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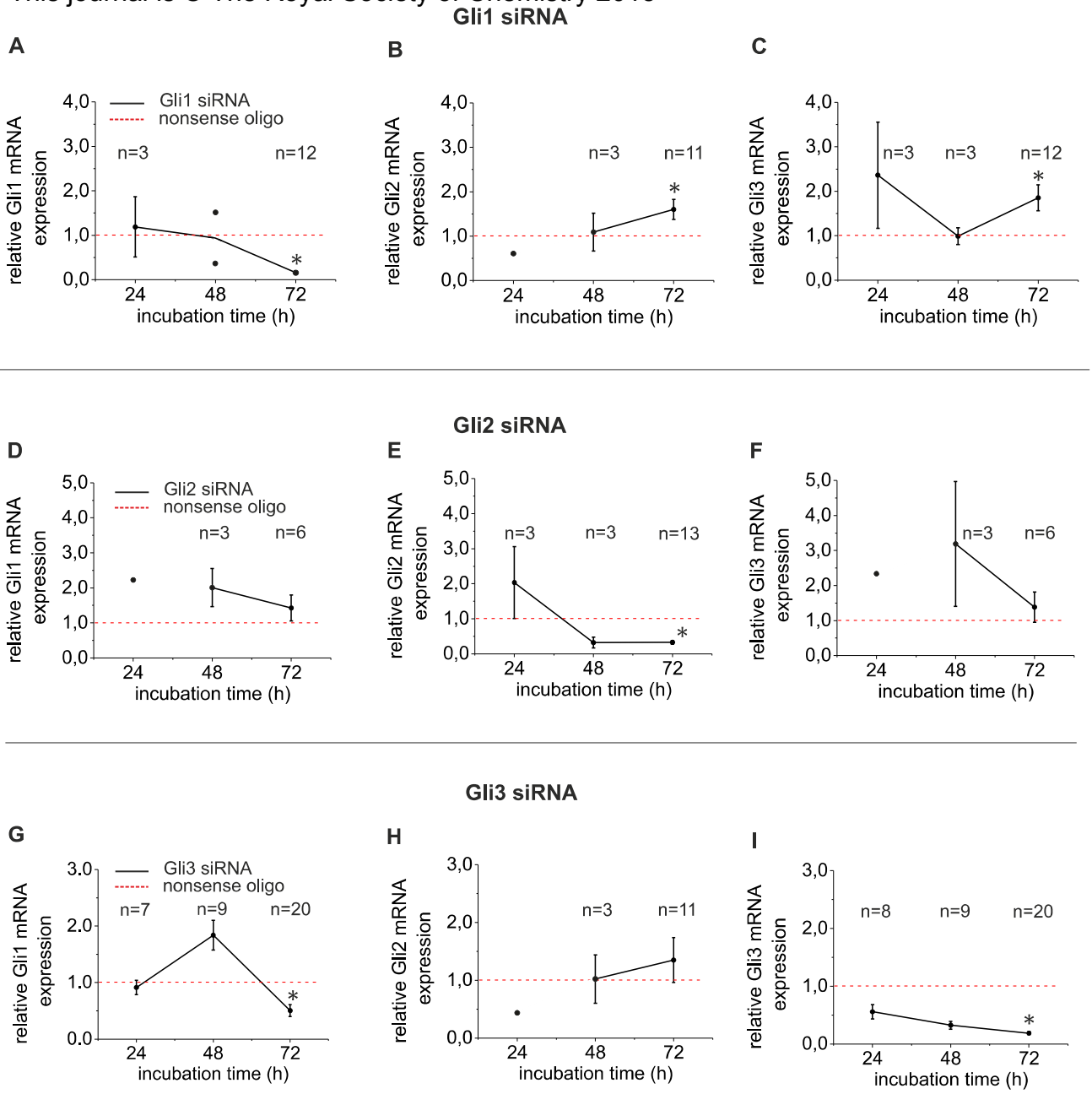

Fig. S1 Gli transcription factor RNA interference experiments
Relative expression of Gli1; Gli2 and Gli3 determined by qRT-PCR in hepatocytes from C57BL/6N mice 24h, 48h and 72 h post transfection with **A-C:** Gli1 siRNA**; D-F:** Gli2 siRNA and **G-I:** Gli3 siRNA (black bars) (n=1-20) compared to nonsense oligo transfection (white bars) (n=1-20). Values are presented as the means ± SEM; *, $p<0.05$.

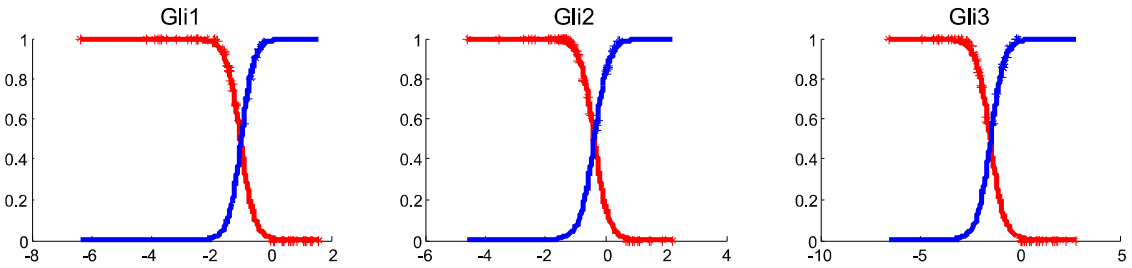

Fig. S2: Membership functions plots FIS variables;
‚Asterisk' membership values estimated by fuzzy-c-means clustering and ‚solid line' membership function fitted by a sigmoidal function

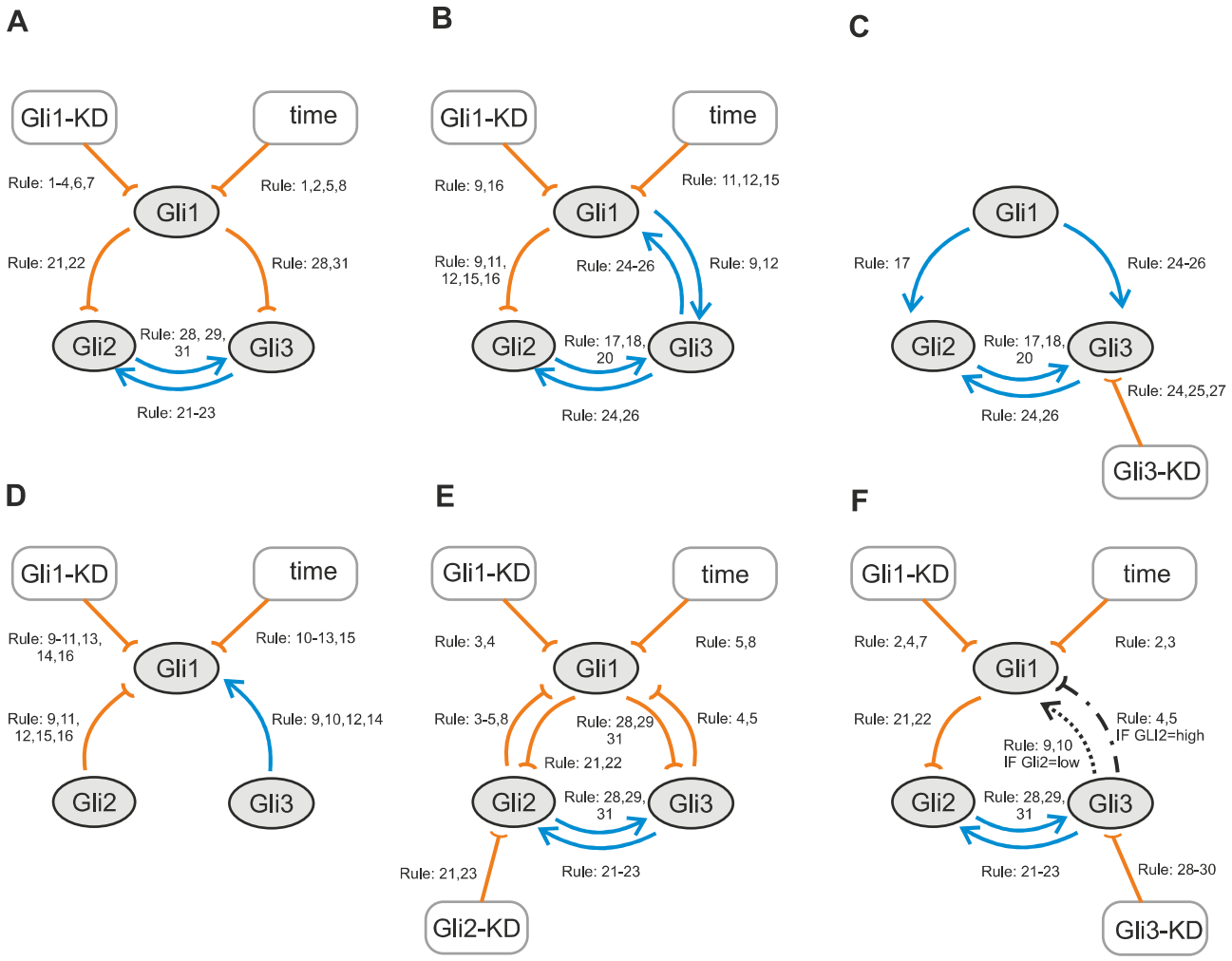

Fig. S3: Conditional Fuzzy-networks for the specific gene expression levels low and high of Gli1, Gli2 and Gli3.
The regulatory activity between the network components was derived from the current valid set of rules (Tab. x) of the corresponding system state. The serial number of rules that support the particular hypothesis is indicated at the respective edges of the network. A) Low level of Gli1. B) Low level of Gli2. C) Low level of Gli3. D) High level of Gli1. E) High level of Gli2. F) High level of Gli3

	Antecedent									Consequent		Validity coefficient		
#Rule		FIS variable	fuzzy set		FIS variable	fuzzy set		FIS variable	fuzzy set	FIS variable	fuzzy set	Lift	Support	Confidence
1	***IF***	time	high	***AND***	Gli1-KD	Yes				***THEN***		1.7999	0.16238	0.93035
2	***IF***	time	high	***AND***	Gli1-KD	Yes	***AND***	Gli3	high	***THEN***		1.7932	0.15414	0.92689
3	***IF***	Gli1-KD	Yes	***AND***	Gli2	high				***THEN***		1.5579	0.13821	0.80527
4	***IF***	Gli1-KD	Yes	***AND***	Gli2	high	***AND***	Gli3	high	***THEN***		1.5579	0.13821	0.80527
5	***IF***	time	high	***AND***	Gli2	high	***AND***	Gli3	high	***THEN***		1.5306	0.15468	0.79114
6	***IF***	Gli1-KD	Yes							***THEN***		1.5113	0.19001	0.78116
7	***IF***	Gli1-KD	Yes	***AND***	Gli3	high				***THEN***		1.5039	0.18126	0.77738
8	***IF***	time	high	***AND***	Gli2	high				***THEN***	Gli1	1.4728	0.19427	0.76128
9	***IF***	Gli1-KD	No	***AND***	Gli2	low	***AND***	Gli3	high	***THEN***		1.9337	0.21208	0.93421
10	***IF***	time	low	***AND***	Gli1-KD	No	***AND***	Gli3	high	***THEN***		1.8886	0.15268	0.91241
11	***IF***	time	low	***AND***	Gli1-KD	No	***AND***	Gli2	low	***THEN***		1.8473	0.18749	0.89245
12	***IF***	time	low	***AND***	Gli2	low	***AND***	Gli3	high	***THEN***		1.8346	0.14628	0.88631
13	***IF***	time	low	***AND***	Gli1-KD	No				***THEN***		1.7723	0.22372	0.85619
14	***IF***	Gli1-KD	No	***AND***	Gli3	high				***THEN***		1.739	0.26123	0.84014
15	***IF***	time	low	***AND***	Gli2	low				***THEN***		1.7242	0.20628	0.83299
16	***IF***	Gli1-KD	No	***AND***	Gli2	low				***THEN***		1.2047	0.34387	0.582
17	***IF***	Gli1	low	***AND***	Gli3	low				***THEN***		1.2987	0.24664	0.86032
18	***IF***	Gli3	low							***THEN***		1.2803	0.38667	0.84814
19	***IF***	Gli2-KD	Yes							***THEN***		1.2197	0.20746	0.808
20	***IF***	Gli2-KD	No	***AND***	Gli3	low				***THEN***	Gli2	1.2179	0.28677	0.80681
21	***IF***	Gli2-KD	No	***AND***	Gli1	low	***AND***	Gli3	high	***THEN***		2.2559	0.15516	0.76146
22	***IF***	Gli1	low	***AND***	Gli3	high				***THEN***		2.1814	0.17835	0.73633
23	***IF***	Gli2-KD	No	***AND***	Gli3	high				***THEN***		1.6775	0.21958	0.56622
24	***IF***	Gli3-KD	Yes	***AND***	Gli1	low	***AND***	Gli2	low	***THEN***		2.1375	0.15521	0.97449
25	***IF***	Gli3-KD	Yes	***AND***	Gli1	low				***THEN***		2.0501	0.19469	0.93465
26	***IF***	Gli1	low	***AND***	Gli2	low				***THEN***		1.747	0.24664	0.79648
27	***IF***	Gli3-KD	Yes							***THEN***	Gli3	1.5151	0.34536	0.69073
28	***IF***	Gli3-KD	No	***AND***	Gli1	low	***AND***	Gli2	high	***THEN***		1.8379	0.1614	0.99998
29	***IF***	Gli3-KD	No	***AND***	Gli2	high				***THEN***		1.8332	0.22036	0.99745
30	***IF***	Gli3-KD	No	***AND***	Gli1	high				***THEN***		1.6598	0.17287	0.90312
31	***IF***	Gli1	low	***AND***	Gli2	high				***THEN***		1.5029	0.17835	0.8177

Fig S4: Inferred fuzzy rules of the Fuzzy-GRN

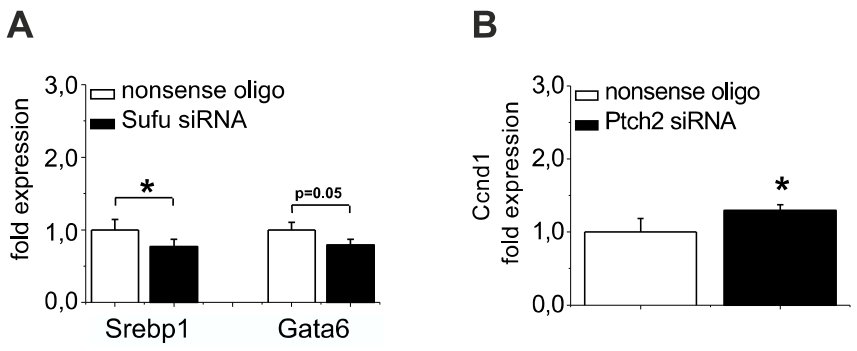

Fig. S5: Hh-activated related target gene expression
The expression of Srebp1, Gata6 and Ccnd1 48 h post transfection with A) Sufu siRNA (black bars) (n=8-12) and B) Ptch2 siRNA (black bars) (n=8) compared to nonsense oligo transfection (white bars) (n=8-12). Values are presented as the means ± SEM; *, $p<0.05$.