTCAAGAACAGTAAAG
TTGGAACACAGCAGAGGGTGTGTAATAAAATACAGATTGGAAAGAAGACTGATGAAGAAAAATA
ACAGCATGATTCAGGCACACCATTGAGTTCTTTGGGATGCCCCGAAAGTGTCTGGTTGGGAAACAT
GAAATAGAAGACGAGAACCTGCCTCAGCAAGCGTACCTGAGAATACTTTTAAAGGAACCTGTTGA
TAAATGCAAAACAGTGGCTGTTGCAGGTGATGGAACTAAGGGCGAATTCCAGCACACTGGCGGCC
GTTACTAGTGGATCCGAGCTCGGTACCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGTGTG
AAATTGTTATCCGCTCACAATTCCACACAACATACGAGCCGGAAGCATAAAGTGTAAGCCTGGG
GTGCCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCCGCTTTCCAGTCGGGAA
ACCTGTCGTGCCAGCTGCATTAATGAATCGGCCAACGCGCGGGGAGAGGCGGTTTGCATATTGGG
CGCTCTTCCGCTTCTCGCTCACTGACTCGCTGCGCTCGGTTCGTTTCGGCTGCGGCGAGCGGTATCA
GCTCACTCAANGGNGGTAATACGGTTATCCACAGANCNGGGGANACGCNNNAAGANNATGTGAN
CAAAAGCAGCAANNAGANNATAAAGCNCGTNGCTGNGTTTTCNTNGNTCNCNCCCCTGANNANC
NTNNNAAATCNNNNCTCAGTNNANGNNGGNNNAANNCCGANNGGACTNNNN

TSS II (Short) (Clone: MP450031210 #2)

TTNCTGGGGTTATCCCCGGATTNTGGGGNATAACCGGTTTTCCCGCCTTTGAAGTAAGTGAAACC
GCTTCGCCGCAGCCGAACGACCAAGGGCAACGAGTCANTAAGCGAGGAAGCGGAANAGCGCCCC
ANTACGCAAACCGCCTTTTCCCCGNGGGGTTGGCCGATTCATTAATGCAGCTGGCACGACAGGTTT
CCCGACTGAAAAGCGGCCAGTGAGCGCAACGCAATTANTGTGAGTTAGCTCACTCATTAGGCACC
CCAGGCTTTTACACTTTATGCTTCCGGGCTCGTATGTTGTGGGAATTGTGAGCGGATAACANTTTC

ACACAGGAAACAGCTATGACCATGATTACGCCAAGCTTGGTACCGAGCTCGGATCCACTAGTAAC
GGCCGCCAGTGTGCTGGAATTCGCCCTTCGCGGATCCGAACACTGCGTTTGCTGGCTTTGATGAAA
AAAAAGCAGGAAGATGGTGAAC TTTATGCAGTTCTGAGTTGACTCCAATCCAGATGTATTTTGG AAC
TAGGTAGAATATGACTGAAGGAAGAATCCTGCTCAAAAATGAGGTGAATTAATACTTGGGCGCTC
AGGAACCCTGGACAGCTACATGAGGTGTTTAAAAACTGCCCTGACCATCTTGCCAAACAAGTCTCT
GCTCATGAGGCCCCACAGGATGAACGAGCCGAGGCAGGACAGTGTCTGCTGCTGCTGCCAGTACAATGAAGGAAGTGG
ACTGCTGACCTGCCAAGAGAGAGCTGGGGACTGCCTGCTGTCTGCCAGTACAATGAAGGAAGTGG
TTTATTGGTCACCCAAGAAGGTGGCAGACTGGCTGCTGGAGAATGCTATGCCAGAATACTGTGAG
CCTCTGGAGCATTTCACAGGCCAGGACTTAAGGGCGAATTCTGCAGATATCCATCACACTGGCGG
CCGCTCGAGCATGCATCTAGAGGGCCCAATTCGCCCTATAGTGAGTCGTATTCANTNNNNNNNNN
NNNNNCNNNNNNNNNNNT

TSS VI (Clone: 450-3-3-9 # 3)

>ANNCCAGCAANNNGGCCTTTTNCGNTNCNGNCCTTTGCTGNNTTTGCTNNNCATGTTCTTNNNGN
GTNTNCCCNGNTCTGNNGATAACCNTATTACCNCTTTGAGTGAGCTGATNCGCTCGCCGCAGCCG
AACGACCGAGCGCAGCGAGTCAGTGAGCGAGGAAGCGGAAGAGCGCCAATACGCAAACCGCCT
CTCCCCGCGCGTTGGCCGATTCATTAATGCAGCTGGCACGACAGGTTTCCCGACTGGAAAGCGGG
CAGTGAGCGCAACGCAATTAATGTGAGTTAGCTCACTCATTAGGCACCCCCAGGCTTTACACTTTA
TGCTTCCGGCTCGTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACAGGAAACAGCTATG
ACCATGATTACGCCAAGCTTGGTACCGAGCTCGGATCCACTAGTAACGGCCGCCAGTGTGCTGGA
ATTCGCCCTTCGCGGATCCGAACACTGCGTTTGCTGGCTTTGATGAAATTCCGCCCGCGCCAGGGC
TGGCTGCGCGCACCTGAGCGCGAGGAGCCGCGCGCAA ACTTGGTGCCCCAGGAACTTTCCAGGA
GACTGCTCCGGGGACGAGAGACCAAGGAAGAATCCTGCTCAAAAATGAGGTGAATTAATACT
TGGGCGCTCAGGAACCCTGGACAGCTACATGAGGTGTTTAAAAACTGCCCTGACCATCTTGCCAA
ACAAGTCTCTGCTCATGAGGCCCCACAGGATGAACGAGCCGAGGCAGGACAGTGTCTGCTGCTGT
CGGAACAGTGACTGCTGACCTGCCAAGAGAGAGCTGGGGACTGCCTGCTGTCTGCCAGTACAATG
AAGGAAGTGGTTTATTGGTCACCCAAGAAGGTGGCAGACTGGCTGCTGGAGAATGCTATGCCAGA
ATACTGTGAGCCTCTGGAGCATTTCACAGGCCAGGACTTAAGGGCGAATTCTGCAGATATCCATCA
CACTGGCGGCCGCTCGAGCATGCATCTAGAGGGCCCAATC NNNNNNNNNNNNNNNNNNNNNN

TSS 7 (Clone: MP8-300 #5)

>NNNNNNNNNNNANNNGGCGATTGGGCCCTCTAGATGCATGCTCGAGCGGCCGCCAGTGTGATGG
ATATCTGCAGAATTCGCCCTTCGCGGATCCGAACACTGCGTTTGCTGGCTTTGATGAACTTGCCAA
ACAAGTCTCTGCTCATGAGGCCCCACAGGATGAACGAGCCGAGGCAGGACAGTGTCTGCTGCTGT

CGGAACAGTGACTGCTGACCTGCCAAGAGAGAGCTGGGGACTGCCTGCTGTCTGCCAGTACAATG
AAGGAAGTGGTTTATTGGTCACCCAAGAAGGTGGCTGACTGGCTGCTGGAGAATGCTATGCCAGA
ATACTGTGAGCCTCTGGAGCATTTCACAGGCCAGGACTTAAGGGCGAATTCCAGCACACTGGCGG
CCGTTACTAGTGGATCCGAGCTCGGTACCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGTG
TGAAATTGTTATCCGCTCACAATTCCACACAACATACGAGCCGGAAGCATAAAGTGTAAGCCTG
GGGTGCCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCCGCTTTCAGTCGGG
AAACCTGTTCGTGCCAGCTGCATTAATGAATCGGCCAACGCGCGGGGAGAGGGCGGTTTTCGTATTG
GGCGCTCTTCCGCTTCCCTCGCTCACTGACTCGCTGCGCTCGGTTCGTTTCGGCTGCGGCGAGCGGTAT
CAGCTCACTCAAAGGCGGTAATACGGTTATCCACAGAATCNGGGATNACGCNNNAGANATGTGAG
CAAANNCAGCAAAGGCCNGNAACCGTAAAAAGCCGCGTTGCTGGCGTTTTNCATAGGNTCCGCCC
CCNGACNANCATCACAAAATCGACGCTCAGTCNNAGNNGGNGAAANCCGNCNNNNCTNNNANATN
CNGNGTTCCCCNGGNNCTCCNNNNNGNGNNNNNCNNTNCGACCNNN

Supplementary Table 3

Promoter up-stream of TSS 7 (832 bp)

TTCTGTGAGTTGCTGTATGTTATGTACATTTTTAAACATTCTTCACGAGGTAGAGTAAGCAAATAT
ATTTTATTCTTTTAAATTATCTCAGGAAGCATGTAAGGACAAAGAGAATACCTGGTCTCTTGACCA
GGTTGAAAAGTGTCCAAAGCACTGTCAAGTTGCTTCTTAGAAAATAGACCATTGGAAATTATTATT
ATTTTTTTTTTTGAGAAGGAATCTCGCTCTGTGCGCCAGGCTGGAGTACAGTGGCTGATCTCGGCT
CACTGCAAGCTCCGCCTCCCGGGTTCACACCATTCTCCTGCCTCAGCCTGGGCAGGAGTAGCTGGG
ACTACAGGCGCCCGCCACCACACCCGGCTAATTTTTTGTATTTTAGTAGAGACAGGGTTTCACCG
TGTTAGCCAGGATGCTCTCTATCTCCTGACCTCGTGATCCGCCCCGCTCGTTCTCCCAAAGCGCTG
GGATTACAGGCGTGAGCCACCACGCCCCGGCTGACCGTTGGAAATTCTATAAAATATGTCTCCTTTG
ACAACATCCATTTTCAGATCCAATTCAATGTGTGTCGAAAAGACTAATAACCAGGAAATCAGTA
GTCCCTGAAACGAATACATGTTTGAAAATTAAGTTTACCAATAACTGGTTTTCTACTTTCCTTA
TGTATATAAGGCTTTGCGTTTTGAGAGGGGTAATTTGGAAGTACAGCATCTTGATATTTTCTCTTGCT
TTCACAGAAGGAAGAATCCTGCTCAAAAATGAGGTGAATTAATACTTGGGCGCTCAGGAACCCTG
GACAGCTACATGAGGTGTTTAAAAACTGCCCTGACCAT

Supplementary Table 4

mRNA Transcript - TSS IIb

AAAGCAGGAAGATGGTGAACCTTATGCAATTCTGAGTTGACTCCAATCCAGATGTATTTTGGAAC
AGGTAGAATATGACTGGTAAAGCTTCAGCGACTGAAGGAGTGTGGACTTTTTGAATTTCAAGAAC

AGTAAAGTTGGAACACAGCAGAGGGTGTGTAATAAAAATACAGATTGGAAAGAAGACTGATGAAG
AAAAATAACAGCATGATTCAGGCACACCATTGAGTTCTTTGGGATGCCCGAAAGTGTCTGGTTGG
GAAACATGAAATAGAAGACGAGAACCTGCCTCAGCAAGCGTACCTGAGAATACTTTTAAAGGAAC
CTGTTGATAAATGCAAAACAGTGGCTGTTGCAGGTGATGGAAGTGTACTGGAACAATGGGAGAAG
CTGGTAGCTTATAGGAAGCCAAGATGACCAGAATGTTTTTAAATAATCCAAGGAAGAATCCTGCT
CAAAAATGAGGTGAATTAATACTTGGGCGCTCAGGAACCCTGGACAGCTACATGAGGTGTTTAAA
AACTGCCCTGACCATCTTGCCAAACAAGTCTCTGCTCATGAGGCCCCACAGGATGAACGAGCCGA
GGCAGGACAGTGTCTGCCCTGTCGGAACAGTGACTGCTGACCTGCCAAGAGAGAGCTGGGGACT
GCCTGCTGTCTGCCAGTACAATGAAGGAAGTGGTTTATTGGTCACCCAAGAAGGTGGCAGACTGG
CTGCTGGAGAATGCTATGCCAGAATACTGTGAGCCTCTGGAGCATTTCACAGGCCAGGACTTGATC
AACCTAACCCAAGAGGATTTCAAAAACCCCCCTGTGCCGAGTCTCCTCTGACAATGGGCAGCG
GCTCCTGGACATGATAGAAACCCTGAAAATGGAGCACCATTTGGAAGCACACAAGAACGGCCATG
CCAATGGGCACCTCAACATTGGCGTAGACATCCCCACCCCGACGGCAGCTTCAGCATCAAGATT
AAACCCAACGGGATGCCAAATGGGTATAGGAAAGAGATGATAAAGATCCCCATGCCAGAACTGG
AGCGCTCTCAGTACCCCATGGAGTGGGGCAAGACTTTTCTGGCCTTTCTTTATGCACTTTCCTGTTT
CGTTCTCACCACAGTGATGATCTCGGTCGTCCACGAACGAGTACCTCCTAAGGAGGTGCAGCCTCC
ACTACCGGACACATTTTTTGACCATTTTAACCGGGTGCAGTGGGCCTTTTCTATTTGTGAAATTAAT
GGCATGATCCTTGTAGGACTCTGGTTAATTCAGTGGCTGCTCTTAAAATACAAGTCTATTATTAGC
AGAAGATTTTTCTGCATAGTTGGCACGCTGTACCTGTATCGGTGTATTACAATGTATGTA ACTACA
CTCCCAGTACCTGGTATGCATTTCAACTGTTCTCCGAAGCTTTTCGGAGACTGGGAAGCCCAACTG
CGAAGAATAATGAAGCTCATTGCTGGAGGTGGCTTGTCTATCACTGGCTCTCACAACATGTGTGGG
GACTATCTGTACAGCGGCCACACGGTCATGCTAACACTTACCTACTTATTTATCAAAGAGTATTCC
CCTCGGCGACTCTGGTGGTATCACTGGATTTGCTGGCTTCTCAGCGTAGTTGGAATCTTCTGTATTC
TCTTAGCGCATGACCACTACACTGTGGACGTGGTGGTGGCATATTACATCACCACGAGACTCTTCT
GGTGGTATCACACTATGGCCAATCAGCAAGTGCTAAAGGAAGCTTCCCAGATGAACCTCCTGGCC
AGGGTGTGGTGGTACAGGCCATTTCAGTACTTTGAAAAGAATGTCCAAGGAATTGTACCTCGATCT
TACCATTGGCCTTTCCCCTGGCCAGTAGTCCACCTCAGTAGGCAAGTTAAATACAGCCGGCTGGTG
AATGACACAGACTACAAAGACGATGACGACAAGTAA

mRNA Transcript - TSS 7

CTTGCCAAACAAGTCTCTGCTCATGAGGCCCCACAGGATGAACGAGCCGAGGCAGGACAGTGTCC
TGCCCTGTCGGAACAGTGACTGCTGACCTGCCAAGAGAGAGCTGGGGACTGCCTGCTGTCTGCCA
GTACAATGAAGGAAGTGGTTTATTGGTCACCCAAGAAGGTGGCTGACTGGCTGCTGGAGAATGCT
ATGCCAGAATACTGTGAGCCTCTGGAGCATTTCACAGGCCAGGACTTGATCAACCTAACCCAAGA

GGATTTCAAAAACCCCCCTTGTGCCGAGTCTCCTCTGACAATGGGCAGCGGCTCCTGGACATGAT
AGAAACCCTGAAAATGGAGCACCATTTGGAAGCACACAAGAACGGCCATGCCAATGGGCACCTC
AACATTGGCGTAGACATCCCCACCCCGACGGCAGCTTCAGCATCAAGATTAACCCAACGGGAT
GCCAAATGGGTATAGGAAAGAGATGATAAAGATCCCCATGCCAGAACTGGAGCGCTCTCAGTACC
CCATGGAGTGGGGCAAGACTTTTTCTGGCCTTTCTTTATGCACTTTCCTGTTTCGTTCTCACCACAGT
GATGATCTCGGTTCGTCCACGAACGAGTACCTCCTAAGGAGGTGCAGCCTCCACTACCGGACACAT
TTTTTGACCATTTTAACCGGGTGCAGTGGGCCTTTTCTATTTGTGAAATTAATGGCATGATCCTTGT
AGGACTCTGGTTAATTCAGTGGCTGCTCTTAAAATACAAGTCTATTATTAGCAGAAGATTTTTCTG
CATAGTTGGCAGCTGTACCTGTATCGGTGTATTACAATGTATGTAACACTACACTCCCAGTACCTGG
TATGCATTTCAACTGTTCTCCGAAGCTTTTCGGAGACTGGGAAGCCCAACTGCGAAGAATAATGAA
GCTCATTGCTGGAGGTGGCTTGTCTATCACTGGCTCTCACAACATGTGTGGGGACTATCTGTACAG
CGGCCACACGGTCATGCTAACACTTACCTACTTATTTATCAAAGAGTATTCCTCGGCGACTCTG
GTGGTATCACTGGATTTGCTGGCTTCTCAGCGTAGTTGGAATCTTCTGTATTCTCTTAGCGCATGAC
CACTACACTGTGGACGTGGTGGTGGCATATTACATCACCACGAGACTCTTCTGGTGGTATCACACT
ATGGCCAATCAGCAAGTGCTAAAGGAAGCTTCCCAGATGAACCTCCTGGCCAGGGTGTGGTGGTA
CAGGCCATTTAGTACTTTGAAAAGAATGTCCAAGGAATTGTACCTCGATCTTACCATTGGCCTTT
CCCCTGGCCAGTAGTCCACCTCAGTAGGCAAGTTAAATACAGCCGGCTGGTGAATGACACAGACT
ACAAAGACGATGACGACAAGTAA

Supplementary figure legends

Supplementary Figure S1: mRNA expression of *SGMS1*. Abundance of mRNA was evaluated by qRT-PCR with two sets of primers spanning Exon 5-Exon 6 or within Exon 7 (primer sequences in supplementary Table 1). All results represent three independent experiments. Asterisks indicate significance; *** $p < 0.0005$; ** $p < 0.005$; * $p < 0.05$.

Figure S2: Efficiency of translation of SMS1 from Transcript IIb or Transcript 7 in HeLa cells. HeLa cells were transfected with pCDNA3.1 to over-express either transcripts from TSS IIb or TSS 7. Cells were collected after 10h and 26h and processed for western blotting and mRNA measurements. **(S2A)** Quantification of SMS1 bands in western blots (vector subtracted) for three different experiments. **(S2B)** Measurements of mRNA abundance; for cells over-expressing TSS IIb transcript, primers from FEP Intron II were used while FEP primers for Exon 7 were utilized for cells over-expressing TSS 7 transcript.

Figure S3: Efficiency of translation of SMS1 from Transcript IIb or Transcript 7 in K562 cells. K562 cells were transfected with pEF1 to over-express either transcript IIb or transcript 7. Cells were collected after 8h and 10h and processed for western blotting and mRNA measurements. **(S3A)** Quantification of SMS1 bands in western blots (vector subtracted) for three different experiments. **(S3B)** Measurements of mRNA abundance; for cells over-expressing TSS IIb transcript, primers from FEP Intron II were used while FEP primers for Exon 7 were utilized for cells over-expressing TSS 7 transcript.