

Supplementary Fig.1 GO analysis of cellular component (CC) and molecular function (MF) of DEGs in brain tissues between Uninfected mice, *Pb ANKA* group and *Pb ANKA* +AST group mice. Top 5 GO terms of CC based on up-regulated (red columnar) and down-regulated (green columnar) DEGs between the *Pb ANKA* group and Uninfected group(a,b), *Pb ANKA*+ AST group and Uninfected group(e,f), and *Pb ANKA*+ AST group and *Pb ANKA* group (i, j). Top 5 GO terms of MF based on up-regulated and down-regulated DEGs between the *Pb ANKA* group and Uninfected group(c,d), *Pb ANKA*+ AST group and Uninfected group (g,h), and *Pb ANKA*+ AST group and *Pb ANKA* group (k,l).

Supplementary Table 1 Comparison result statistics

Statistics	All	UnMapped	Mapped	MappedRate	UniqueMapped	UniqueMappedRate	MultiMapped
<i>Pb ANKA</i> group +AST group_1	4498969	757240	4423245	0.983	41008772	0.912	3223682
<i>Pb ANKA</i> group +AST group_2	4		4				
<i>Pb ANKA</i> group +AST group_3	3533870	566926	3477177	0.984	32174734	0.91	2597044
<i>Pb ANKA</i> group +AST group_4	4		8				
Uninfected group_1	3792477	584390	3734038	0.985	34652184	0.914	2688200
Uninfected group_2	4		4				
Uninfected group_3	3754844	588996	3695945	0.984	34073024	0.907	2886426
Uninfected group_4	6		0				
<i>Pb ANKA</i> group _1	4560085	785658	4481519	0.983	41469532	0.909	3345664
<i>Pb ANKA</i> group _2	4		6				
<i>Pb ANKA</i> group _3	3845635	666594	3778976	0.983	34967168	0.909	2822594
<i>Pb ANKA</i> group _4	6		2				
Uninfected group_1	3413411	743108	3339100	0.978	30604382	0.897	2786626
Uninfected group_2	6		8				
Uninfected group_3	4110934	931484	4017785	0.977	36268486	0.882	3909372
Uninfected group_4	2		8				
<i>Pb ANKA</i> group _1	3428139	739222	3354217	0.978	30563622	0.892	2978552
<i>Pb ANKA</i> group _2	6		4				
<i>Pb ANKA</i> group _3	3792167	1015370	3690630	0.973	31277234	0.825	5629068
<i>Pb ANKA</i> group _4	2		2				
Uninfected group_1	3665481	931354	3572346	0.975	31718562	0.865	4004898
Uninfected group_2	4		0				
Uninfected group_3	4713722	856652	4628057	0.982	42779192	0.908	3501382
Uninfected group_4	6		4				

Supplementary Table 2 Quality assessment of raw reads and clean reads

Sample Name	Raw Reads	Clean Reads	Raw Bases(G)	Clean Bases(G)	Q20(%)	Q30(%)	GC Content(%)
<i>Pb ANKA</i> +AST group_1	52849766	44989694	7.93	6.75	98.66	95.06	49.92
<i>Pb ANKA</i> +AST group_2	41996580	35338704	6.30	5.30	98.52	94.63	49.77
<i>Pb ANKA</i> +AST group_3	44170676	37924774	6.63	5.69	98.69	95.12	49.59
<i>Pb ANKA</i> +AST group_4	43705964	37548446	6.56	5.63	98.73	95.22	49.46
Uninfected group_1	50557468	45600854	7.58	6.84	99.17	96.50	48.96
Uninfected group_2	44980010	38456356	6.75	5.77	98.63	94.91	49.12
Uninfected group_3	40091818	34134116	6.01	5.12	98.69	95.09	47.76
Uninfected group_4	47874512	41109342	7.18	6.17	98.71	95.07	44.4
<i>Pb ANKA</i> group_1	40805812	34281396	6.12	5.14	98.53	94.65	47.85
<i>Pb ANKA</i> group_2	45593008	37921672	6.84	5.69	98.55	94.67	44.11
<i>Pb ANKA</i> group_3	43545578	36654814	6.53	5.5	98.66	94.98	45.05
<i>Pb ANKA</i> group_4	55218062	47137226	8.28	7.07	98.72	95.24	49.94

Supplementary Table 3 Top 10 enriched BP terms of up-regulated DEGs between ECM and control mice.(*Pb ANKA* group & Uninfected group)

ID	Term	DEGS	p-value	FDR	Enrichment
GO:0002376	immune system process	<i>Il-10,Il-1β,Il-21,Il-6,Icam1,Ifng,Tnf</i>	3.521E-186	2.4619E-182	5.103538403
GO:0006955	immune response	<i>Il-10,Il-1β,Il-21,Il-6,Icam1,Ifng,Tnf</i>	1.028E-126	3.5938E-123	5.778647302
GO:0006952	defense response	<i>Il-10,Il-1β,Il-6,Icam1,Ifng,Tnf</i>	3.6147E-121	8.4246E-118	4.984001913
GO:0043207	response to external biotic stimulus	<i>Il-10,Il-1β,Il-6,Ifng,Tnf</i>	8.8806E-121	1.5523E-117	4.776020564

GO:0009607	response to biotic stimulus	<i>Il-10,Il-1β,Il-6,Ifng,Tnf</i>	1.2222E-119	1.7091E-116	4.695741641
GO:0002682	Regulation of immune system process	<i>Il-10,Il-1β,Il-6,Il-21, Icam1,Ifng,Tnf</i>	4.416610772	5.4927E-114	4.416610772
GO:0051707	response to other organism interspecies	<i>Il-10,Il-6,Ifng,Tnf</i>	7.6313E-106	7.6226E-103	5.024776338
GO:0044419	interaction between organisms	<i>Il-10,Il-6,Icam1,Ifng,Tnf</i>	1.1294E-99	9.87113E-97	4.444049743
GO:0009605	response to external stimulus	<i>Il-10,Il-1β,Il-6,Ifng,Tnf</i>	1.30829E-96	1.0164E-93	3.413583066
GO:0002684	positive regulation of immune system process	<i>Il-10,Il-1β,Il-6,Il-21, Icam1,Ifng,Tnf</i>	8.79779E-95	6.15141E-92	5.111260469

Enrichment: (GeneInListInTerm/GeneInList)/(GeneInTerm/TotalGene)

Supplementary Table 4 Top 10 enriched BP terms of down-regulated DEGs between artesunate-treated and CM mice.(*Pb* ANKA group & *Pb* ANKA +AST group)

ID	Term	DEGS	p-value	FDR	Enrichment
GO:0002376	immune system process	<i>Il-10,Il-21,Il-6,Ifng,Tnf</i>	1.76268E-96	1.10414E-92	4.258981292
GO:0002682	regulation of immune system process	<i>Il-10,Il-21,Il-6,Ifng,Tnf</i>	2.6241E-60	8.21869E-57	3.736070807
GO:0006955	immune response	<i>Il-10,Il-21,Il-6,Ifng,Tnf</i>	9.72121E-56	2.02979E-52	4.405846244
GO:0043207	response to external biotic stimulus	<i>Il-10,Il-6,Ifng,Tnf</i>	3.758267584	5.84131E-55	9.14749E-52
GO:0009607	response to biotic stimulus	<i>Il-10,Il-6,Ifng,Tnf</i>	8.25924E-55	1.03472E-51	3.71143134
GO:0006952	defense response	<i>Il-10,Il-6,Ifng,Tnf</i>	8.42308E-53	8.7937E-50	3.831440516
GO:0051707	response to other organism	<i>Il-10,Il-6,Ifng,Tnf</i>	9.87351E-52	8.83538E-49	4.060439488
GO:0002684	positive regulation of immune system process	<i>Il-10,Il-21,Il-6,Ifng,Tnf</i>	4.20857E-51	3.29531E-48	4.314863358
GO:0050776	regulation of immune response	<i>Il-10,Il-21,Il-6,Ifng,Tnf</i>	4.785022491	1.34423E-50	9.35583E-48

GO:0044419	interspecies interaction between organisms	<i>Il-10, Il-6, Ifnγ, Tnf</i>	1.69802E- 49	1.06364E-46	3.64852173
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Enrichment: (GeneInListInTerm/GeneInList)/(GeneInTerm/TotalGene)

Supplementary Table 5 Primer sequences of genes used for quantitative real-time reverse transcription-polymerase chain reaction assays

Primer	Sequences 5'-3'	Size(bp)
<i>Il-1β</i>	FP_AATGACCTGTTCTTTGAAGTTGA	115
	RP_TGATGTGCTGCTGCGAGATTGAAG	
<i>Il-6</i>	FP_TCGGAGGCTTAATTACACATGTTC	66
	RP_TGCCATTGCACAACCTCTTTTCT	
<i>Il-10</i>	FP_AGCCGGGAAGACAATAACTG	189
	RP_CATTTCCGATAAGGCTTGG	
<i>Tnf-α</i>	FP_CCCTCACACTCAGATCATCTTCT	61
	RP_GCTACGACGTGGGCTACAG	
<i>Ifn-γ</i>	FP_GGAACTGGCAAAGGATGGTGAC	219
	RP_GCTGGACCTGTGGGTTGTTGAC	
<i>Il-21</i>	FP_TCATCATTGACCTCGTGGCCC	311
	RP_ATCGTACTTCTCCACTTGCAATCCC	
<i>Icam-1</i>	FP_AGGTATCCATCCATCCCACA	206
	RP_GCCACAGTTCTCAAAGCACA	
<i>β-actin</i>	FP_TGGAATCCTGTGGCATCCATGAAAC	349
	RP_TAAAACGCAGCTCAGTAACAGTCCG	