ADDITIONAL MATERIAL

Figures:

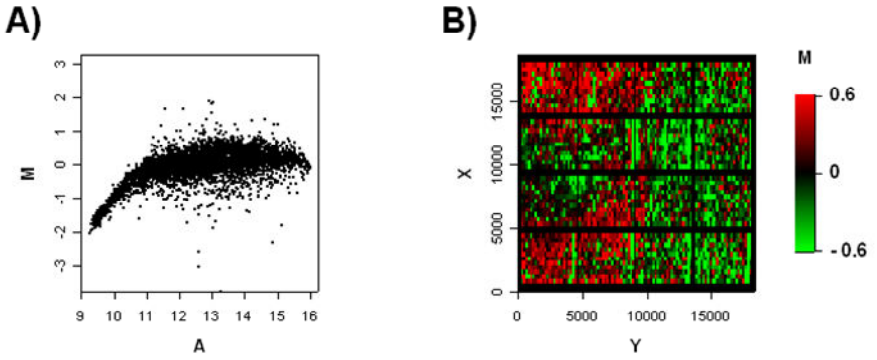

Figure 1: Intensity and spatial distribution of log intensity ratios *M* adjusted by linear normalization for slide 3 of the SW 480/620 experiment. Patterns of intensity-dependent and spatial bias remain clearly visible.

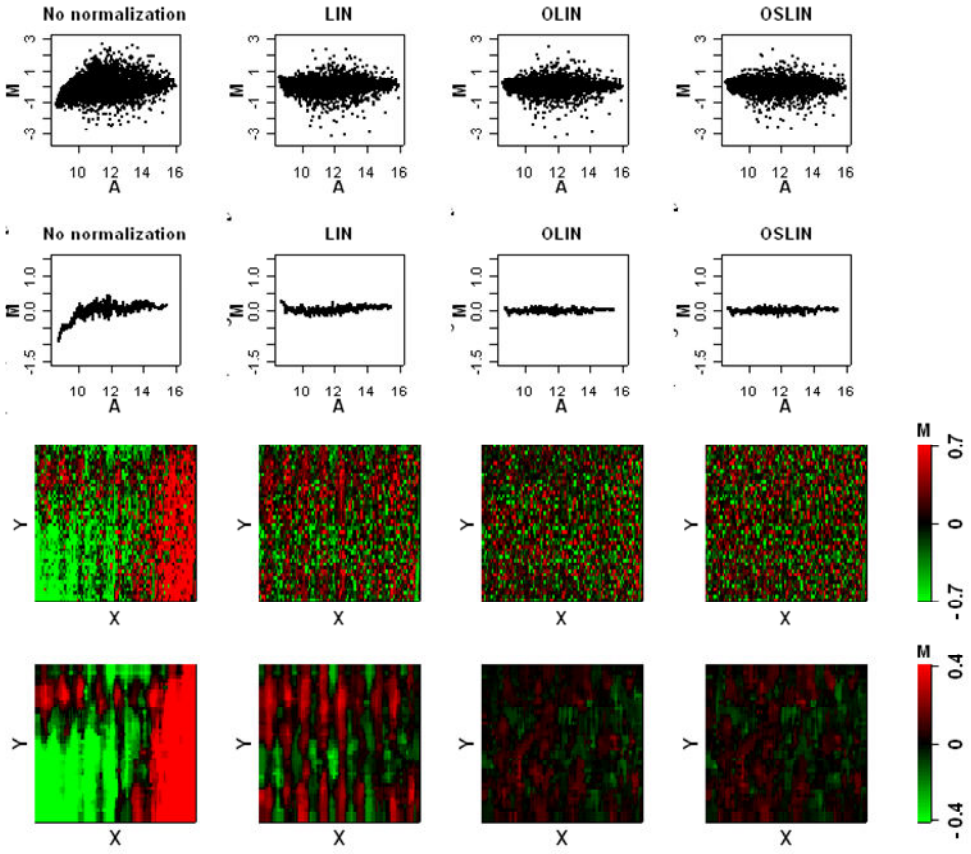

Figure 2: MA-, $\overline{M}$A- , MXY- and $\overline{M}$XY- plots for slide 1 of the SW 480/620 experiment: The first row shows MA-plots resulting from different normalization schemes applied. The second row displays the corresponding $\overline{M}$A- plots. The median log ratio $\overline{M}$ was calculated based on a window size of 50 spots. The third row shows MXY-plots. The fourth row shows $\overline{M}$XY- plots. Median log ratio $\overline{M}$ was calculated based on windows of 5x5 spots. Spatial artifacts become more prominent in $\overline{M}$XY- plots.

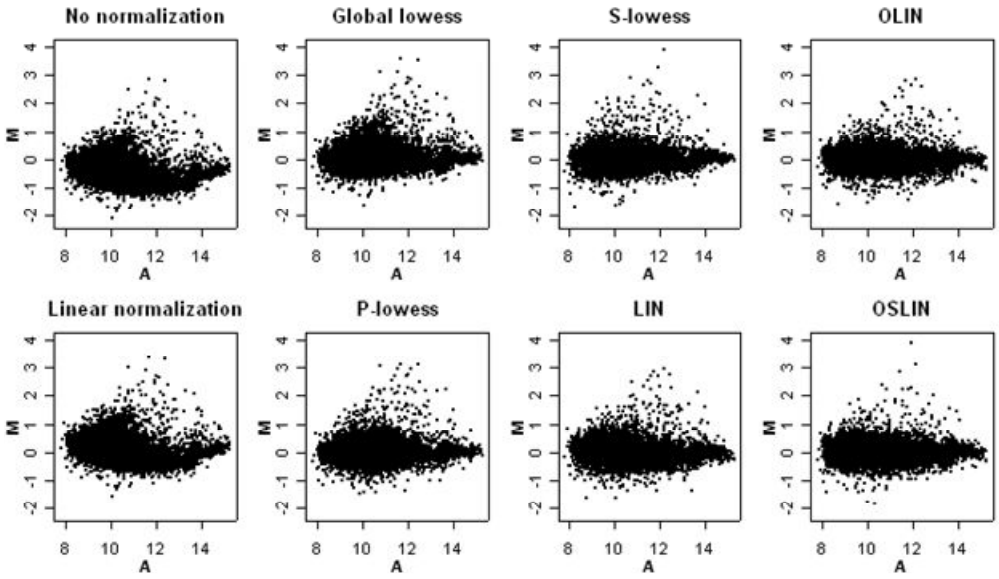

Figure 3: MA-plots for raw data from slide 1 of the *apo AI* experiment and the same data normalized by different methods**.**

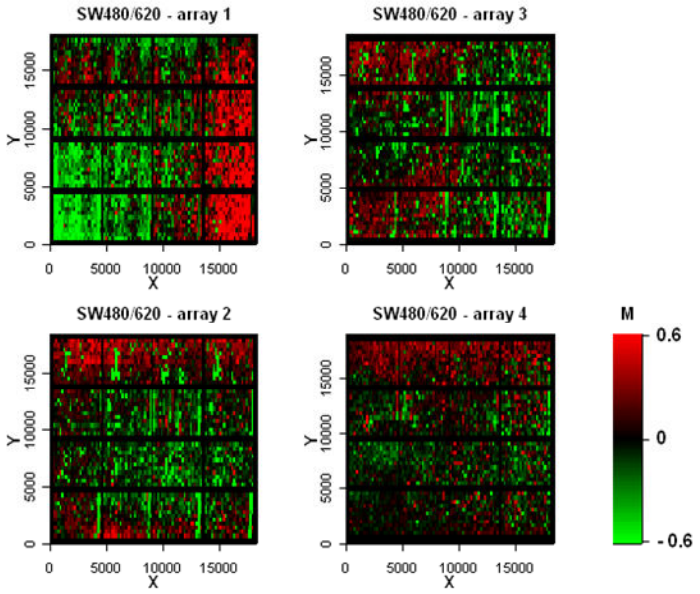

Figure 4: MXY-plots of linearly normalized data for replicated slides of SW 480/620. Each slide shows a distinct spatial pattern.

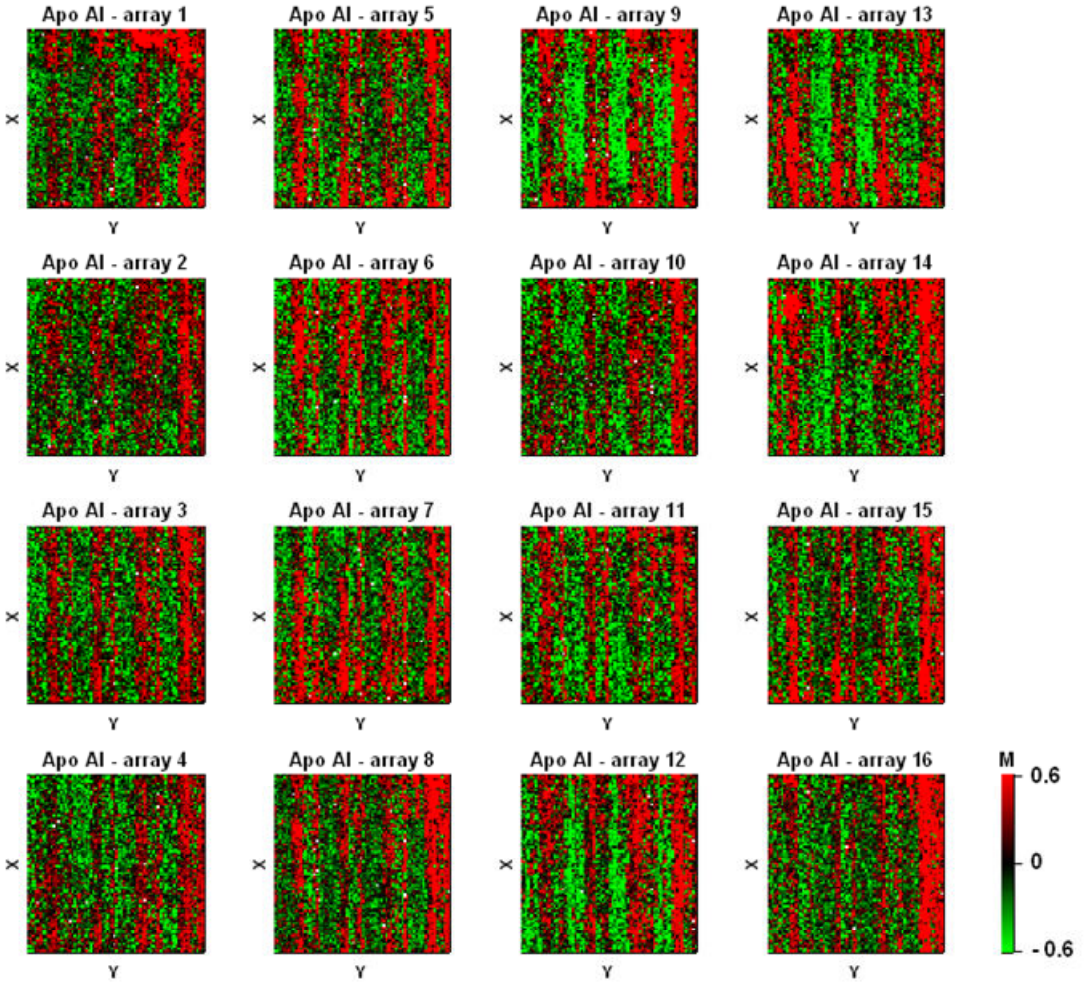

Figure 5: MXY-plots of linearly normalized data for slides of the *apo AI* experiment. Plots display similar spatial patterns.

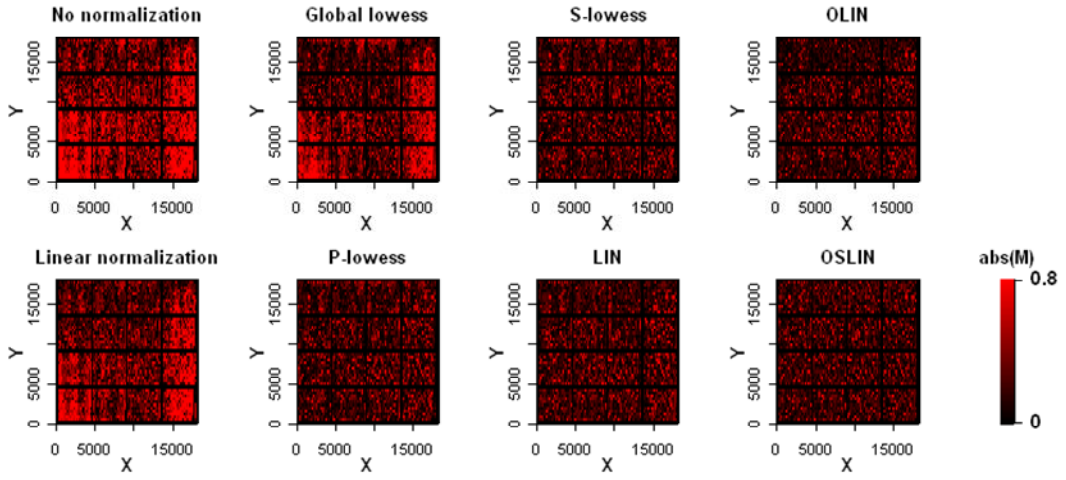

Figure 6: Spatial distribution of absolute log ratios for slide 1 of the SW 480/620 experiment.

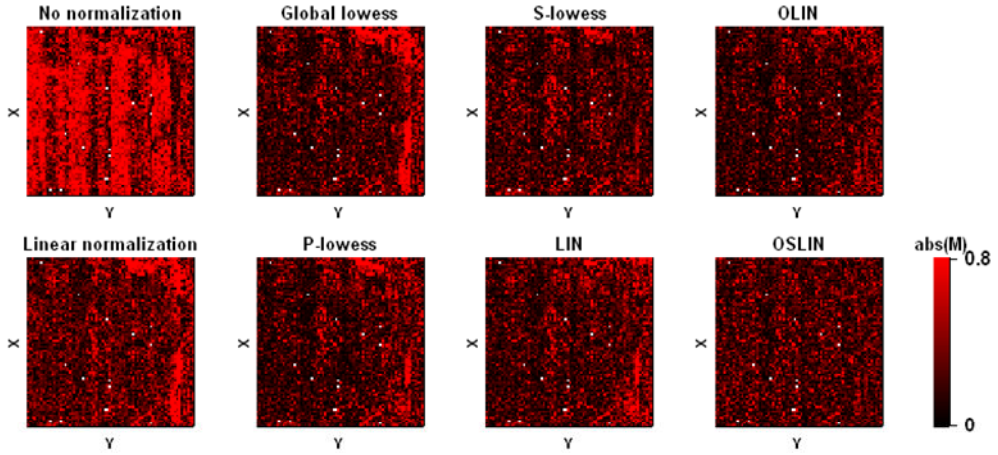

Figure 7: Spatial distribution of absolute log ratios for slide 1 of the *apo AI* experiment.

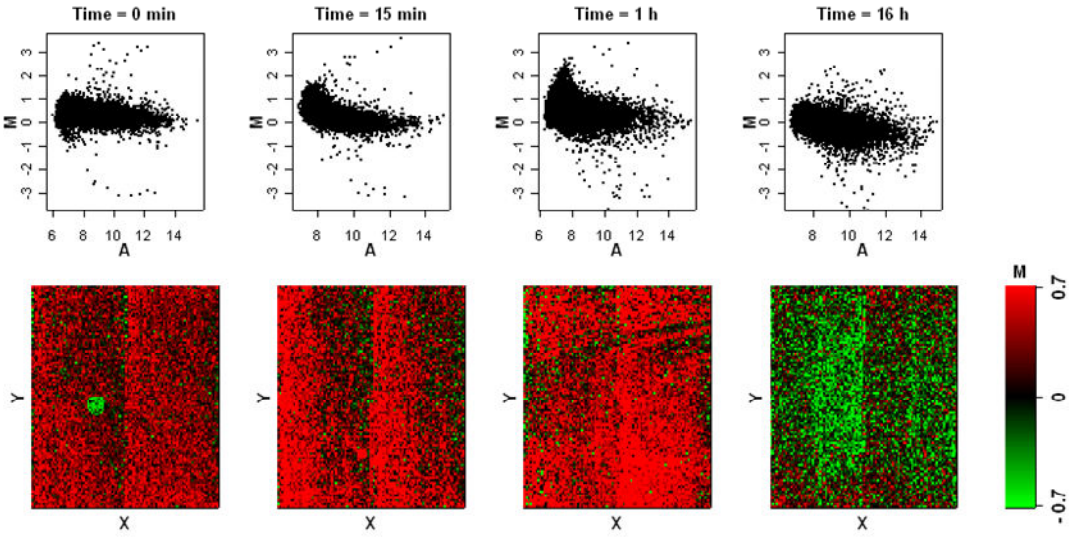

Figure 8: MA and MXY plots for raw data of several cDNA microarray of the fibrosis experiment by Iyer and collegues [20]. The times refer to the time points when the cultured fibroblasts were harvested after stimulation by fetal bovine serum.

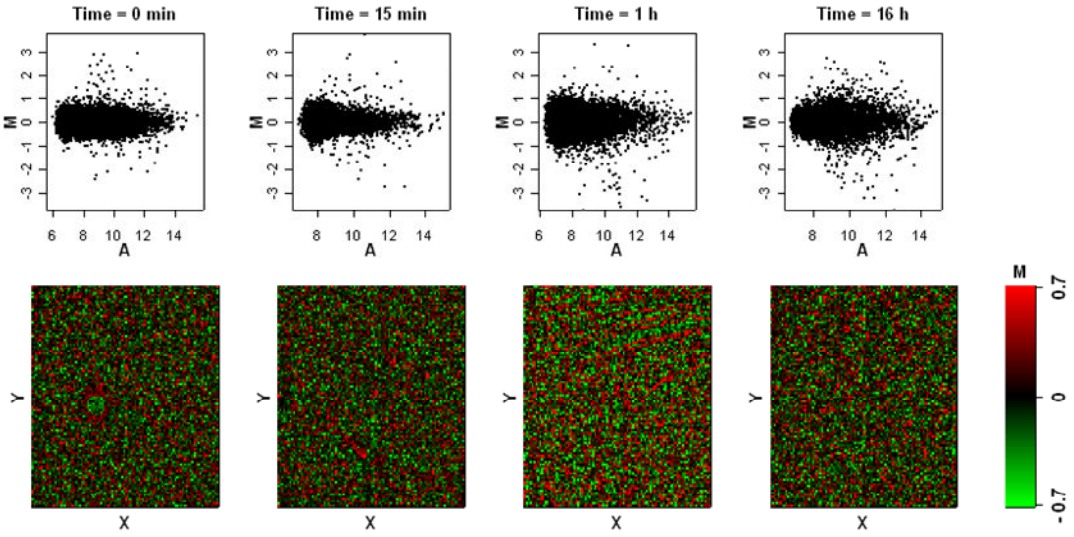

Figure 9: MA and MXY plots of data normalized by OSLIN for the same microarrays as in figure 8.

Tables:

	No norm.	*Linear norm.*	*Global lowess*	*P-lowess*	*S-lowess*	*LIN*	*OLIN*	*OSLIN*
SW 1	614	801	787	0	3	0	0	0
SW 2	756	267	213	15	0	0	0	0
SW 3	237	48	75	9	4	25	25	0
SW4	358	190	188	0	0	0	1	0
Apo 1	377	486	489	387	0	0	0	0
Apo 2	230	349	311	50	0	0	0	0
Apo 3	475	342	337	15	0	0	0	0
Apo 4	78	227	241	5	0	0	0	0
Apo 5	149	269	269	44	0	0	0	0
Apo 6	214	2302	305	41	0	0	0	0
Apo 7	474	106	100	98	0	0	0	2
Apo 8	157	562	564	431	0	28	28	4
Apo 9	658	590	595	461	8	0	0	0
Apo 10	2	2523	268	0	0	0	0	0
Apo 11	54	397	394	0	0	0	0	0
Apo 12	475	272	269	61	0	0	0	0
Apo 13	253	336	336	294	0	0	0	0
Apo 14	200	309	316	129	0	0	0	0
Apo 15	142	443	447	277	0	6	0	0
Apo 16	58	676	670	497	0	2	0	0

Table 1: Number of spot location neighborhoods with significantly extreme average value of *abs(M)*. The level of significance was defined by FDR=0.01. The spot neighborhood was defined by a window of 5x5 spots.

Array	*No norm.*	*Linear norm.*	*Global lowess*	*P-lowess*	*S-lowess*	*LIN*	*OLIN*	*OSLIN*
SW 1	0.33	0.33	0.02	0.01	0.01	0.09	0.01	0.01
SW 2	0.68	0.68	0.03	-0.01	-0.01	0.05	-0.00	0.01
SW 3	0.66	0.66	0.02	-0.01	-0.00	0.04	-0.02	-0.01
SW4	0.35	0.35	-0.02	-0.02	-0.02	0.01	-0.00	-0.01
Apo 1	0.29	0.29	0.00	0.02	0.01	0.06	0.01	0.02
Apo 2	0.45	0.45	0.03	0.03	0.02	0.08	-0.03	-0.02
Apo 3	0.62	0.62	0.06	0.07	0.07	0.06	0.03	0.02
Apo 4	0.42	0.42	0.04	0.06	0.07	0.06	0.02	0.01
Apo 5	0.58	0.58	0.07	0.06	0.06	0.06	0.02	0.01
Apo 6	0.72	0.72	0.08	0.07	0.06	0.011	0.02	-0.02
Apo 7	0.67	0.67	0.09	0.03	0.07	0.05	-0.01	0.01
Apo 8	0.45	0.45	0.12	0.03	0.04	0.15	-0.02	0.00
Apo 9	0.26	0.26	0.01	0.04	0.045	0.18	0.01	0.01
Apo 10	0.40	0.40	0.04	0.07	0.04	0.09	-0.01	-0.01
Apo 11	0.54	0.54	0.03	0.04	0.07	0.07	0.00	-0.02
Apo 12	0.60	0.60	0.02	0.01	0.04	0.08	-0.01	0.03
Apo 13	0.42	0.42	0.05	0.01	0.01	0.06	-0.01	0.03
Apo 14	0.40	0.40	0.07	0.07	0.07	0.10	0.01	0.01
Apo 15	0.47	0.47	0.09	0.04	0.03	0.07	0.01	0.01
Apo 16	0.22	0.22	0.16	0.04	0.03	0.17	0.01	0.04

Table 2: Intensity-dependent correlation describes the correlation between the log ratio *M* of the spot and the median value of *M* within a symmetrical neighborhood of 50 spots on the intensity scale. To ensure independence, *M* of the spot was not included in the median *M* of the neighborhood.

	No norm.	*Linear norm.*	*Global lowess*	*P-Lowess*	*S-Lowess*	*LIN*	*OLIN*	*OSLIN*
SW 1	0.72	0.72	0.75	0.43	0.43	0.37	0.02	0.03
SW 2	0.47	0.47	0.55	0.36	0.31	0.25	0.09	0.10
SW 3	0.43	0.43	0.44	0.31	0.30	0.27	0.09	0.10
SW4	0.46	0.46	0.46	0.25	0.23	0.19	0.08	0.10
Apo 1	0.65	0.65	0.65	0.53	0.46	0.49	0.14	0.16
Apo 2	0.50	0.50	0.50	0.34	0.32	0.39	0.16	0.16
Apo 3	0.56	0.56	0.54	0.38	0.35	0.40	0.20	0.21
Apo 4	0.49	0.49	0.53	0.33	0.31	0.34	0.14	0.13
Apo 5	0.57	0.57	0.57	0.42	0.40	0.43	0.14	0.14
Apo 6	0.53	0.53	0.60	0.39	0.37	0.43	0.17	0.17
Apo 7	0.53	0.53	0.56	0.39	0.38	0.41	0.18	0.18
Apo 8	0.62	0.62	0.69	0.48	0.43	0.44	0.12	0.14
Apo 9	0.68	0.68	0.69	0.52	0.44	0.55	0.13	0.12
Apo 10	0.51	0.51	0.53	0.35	0.33	0.39	0.16	0.15
Apo 11	0.52	0.52	0.56	0.37	0.35	0.38	0.17	0.17
Apo 12	0.60	0.60	0.56	0.41	0.39	0.39	0.12	0.13
Apo 13	0.64	0.64	0.62	0.47	0.43	0.50	0.14	0.13
Apo 14	0.57	0.57	0.58	0.38	0.39	0.38	0.13	0.12
Apo 15	0.58	0.58	0.63	0.45	0.39	0.49	0.17	0.15
Apo 16	0.65	0.65	0.70	0.47	0.40	0.44	0.14	0.16

Table 3: Spatial correlation describes the correlation between the log ratio *M* of the spot and the median value of *M* within a neighborhood defined by a window of 5x5 spots. Note that, to ensure independence, *M* of the spot was not included in the median *M* of the neighborhood.