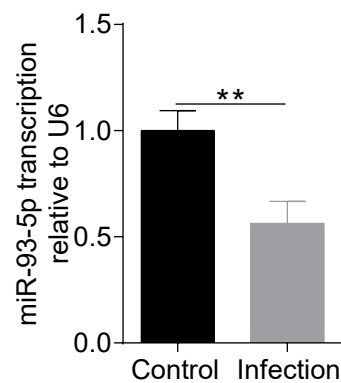# Supplemental Information

circ_2858 Helps Blood-Brain Barrier Disruption

by Increasing VEGFA via Sponging miR-93-5p

during *Escherichia coli* Meningitis

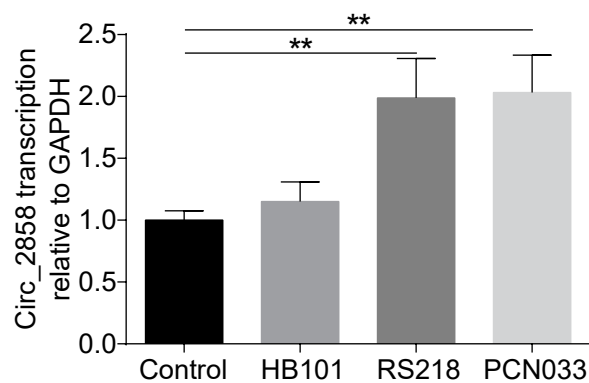Ruicheng Yang, Jiaqi Chen, Bojie Xu, Bo Yang, Jiyang Fu, Siyu Xiao, Chen Tan, Huanchun Chen, and Xiangru Wang
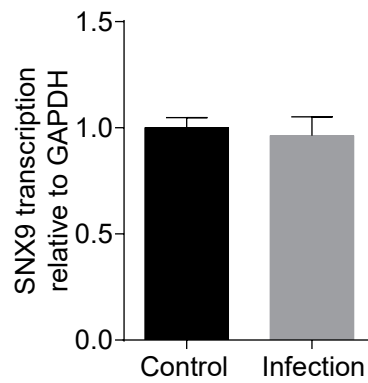
Supplementary Figures

Figure S1

Figure S1. Meningitic *E. coli* infection decreased the transcription of miR-93-5p in hBMECs. U6 was used as the internal reference, and data were presented as mean $\pm$ SD from three independent experiments.
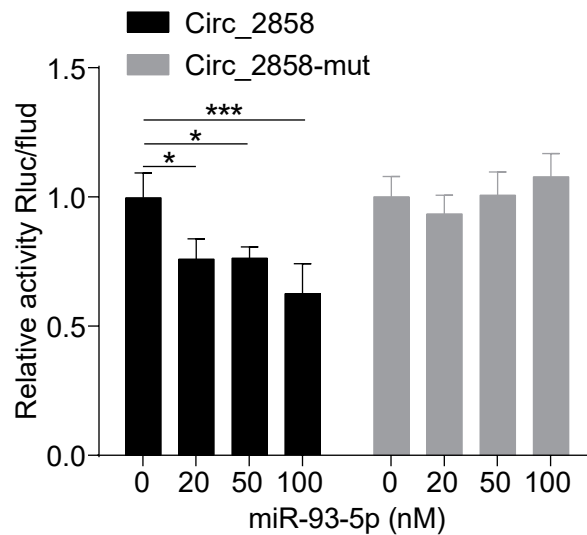
Figure S2

Figure S2. The alteration of circ_2858 in hBMECs by the challenge of meningitic *E. coli* strain RS218 and PCN033, and the non-meningitic *E. coli* strain HB101. GAPDH was used as the internal reference, and data were presented as mean $\pm$ SD from three independent experiments.

Figure S3

Figure S3. The transcription of SNX9 in hBMECs upon meningitic *E. coli* infection. GAPDH was used as the internal reference, and data were presented as mean ± SD from three independent experiments.

Figure S4

Figure S4. Dual-luciferase reporter assays showing that miR-93-5p significantly and dose-dependently reduced the luciferase activity of the wild-type circ_2858 construct, but not that of the mutant construct. The renilla luciferase activity was normalized to the firefly luciferase activity, and data were presented as mean ± SD from three independent experiments.

Tables S1 - S3 are submitted as Excel files and can be downloaded as separate files.

Table S4. Primers used for circRNAs real-time PCR

Primers	Nucleotide sequence (5'-3')	Amplified fragments
P1	TAGTGAGGATGAGGAGGAAGA	hsa_circ_851
P2	TTTAAGGGTGGGCTGATGT	
P3	AGTCCTCAGTCCTCAGTCATC	hsa_circ_1291
P4	CCTGCTGTTGGGAAGTTTCA	
P5	GTTCCTCCTTCCAGACCAT	hsa_circ_1507
P6	CCAACAACAAGTTCATCATCCA	
P7	GTGACTTACCAGGGAAACT	hsa_circ_1647
P8	AGCAAACTGTGGGTCTTTA	
P9	GCGGAAGTCCTAAACAAGCATAGT	hsa_circ_1687
P10	CTCAAAGCGATTGCCTCCTCTT	
P11	CAACATTGAGCGTGAGTG	hsa_circ_1715
P12	AATAGCAGGTTCTTGATTGG	
P13	TGAGGACTCGCTGATTCTTGAGA	hsa_circ_1910
P14	ACTTCCATTACCACTCCCTTCAGA	
P15	GCGGTAGATGATGATGATGAAG	hsa_circ_2146
P16	CAAATCTGCGTGGTTCTCTT	
P17	GCTAACACCTACTAACACTAATCG	hsa_circ_2858
P18	ACTGCCAACCTGTGACTT	
P19	GAAATGTGAAGCCAGGTTTA	hsa_circ_3196
P20	CTTGTCCAGGTTGTAAGC	
P21	GATATGGCTCAGACTCAGT	hsa_circ_3779
P22	TCCGAAGGTCATCAACTAAT	
P23	ACTAATCTTCGGGCAGAG	hsa_circ_4316
P24	TCCTGTCATCCTTCTTACG	
P25	CCAGACAAAGTAACAGAGATTC	hsa_circ_5804
P26	AAGTTTGGAGTAGTGATTGC	
P27	TGCCTCCTGCACCACCAACT	GAPDH
P28	CGCCTGCTTCACCACCTTC	

Table S5. Primers used for hsa_circ_2858 identification

Primers	Nucleotide sequence (5'-3')	Produce size	Target product
P1	GCTAACACCTACTAACACTAATCG	140 bp	Exon 1 and 5 divergent primer
P2	ACTGCCAACCTGTGACTT		
P3	AACTGGTGATGATGATGACT	123 bp	Exon 2 convergent primer
P4	GAGGAACTAGCACGACTG		
P5	CACAGGTATAAGCACTTTGA	393 bp	Exon 2 and 5 divergent primer
P6	GAGGAACTAGCACGACTG		
P7	CAGTCGTGCTAGTTCCTC	564 bp	Exon 2 divergent primer
P8	AGTCATCATCATCACCAGTT		
P9	CCATTCCAATCCCTTCTCT	612 bp	Exon 5 divergent primer
P10	GTCAAAGTGCTTATACCTGTG		

Table S6. Primers used for miRNAs real-time PCR

Primers	Nucleotide sequence (5'-3')	Amplified fragments
P1	TCAGTGCACTACAGAACTTTGT	hsa-miR-148a-3p
P2	CTAGACTGAAGCTCCTTGAGG	hsa-miR-151a-3p
P3	CAACAAAATCACTAGTCTTCCA	hsa-miR-3529-3p
P4	TGGAAGACTAGTGATTTTGTTGT	hsa-miR-7-5p
P5	AGGGCTTAGCTGCTTGTGA	hsa-miR-27a-5p
P6	CATCTTACCGGACAGTGCT	hsa-miR-200a-5p
P7	AAGTGCTGTTCGTGCAGGTA	hsa-miR-93-5p
P8	CTGAGACCCTTTAACCTGTGA	hsa-miR-125a-5p
P9	TAAAGTGCTTATAGTGCAGGTAG	hsa-miR-20a-5p
P10	ACGGAATCCCAAAAGCAGCT	hsa-miR-191-5p
P11	CGGATATAATACAACCTGCTAAGTG	hsa-miR-374b-5p
P12	CGGCACTTAGCAGGTTGTATTATAT	hsa-miR-374c-3p
P13	CTAAGGAAGTCCTGTGCTCAG	hsa-miR-4521
P14	CAAAGTGCTTACAGTGCAGGTA	hsa-miR-17-5p
P15	GCAGTGACTGTTCAGACGTC	hsa-miR-2682-5p
P16	TAGCAGCACGTAAATATTGGC	hsa-miR-16-5p
P17	TACCCATTGCATATCGGAGTTG	hsa-miR-660-5p
P18	GGTTATTGCTTAAGAATACGCGTAG	hsa-miR-137
P19	TGAGAACCACGTCTGCTCT	hsa-miR-589-5p
P20	AGGCAAGATGCTGGCATA	hsa-miR-31-5p
P21	CAGCATTGTACAGGGCTATCA	hsa-miR-107
P22	TGTCCTCCAGGAGCTCAC	hsa-miR-339-5p
P23	CCAAAACTGCAGTTACTTTTGC	hsa-miR-548o-3p
P24	GTGCAAATCCATGCAAAACTG	hsa-miR-19b-3p
P25	TGAAGCGCCTGTGCTCTG	hsa-miR-7706
P26	CCTCCCACACCCAAGGCTTGCA	hsa-miR-532-3p
P27	TAACAGCAACTCCATGTGGA	hsa-miR-194-5p
P28	GCACCTGGGCAAGGATTCA	hsa-miR-502-3p
P29	CCGGCCTAATTTTATGTATAAGC	hsa-miR-590-3p
P30	CGGAGACTTGGGCAATTG	hsa-miR-25-5p
P31	AAACGTGAGGCGCTGCTAT	hsa-miR-424-3p
P32	AAGGAGCTCACAGTCTATTGAG	hsa-miR-28-5p
P33	AACGCTTCACGAATTTGCGT	U6

Table S7. Primers used for mRNAs real-time PCR

Primers	Nucleotide sequence (5'-3')	Amplified fragments
P1	AAGCATGTGTTGAACCTCTACC	HILPDA
P2	TGTGTTGGCTAGTTGGCTTCT	
P3	GGGTGTGGCGTGTTTGAATG	STC2
P4	TTTCCAGCGTTGTGCAGAAAA	
P5	ATGAAGCTGGTTTCCGTCG	ADM
P6	GACATCCGCAGTTCCCTCTT	
P7	TGCCTTGCTGCTCTACCT	VEGFA
P8	GACATCCATGAACTTCACCACTT	
P9	CTCCGGGTGGGTTTTTACGAC	SIK1
P10	CTGCGTTTTGGTGACTCGATG	
P11	TGTCCGTCAGAACCCATGC	CDKN1A
P12	AAAGTCGAAGTTCCATCGCTC	
P13	AAGCCCGAGTGCTCTGAGA	RARA
P14	TTCGTAGTGTATTTGCCCAGC	
P15	TCTGGCATTGAGTCTCTGCG	NFKBIE
P16	AGGAGCCATAGGTGGAATCAG	
P17	CTTTGACCCTGACTATGTTGGC	CSPG4
P18	TGCAGGCGTCCAGAGTAGA	
P19	GCCACAGATTCCCTGTACCTG	ITPRIP
P20	TCCCTGAACGGAACTTGATCTT	
P21	GTAGCAGCCGCAGTCATAA	ICAM1
P22	GCCTGTTGTAGTCTGTATTTCTTG	
P23	CCAACGTGACGGACTTCCC	LIF
P24	TACACGACTATGCGGTACAGC	
P25	TGGAGCCCGTATCCTGGAG	EFNB1
P26	TTGGGGTCGAGAACTGTGCTA	
P27	ATGCCCTGTATCCAAGCCC	NR4A1
P28	GTGTAGCCGTCCATGAAGGT	
P29	TGGGGCTTCCGTATCACAG	PDLIM2
P30	CTCTGGCGGATCTTGCTCT	
P31	GGCAGGGGCAGTTACAAAAC	TEX13B
P32	CTGTTCCTTGAGTTCCGTCAG	
P33	TGCCTCCTGCACCACCAACT	GAPDH
P34	CGCCTGCTTCACCACCTTC	