Table S1. Oligonucleotide primers used in real-time PCR in cell line and mice.

Target gene	Primer designation	Oligonucleotide sequence (5`-3`)	Product size (bp)
m-TLR-2	Tlr_2-F	TCCTGCGAACTCCTATCC	151
	Tlr_2-R	CCTGGTGACATTCCAAGAC	
m-TLR-4	Tlr_4-F	GCCTTTCAGGGAATTAAGCTCC	114
	Tlr_4-R	GATCAACCGATGGACGTGTAAA	
m-TNF-α	Tnf-F	AACAACTACTCAGAAACACAAG	130
	Tnf-R	GCAGAACTCAGGAATGGA	
m-TGF-β	Tgfb-F	AATTCCTGGCGTTACCTT	116
	Tgfb-R	TGTATTCCGTCTCCTTGG	
m-α-SMA	Sma-F	CTGCCGAGCGTGAGATTG	122
	Sma-R	AGGCAGTTCGTAGCTCTTCT	
m-Col1a1	Col1-F	GGGGCAAGACAGTCATCGAA	144
	Col1-R	GGGTGGAGGGAGTTTACACG	
m-TIMP1	Timp-R	AGTGTTTCCCTGTTTATCTATCC	105
	Timp-R	AAGTGACGGCTCTGGTAG	
m-PDGF	Pdgf-F	CACCACCGCAGTGTCAAG	116
	Pdgf-R	AGGTTGGAGGTCGCACAT	
m-RPL-19	Rpl-F	TCAGCCACAACATTCTCA	138
	Rpl-R	GCACCTCCAACAGTAAGT	
m-HPRT	Hprt-F	TCAGTCAACGGGGGACATAAA	142
	Hprt-R	GGGGCTGTACTGCTTAACCAG	
TLR-2	Tlr_2-F	TTATCCAGCACACGAATACACAG	160
	Tlr_2-R	AGGCATCTGGTAGAGTCATCAA	
TLR-4	Tlr_4-F	AGACCTGTCCCTGAACCCTAT	147
	Tlr_4-R	CGATGGACTTCTAAACCAGCCA	
TGF-β	Tgfb-F	GCACAACTCCGGTGACATCAA	86
	Tgf-R	CAATTCCTGGCGATACCTCAG	
α-SMA	Sma-F	ATGATGCTGTTGTAGGTG	142
	Sma -R	TTGAGAAGAGTTACGAGTTG	
Col1a1	Col1-F	TTACACAAGGAACAGAACA	91
	Col1-R	CGACAAAGCAGAAACATC	

TIMP1	Timp-F	CTATCAGCCACAGCAACAACAGG	82
	Timp-R	GCCCAGAGAGACACCAGAGAAC	
GAPDH	GAPDH-F	TGGAAGATGGTGATGGGATT	211
	GAPDH-R	TCAACGGATTTGGTCGTATTG	

Table S2. Oligonucleotide primers used for the gut microbiota analysis.

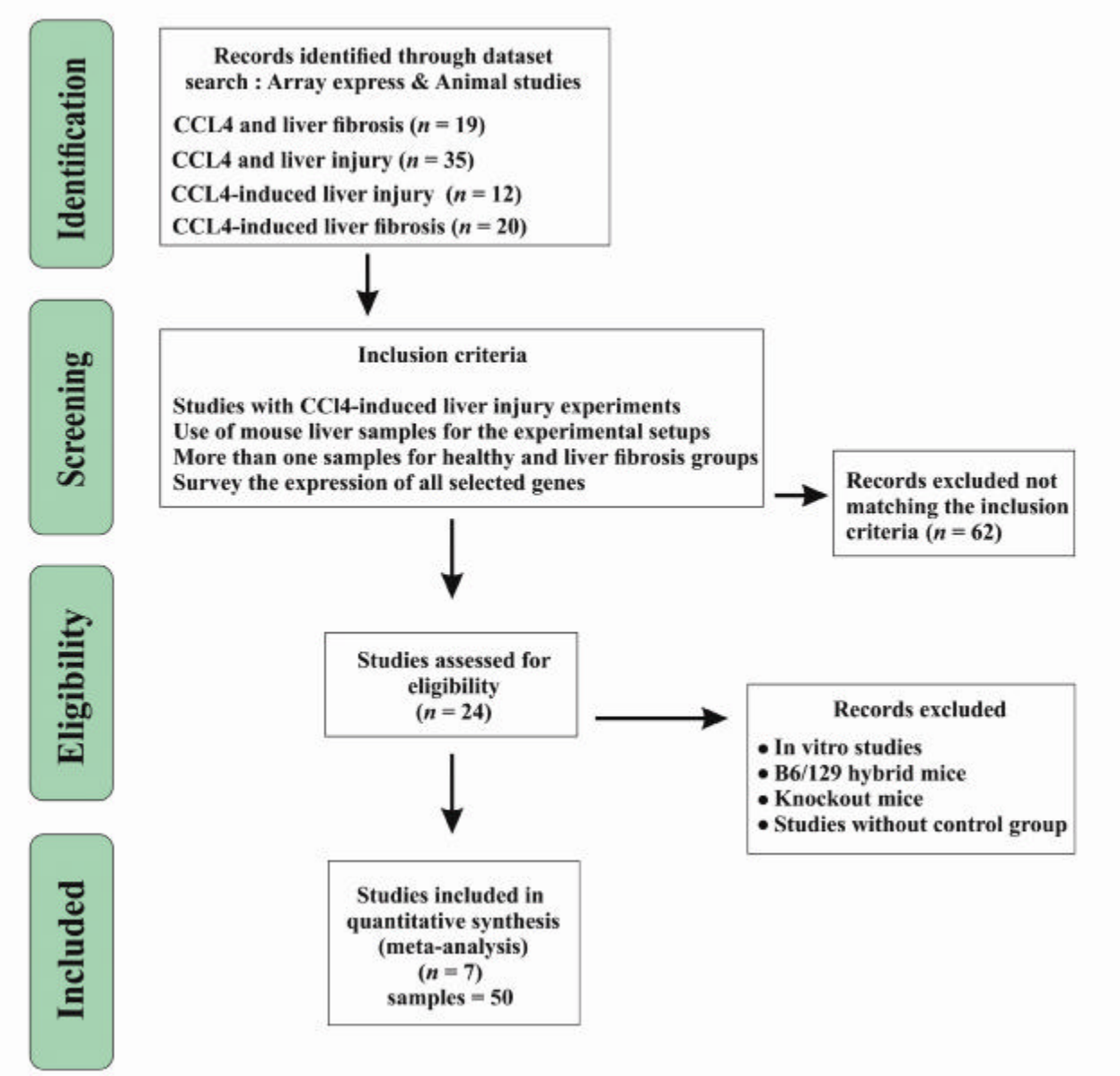
Target gene	Primer designation	Oligonucleotide sequence (5`-3`)	Product size (bp)
Universal	Uni-F	ACTCCTACGGGAGGCAGCAGT	[1]
	Uni-R	ATTACCGCGGCTGCTGGC	
Firmicute	Firm-F	GGAG**Y**ATGTGGTTTAATTCGAAGCA	[2]
	Firm-R	AGCTGACGACAACCATGCAC	
Bacteroidetes	Bactero-F	GTTTAATTCGATGATACGCG	[2]
	Bactero-R	TTAAGCCGACACCTCACG	
Fusobacteria	Fuso-F	GATCCAGCAATTCTGTGTG	[3]
	Fuso-R	CGAATTTCACCTCTACACTTG	
Actinobacteria	Actino-F	GCGACCTATCAGCTTGTT	[3]
	Actino-R	CCGCCTACGAGCTCTTTACGC	
Clostridia	Ccl-F	AAAGGAAGATTAATACCGCATA	[4]
	Ccl-R	TTCTTCCTAATCTCTACGCA	
γ-Proteobacteria	Gamma-F	CATGCCGCGTGTGTGAA	[5]
	Gamma -R	ACTCCCCAGGCGGTC**D**ACTTA	
α-Proteobacteria	Alpha-F	GGTAAGGTTCTGCGCGTT	[5]
	Alpha-R	GGTAAGGTTCTGCGCGTT	
ε-Proteobacteria	Epsilon-R	TGGTGTAGGGGTAAAATCCG	[3]
	Epsilon-R	AGGTAAGGTTCTTCG**Y**GTATC	
Enterobacteriaceae	Enterob-F	CGTCGCAAG**MM**CAAAGAG	[3]
	Enterob-R	TTACCGCGGCTGCTGGCAC	
Rumminococcaceae	Rum-F	GGCGGC**Y**T**R**CTGGGCTTT	[6]
	Rum-R	CCAGGTGGAT**W**ACTTATTGTGTTAA	
Peptostreptococcus	Pepto-F	ATAGGAGGAAGCCCTGGCTAAA	This study
	Pepto-R	CTCCACGCTTTGACACCTGA	
Prevotellaceae	Prevo-F	CACCAAGGCGACGATCA	[7]
	Prevo-R	GGATAACGCCTGGACCT	
Methanobrevibacter spp.	Methano-F	CGATGCGGACTTGGTGTTG	[8]
	Methano-R	TGTCGCCTCTGGTGAGATGTC	

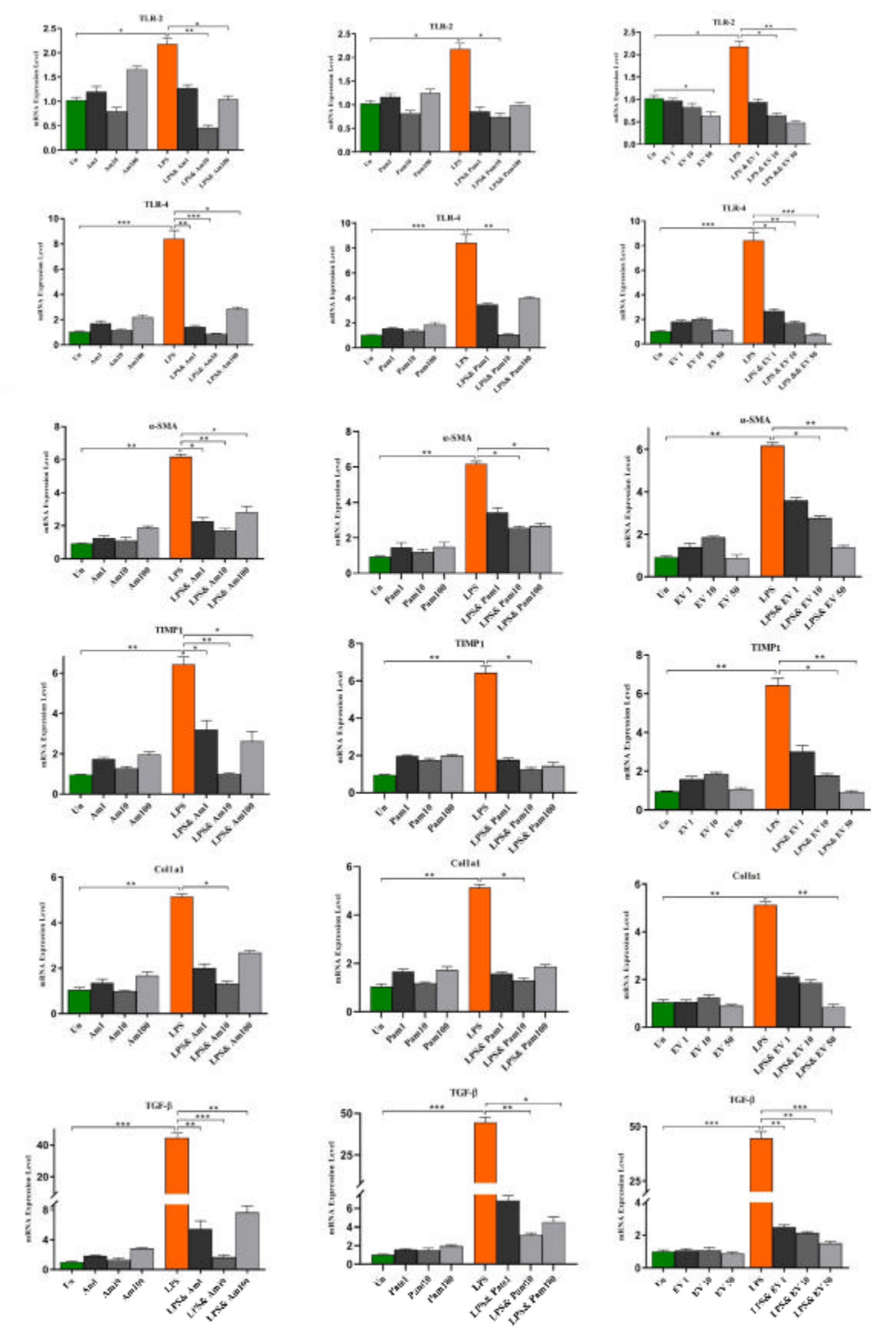
A. muciniphila	Am-F	CAGCACGTGAAGGTGGGGAC	[9]
	Am-R	CCTTGCGGTTGGCTTCAGAT	
Alistipes spp.	Alis-F	TTAGAGATGGGCATGCGTTGT	[10]
	Alis-R	TGAATCCTCCGTATT	
Veillonella spp.	Veillo-F	ACAACCTGCCCTTCAGA	[11]
	Veillo-R	CGTCCCGATTAACAGAGCTT	
Enterococcus spp.	Enteroc-F	CCCTTATTGTTAGTTGCCATCATT	[12]
	Enteroc-R	ACTCGTTCTACTTCCCATTGT	
F. prausnitzii	Fp-F	GATGGCCTCGCGTCCGATTAG	[13]
	Fp-R	CCGAAGACCTTCTTCCTCC	
E. coli	GAPDH-F	TGGAAGATGGTGATGGGATT	[14]
	GAPDH-R	TCAACGGATTTGGTCGTATTG	
Bifidobacterium spp.	Bifido-F	GGGATGCTGGTGTGGAAGAG	[12]
	Bifido-R	TGCTCGCGTCCACTATCCAG	
Lactobacillus spp.	Lacto-F	TGGATGCCTTGGCACTAG	[12]
	Lacto-R	AAATCTCCGGATCAAAGCTTAC	
Roseburia spp.	Rose-F	TACTGCATTGGAAACTGTCG	[7]
	Rose-R	CGGCACCGAAGAGCAAT	

The nucleotides in bold type represent: Y, C or T; K, G or T; M, A or C; D, A or G or T; R, A or G.

Figure S1. Flow chart for database search.

Figure S2. Gene expression of liver fibrosis markers in LX-2 cells upon treatment with different MOIs of live, pasteurized *A. muciniphila* and its EVs. Relative gene expression of fibrosis markers were markedly increased after treatment of LX-2 cells with LPS in comparison with quiescence condition. The mRNA level of an anti-fibrosis factors were decreased in LPS stimulated LX-2 cells treated with different supplementation of *A. muciniphila*. Data are shown as the mean ± SEM. $*P < 0.05$, $**P < 0.01$, $***P < 0.001$ and by post hoc one-way ANOVA statistical analysis.




TLR-2
TLR-4
α-SMA
TIMP1
Col1a1
TGF-β
mRNA Expression Level
Un
Am1
Am10
Am100
LPS
LPS& Am1
LPS& Am10
LPS& Am100
Pam1
Pam10
Pam100
LPS& Pam1
LPS& Pam10
LPS& Pam100
EV 1
EV 10
EV 50
LPS& EV 1
LPS& EV 10
LPS& EV 50

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