SUPPLEMENTAL DATA

Supplementary Table 1: Primers used for Northern and Southern Probe generation.

	Forward Primer (5'-3')	Reverse Primer (5'-3')
Sulf1 Northern probe	ggatacctaattcaagctccc	cacagctacactcctcagg
Sulf2 Northern probe	catggtcatcagccacgc	agggtgcaggctggagc
Sulf1 3' Southern probe	tctctcccaacaggctcag	agcctgtacagctacttagg
Sulf1 5' Southern probe	gaaactttgagagctggttc	gtgttgctgcagcaacagc
*Sulf*2 3'Southern probe	aaagtttaatgagaatagtagg	cagcatgtagttgatgctgg

Supplementary Table 2: PCR primer/probe sets used for real time PCR.

Gene	**Forward primer (5'-3')**	**Reverse primer (5'-3')**	**Universal Probe number**
L19	tcgttgccggaaaaacac	ccgagcattggcagtacc	103
EEF1G	ggcattatgcaccacaacaa	tcgcccactagaaaagttcg	66
mSulf1	aaagagtcaccttcacccctt	tgaagtttgctatccacctcct	66
mSulf2	cctcagtacagacccctacca	cacgtgcagttggttaagga	47

Supplementary Figure 1. Disaccharide compositional analysis of cell extract HS.

Disaccharides generated following digestion with heparinase I, II and III were fractionated by SAX-HPLC and identified by comparison with the elution positions of known standards. A; primary MEF cells, wild type (black bars), *mSulf1*$^{-/-}$ (white bars) and *mSulf 2*$^{-/-}$ (check bars). B; Immortalised MEF lines, wild type (downwards diagonal bars) and *mSulf1*$^{-/-}$/*2*$^{-/-}$ (upwards diagonal bars). Statistical analysis was performed using the two tailed T-test assuming equal variance: ** = $p \leq 0.005$ and * = $p \leq 0.05$.

Supplementary Figure 1