

Supplementary Material

Pro-Angiogenic Activity of Monocytic-Type Myeloid-Derived Suppressor Cells from Balb/C Mice Infected with Echinococcus Granulosus and the Regulatory Role of miRNAs

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Table S1. Pathways linked to M-MDSC miRNAs differentially expressed between *E. granulosus*-infected and uninfected Balb/c mice

KEGG pathway	Number of miRNAs	<i>P</i> value	Number of target genes
ECM-receptor interaction	22	8.97E-20	34
Fatty acid biosynthesis	6	2.78E-13	4
Prion diseases	17	6.51E-12	12
Axon guidance	23	6.39E-10	68
Proteoglycans in cancer	24	1.28E-09	82
MAPK signalling pathway	24	1.09E-07	108
Focal adhesion	23	3.34E-06	89
PI3K/Akt signalling pathway	23	3.88E-06	131
Renal cell carcinoma	23	3.88E-06	36
cAMP signalling pathway	22	8.24E-06	83
Ras signalling pathway	23	2.54E-05	84
Choline metabolism in cancer	22	2.73E-05	48
cGMP-PKG signalling pathway	23	2.73E-05	72
Pathways in cancer	24	2.73E-05	141
Phosphatidylinositol signalling system	20	2.74E-05	39
Rap1 signalling pathway	23	2.74E-05	85
Glutamatergic synapse	20	4.02E-05	45
Hippo signalling pathway	23	4.02E-05	61
Fatty acid metabolism	10	4.26E-05	13
Thyroid hormone signalling pathway	21	5.99E-05	48
Glioma	20	1.06E-04	28

T cell receptor signalling pathway	21	1.06E-04	47
Neurotrophin signalling pathway	23	1.06E-04	54
Regulation of actin cytoskeleton	22	1.11E-04	83
mTOR signalling pathway	22	2.11E-04	32
FoxO signalling pathway	22	2.67E-04	58
Transcriptional misregulation in cancer	23	2.93E-04	63
TGF- β signalling pathway	21	4.78E-04	38
Acute myeloid leukaemia	20	5.25E-04	27
Oestrogen signalling pathway	21	5.25E-04	40
Adherens junction	21	1.00E-03	33
Oxytocin signalling pathway	23	2.22E-03	61
Dorsoventral axis formation	17	2.61E-03	15
Adrenergic signalling in cardiomyocytes	24	2.80E-03	58
Melanoma	19	2.90E-03	31
Platelet activation	21	2.90E-03	49
Prostate cancer	21	2.90E-03	39
ErbB signalling pathway	23	2.90E-03	37
Colorectal cancer	21	3.41E-03	28
Long-term potentiation	22	4.12E-03	30
Prolactin signalling pathway	20	4.37E-03	28
Osteoclast differentiation	19	4.48E-03	49
AMPK signalling pathway	22	4.79E-03	51
Signalling pathway regulation	22	4.90E-03	52
Pluripotency of stem cells			

Pancreatic cancer	20	5.16E-03	27
Sphingolipid signalling pathway	21	5.16E-03	48
Chronic myeloid leukaemia	21	6.54E-03	31
Gap junction	19	7.67E-03	31
Thyroid hormone synthesis	17	8.03E-03	22
Lysine degradation	20	8.78E-03	20
Type II diabetes mellitus	18	9.33E-03	23
Endocytosis	23	9.33E-03	76
Arrhythmogenic right ventricular cardiomyopathy (ARVC)	19	1.01E-02	30
Wnt signalling pathway	22	1.01E-02	50
GnRH signalling pathway	22	1.13E-02	35
Aldosterone-regulated sodium Reabsorption	18	1.25E-02	19
Protein processing in the endoplasmic reticulum	22	1.52E-02	59
Small cell lung cancer	19	1.69E-02	33
Fc gamma R-mediated phagocytosis	22	1.69E-02	34
Amoebiasis	22	1.69E-02	36
Inositol phosphate metabolism	20	1.76E-02	23
Protein digestion and absorption	18	1.97E-02	35
Thyroid cancer	16	2.10E-02	12
Glycosaminoglycan biosynthesis- heparan sulphate/heparin	9	2.31E-02	7
Non-small cell lung cancer	19	2.78E-02	22
TNF signalling pathway	22	3.86E-02	38

Table S2. Six angiogenesis-related signalling pathways linked to the deregulated miRNAs expressed in M-MDSCs

KEGG pathway	Number of miRNAs	miRNA	Number of target genes	Target genes
MAPK signalling pathway	24	mmu-miR-27b-3p	108	Mapk14 Rasgrp1 Sos2 Rasa2
		mmu-miR-150-5p		Stmn1 Mef2c Fgf14 Jun
		mmu-miR-200c-3p		Map3k3 Pdgfrb Tnfrsf1a
		mmu-miR-29a-3p		Map4k3 Rps6ka6 Rap1a
		mmu-miR-29b-3p		Rps6ka5 Map4k4 Cacnb3 Fgf20
		mmu-miR-26a-5p		Map2k1 Fgf4 Fgf7 Cacna2d3
		mmu-miR-26b-5p		Ppp3r2 Fgf1 Fos Map3k1
		mmu-miR-155-5p		Rps6ka4 Map2k3 Mknk2 Dusp2
		mmu-miR-378d		Cacna2d1 Rps6ka3 Grb2 Nfatc3
		mmu-miR-142a-5p		Pak1 Cacnb1 Cacnb4 Rapgef2
		mmu-miR-350-3p		Nlk Ntrk2 Cacna1g Tgfbr1 Nf1
		mmu-miR-532-5p		Ppm1b Dusp16 Ppp3cb I11a
		mmu-miR-7a-5p		Cacna1d Cacna1e Egfr Map2k4
		mmu-miR-142a-3p		Fgf13 Kras Braf Tgfbr2 Fgf15
		mmu-miR-181a-5p		Mecom Nras Hspa1a Map3k14
		mmu-miR-30b-5p		Rac1 Sos1 Cacng2 Rap1b Mras
		mmu-miR-30c-5p		Mapkapk3 Map2k7 Rras2 Rasa1
		mmu-miR-19a-3p		Map4k2 Dusp4 Pdgfb Chuk Crk
		mmu-miR-342-3p		Cacng7 Dusp10 Tnf Elk4
		mmu-miR-34a-5p		Map3k5 Map3k13 Flna Cacna1a
		mmu-miR-146a-5p		Stk4 Fgf9 Ppp3r1 Traf6 Pla2g4c
		mmu-miR-17-3p		Fgfr2 Ppp3ca Cacna1f Cacna1c
				Arrb1 Ntf3 Flnc Rela Pak2 Atf2
				Dusp5 Map3k2 Pdgfa Map3k11
				Tab2 Dusp1 Mapk8 Rras Zak
				Srf Rps6ka2

		mmu-miR-3535		
		mmu-miR-378b		
Focal adhesion pathway	23	mmu-miR-142a-5p	89	Pxn Vav2 Sos2 Pip5k1c Ppp1r12b Ppp1r12a Pik3r1 Ibsp Pdpk1 Jun Pik3r3 Col2a1 Gsk3b Pdgfrb Kdr Rap1a Col3a1 Mylk2 Map2k1 Col6a6 Thbs1 Col6a3 Vegfb Reln Rock1 Arhgap35 Igf1 Itgb3 Grb2 Col1a1 Pak1 Col27a1 Itga5 Rhoa Pdgd Hgf Vegfa Egfr Col4a4 Braf 4930544G11Rik Parva Ccnd1 Rac1 Lamc3 Rock2 Sos1 Arhgap5 Rap1b Itga8 Bcl2 Col5a2 Actn4 Vegfc Col4a6 Shc2 Actn1 Pik3cb Vwf Col5a3 Pdgd Itgav Tnxb Crk Col1a2 Flna Lamc1 Col4a1 Vasp Fyn Col4a3 Itgb1 Col11a1 Pten Flnc Pik3cd Pik3r5 Itgb8 Pak2 Met Col4a2 Col5a1 Shc4 Pdgd Tln1 Cav2 Mapk8 Itga9 Ppp1cc
		mmu-miR-19a-3p		
		mmu-miR-155-5p		
		mmu-miR-29a-3p		
		mmu-miR-29b-3p		
		mmu-miR-532-5p		
		mmu-miR-150-5p		
		mmu-miR-342-3p		
		mmu-miR-378d		
		mmu-miR-30b-5p		
		mmu-miR-30c-5p		
		mmu-miR-34a-5p		
		mmu-miR-142a-3p		
		mmu-miR-17-3p		
		mmu-miR-181a-5p		
		mmu-miR-26a-5p		
		mmu-miR-26b-5p		
		mmu-miR-27b-3p		
		mmu-miR-146a-5p		
		mmu-miR-7a-5p		
		mmu-miR-200c-3p		
		mmu-miR-350-3p		
PI3K/Akt	23	mmu-miR-200c-3p	131	Prkaa2 Tsc1 Sos2 Creb3l2 G6pc

signalling pathway		mmu-miR-29a-3p		Ywhae Pik3r1 Ibsp Tcl1b1
		mmu-miR-29b-3p		Ppp2r1b Pdpk1 Fgf14 Pik3r3
		mmu-miR-142a-5p		Col2a1 Gsk3b Eif4e2 Efna5
		mmu-miR-34a-5p		Pdgfrb Bcl2l1 Rps6kb1 Kdr
		mmu-miR-150-5p		Ywhag Col3a1 Ppp2r3a Ddit4
		mmu-miR-142a-3p		Il7r Fgf20 Map2k1 Fgf4 Fgf7
		mmu-miR-17-3p		Col6a6 Fgf1 Thbs1 Col6a3 Il7
		mmu-miR-181a-5p		Vegfb Insr Reln Lpar6 Igf1
		mmu-miR-19a-3p		Itgb3 Ccne2 Creb1 Rxra Grb2
		mmu-miR-26a-5p		Col1a1 Ppp2r5e Col27a1 Phlpp2
		mmu-miR-26b-5p		Itga5 Il2ra Irs1 Ywhab Them4
		mmu-miR-342-3p		Ifnar2 Pplr Tcl1b3 Pdgdh Hgf
		mmu-miR-27b-3p		Vegfa Egfr Ppp2ca Ghr Col4a4
		mmu-miR-30b-5p		Fgf13 Kras Ccnd1 Fgf15 Kitl
		mmu-miR-30c-5p		Nras Rac1 Lamc3 Sos1 Gnb4
		mmu-miR-146a-5p		Itga8 Bcl2 Col5a2 Pkn3 Jak1
		mmu-miR-378d		Rheb Vegfc Col4a6 Mtcp1
		mmu-miR-7a-5p		Ywhaq Pik3cb Osmr Vwf
		mmu-miR-155-5p		Col5a3 Pdgdh Efna3 Itgav Tnxb
		mmu-miR-532-5p		Chuk Ngfr Ppp2r5a Col1a2
		mmu-miR-378b		Lamc1 Col4a1 Prkcz Fgf9
cAMP signalling pathway	22	mmu-miR-26a-5p	83	Col4a3 Fgfr2 Itgb1 Col11a1
		mmu-miR-26b-5p		Bcl2l11 Ppp2r2c Csf1 Mcl1
		mmu-miR-181a-5p		Sgk1 Il6 Ephr2 Rps6kb2 Pten
				Pik3cd Pik3r5 Myb Rela Itgb8
				Atf2 Met Ppp2r5c Col4a2
				Col5a1 Pkn2 Kit Pdgra Itga9
				Hsp90aa1 Efna1 Hsp90b1 Gnb2

		mmu-miR-19a-3p		Rap1a Atp2b4 Gna1l Htr1b
		mmu-miR-27b-3p		Atp1b2 Map2k1 Pde3a Camk2g
		mmu-miR-350-3p		Fos Rock1 Ednra Hhip Atp2b1
		mmu-miR-29a-3p		Creb1 Pak1 Gpr119 Drd1a Rhoa
		mmu-miR-29b-3p		Sox9 Ryr2 Pde4a Htr4 Cacna1d
		mmu-miR-34a-5p		Adcy1 Rapgef4 Braf
		mmu-miR-30b-5p		4930544G11Rik Atp2a2 Rac1
		mmu-miR-30c-5p		Rock2 Gria4 Mllt4 Rap1b
		mmu-miR-342-3p		Camk4 Rras2 Camk2a Pik3cb
		mmu-miR-200c-3p		Tiam1 dcy10 Cnga2 Atp1a4
		mmu-miR-378b		Adrb2 Gli3 Atp1b3 Hcn4 Hcar1
		mmu-miR-142a-5p		Adrb1 Oxtr Cacna1f Grin2d
		mmu-miR-155-5p		Cacna1c Pik3cd Pik3r5 RelaCftr
		mmu-miR-142a-3p		Atp1b4 Adcy6 Orail Mapk8
		mmu-miR-7a-5p		Rras Acox3 Abcc4 Atp1b1
		mmu-miR-146a-5p		Ppp1cc Crebbp
		mmu-miR-150-5p		
		mmu-miR-378d		
		mmu-miR-3535		
mTOR signalling pathway	22	mmu-miR-200c-3p	32	Prkaa2 Tsc1 Ulk1 Pik3r1 Pdpk1
		mmu-miR-26a-5p		Pik3r3 Eif4e2 Rps6kb1 Ulk3
		mmu-miR-26b-5p		Rps6ka6 Ddit4 Ulk2 Igf1
		mmu-miR-34a-5p		Rps6ka3 Irs1 Hif1a Vegfa Rictor
		mmu-miR-29a-3p		Braf Rragd Rragc Rheb Pik3cb
		mmu-miR-29b-3p		Tnf Rraga Rps6kb2 Pten Pik3cd
				Pik3r5 Strada Cab39 Rps6ka2

		mmu-miR-30b-5p		
		mmu-miR-30c-5p		
		mmu-miR-155-5p		
		mmu-miR-19a-3p		
		mmu-miR-350-3p		
		mmu-miR-342-3p		
		mmu-miR-142a-5p		
		mmu-miR-378d		
		mmu-miR-17-3p		
		mmu-miR-27b-3p		
		mmu-miR-7a-5p		
		mmu-miR-181a-5p		
		mmu-miR-142a-3p		
		mmu-miR-146a-5p		
		mmu-miR-378b		
		mmu-miR-150-5p		
TGF- β	21	mmu-miR-142a-5p	38	Zfyve16 E2f5 Bmpr1a Bmpr2
signalling		mmu-miR-181a-5p		Ppp2r1b Ep300 Smad9 Rps6kb1
pathway		mmu-miR-26a-5p		Gdf6 Thbs1 Pitx2 Rock1 Nog
		mmu-miR-26b-5p		Chrd Rhoa Tgfb1 Ppp2ca
		mmu-miR-27b-3p		Acvr2a Bmp5 Zfyve9
		mmu-miR-200c-3p		4930544G11Rik Tgfb2 Id4 Id2
		mmu-miR-29b-3p		Smurf2 Ifng Smad4 Tnf Fst
		mmu-miR-350-3p		Inhbb Sp1 Rps6kb2 Bambi
		mmu-miR-342-3p		Smad7

mmu-miR-146a-5p

mmu-miR-155-5p

mmu-miR-34a-5p

mmu-miR-19a-3p

mmu-miR-3535

mmu-miR-30b-5p

mmu-miR-30c-5p

mmu-miR-17-3p

mmu-miR-150-5p

mmu-miR-7a-5p

mmu-miR-378b

mmu-miR-142a-3p
