

Supplemental Online Content

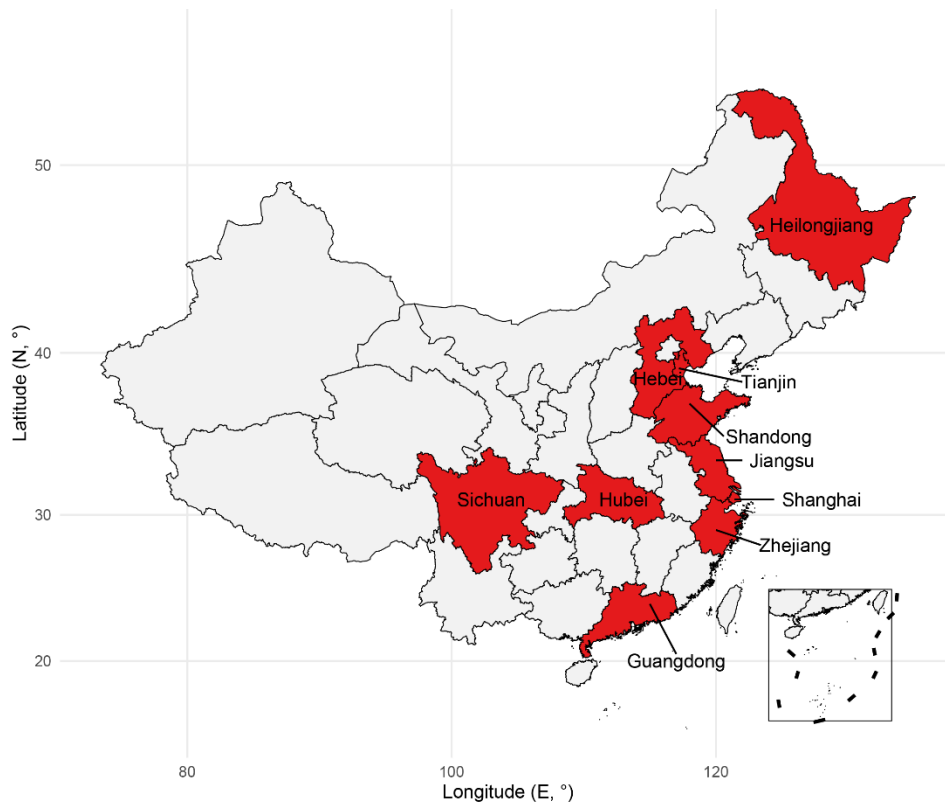


Figure S1 *K. pneumoniae* strains in this study were identified from 10 provinces/cities, which are highlighted with red.

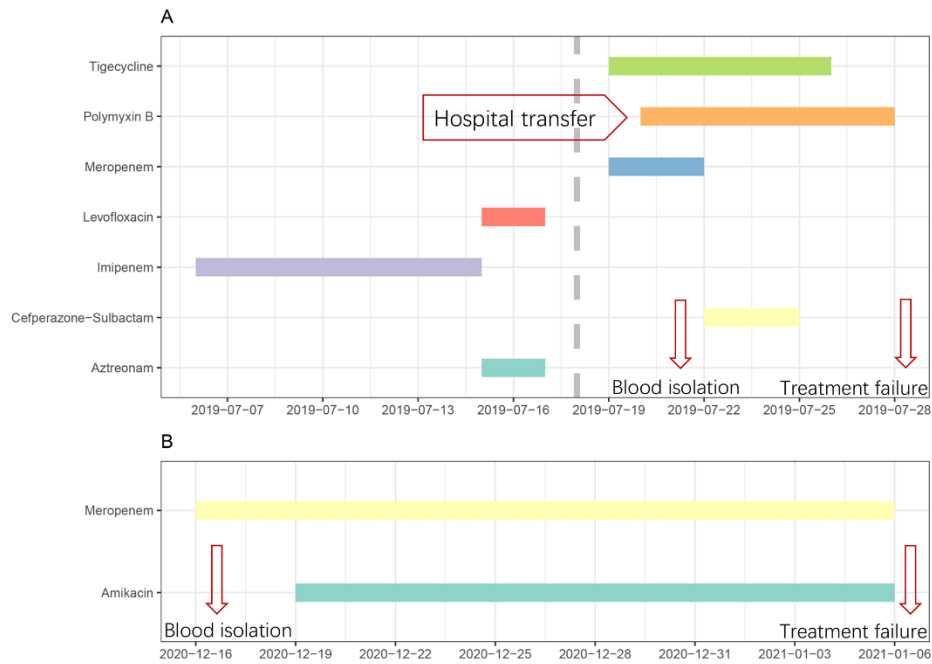


Figure S2 Antimicrobials treatment during hospitalization for patients infected by *K. pneumoniae* AR8416 and AR8538.

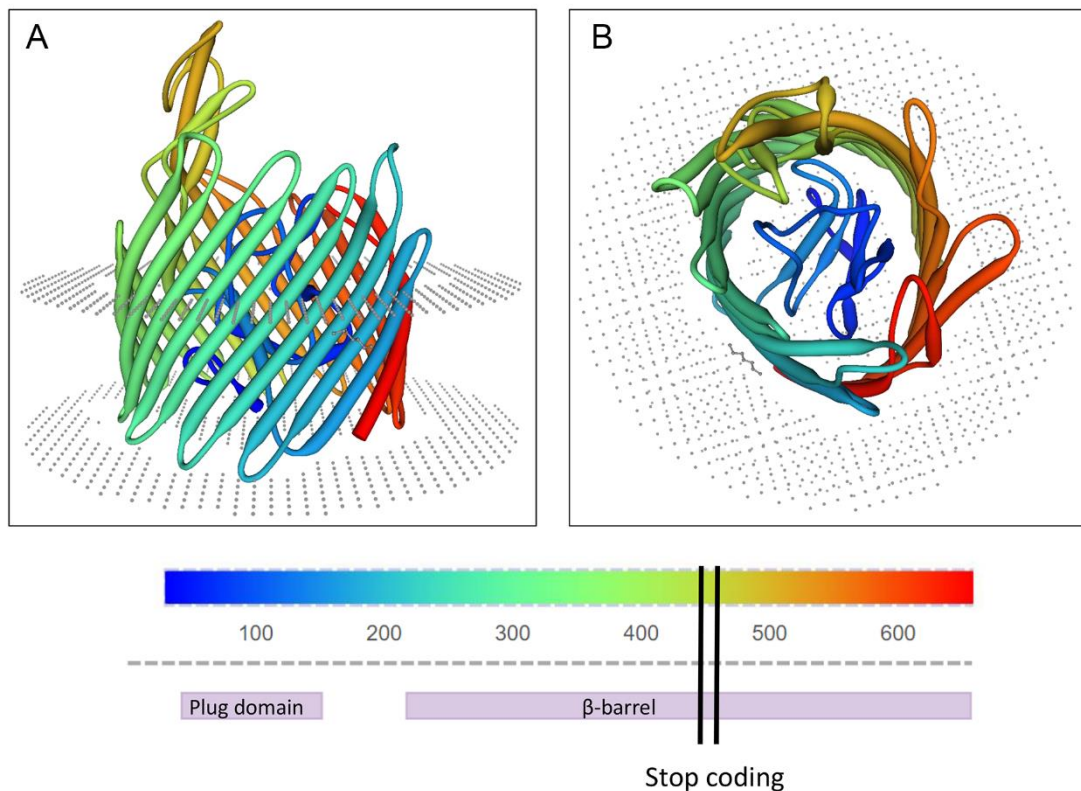


Figure S3 Structure of CirA and its deficiency. (A) side view (B) top (extracellular) view. The plug domain is indicated with blue and the rest was β -barrel. An early stop codon occurs at position 444 of CirA. The CirA structure was modeled by SWISS-MODEL (<https://swissmodel.expasy.org/>).

Table S1 Primers used in this study		
Primer name	Sequences (5'-3')	Usage
NDM5-full-F	TGGCTTTTGAAACTGTCGCA	Cloning
NDM5-full-R	GATGGCAGATTGGGGGTGAC	Cloning
NDM1-full-F	CATGGCATCGAGATCATCCA	Cloning
NDM1-full-R	ACCTCATGTTTGAATTCGCC	Cloning
KPC2-full-F	CAGTCGTCATAACACGCCGC	Cloning
KPC2-full-R	GCGGCCTGATTACATCCGGC	Cloning
IMP-4-full-F	CCGAGGAAAGATCCAATGGC	Cloning
IMP-4-full-R	CAGCAACGATGTTACGCAGC	Cloning
OXA-48-full-F	ATATCAATGATTTTCTGGTGC	Cloning
OXA-48-full-R	CTCAGGCTAAAAGTTAACGC	Cloning
OXA-232-full-F	AAATAATGTTACAATGTGTG	Cloning
OXA-232-full-R	CCATATATCTTTACAGCTTA	Cloning
cirA1-full-F	TCGTAGACAGGGTAAGGCGA	Mutation confirmation
cirA1-full-R	TATCGATCAGGGCGACAACG	Mutation confirmation

spacer-cirA-stop-F	<u>TAGTCGACGATGCTGCACGAGCCG</u>	Spacer for cirA mutation
spacer-cirA-stop-R	<u>AAACCGGCTCGTGCAGCATCGTCG</u>	Spacer for cirA mutation
donor-cirA-stop-F	GCTGGTTTCCGGTTTCAGATCCGGGTTACC GACGATGCTGCACGAGCGCGACAGGAGTT	Donar for cirA mutation
donor-cirA-stop-R	GGCGGCCAGTCAACGTC	Donar for cirA mutation
pCasKP-conf-F	GGGAAATACAGACCGCCACA	pCasKP confirmation
pCasKP-conf-R	TGAAGCTGATAGGGGAGCCT	pCasKP confirmation
pSGKP-conf-F	AGGATTTGCAGACTACGGGC	pSGKP confirmation
pSGKP-conf-R	TGTGTGGAATTGTGAGCGGA	pSGKP confirmation
AR8416-Plasmid2-F	CCGGCGAAGTTGTTAAGCTG	Curing confirmation
AR8416-Plasmid2-R	TTCATCGCTGAGAGGGCTTC	Curing confirmation
AR8416-plasmid3-F	AATTTCTCCAAAGCCC CGA	Curing confirmation
AR8416-plasmid3-R	GTCGGCATCGGCCTGATTAT	Curing confirmation
AR8416-plasmid4-F	GGACGACCATCGAGTTCTGG	Curing confirmation
AR8416-plasmid4-R	CACTACCTGAGTTCCGCGAC	Curing confirmation
M13-F	GTAAAACGACGGCCAG	Cloning confirmation
M13-R	CAGGAAACAGCTATGAC	Cloning confirmation
<i>BsaI</i> sites were indicated with underlines for spacer sequences.		

Isolates Name	Species	Cefiderocol MIC (mg/L)	Diagnosis	City
AR8214	<i>Klebsiella pneumoniae</i>	0.5	Acute T lymphoblastic leukemia	Harbin
AR8215	<i>Klebsiella quasipneumoniae</i>	2	Acute myelogenous leukemia (AML)	Harbin
AR8217	<i>Klebsiella pneumoniae</i>	0.25	Acute lymphoblastic leukemia	Harbin
AR8221	<i>Klebsiella pneumoniae</i>	0.5	Lymphoma	Harbin
AR8229	<i>Klebsiella pneumoniae</i>	2	Acute myelogenous leukemia	Wenzhou
AR8230	<i>Klebsiella pneumoniae</i>	0.06	Malignant B cell lymphoma	Wenzhou
AR8231	<i>Klebsiella pneumoniae</i>	0.25	Acute lymphoblastic leukemia	Wenzhou
AR8232	<i>Klebsiella pneumoniae</i>	0.06	Acute monocytic leukemia	Wenzhou
AR8234	<i>Klebsiella quasipneumoniae</i>	0.06	Acute lymphoblastic leukemia	Wenzhou

AR8235	<i>Klebsiella pneumoniae</i>	0.25	Acute myelogenous leukemia	Wenzhou
AR8236	<i>Klebsiella pneumoniae</i>	0.25	Acute myelogenous leukemia	Wenzhou
AR8237	<i>Klebsiella pneumoniae</i>	0.25	Diffuse large B cell lymphoma	Wenzhou
AR8287	<i>Klebsiella quasipneumoniae</i>	2	Acute leukemia	Jinan
AR8288	<i>Klebsiella pneumoniae</i>	2	Acute myelogenous leukemia	Jinan
AR8302	<i>Klebsiella pneumoniae</i>	2	Chronic myelogenous leukemia	Hangzhou
AR8303	<i>Klebsiella pneumoniae</i>	0.5	Acute lymphoblastic leukemia	Hangzhou
AR8304	<i>Klebsiella pneumoniae</i>	1	Acute monocytic leukemia	Hangzhou
AR8305	<i>Klebsiella pneumoniae</i>	0.25	Acute T lymphoblastic leukemia	Hangzhou
AR8308	<i>Klebsiella pneumoniae</i>	4	Acute monocytic leukemia	Hangzhou
AR8309	<i>Klebsiella variicola</i>	1	AML with maturation	Hangzhou
AR8310	<i>Klebsiella pneumoniae</i>	4	Non-Hodgkin lymphoma	Hangzhou
AR8313	<i>Klebsiella pneumoniae</i>	1	Acute mixed-lineage leukemia	Hangzhou
AR8314	<i>Klebsiella pneumoniae</i>	1	Acute lymphoblastic leukemia	Hangzhou
AR8315	<i>Klebsiella pneumoniae</i>	1	Acute lymphoblastic leukemia	Hangzhou
AR8319	<i>Klebsiella pneumoniae</i>	4	Chronic myelogenous leukemia	Hangzhou
AR8324	<i>Klebsiella pneumoniae</i>	2	Acute myelogenous leukemia	Hangzhou
AR8325	<i>Klebsiella pneumoniae</i>	4	Acute B lymphoblastic leukemia	Hangzhou
AR8331	<i>Klebsiella pneumoniae</i>	4	Diffuse large B cell lymphoma	Hangzhou
AR8334	<i>Klebsiella pneumoniae</i>	8	Acute myelogenous leukemia	Hangzhou
AR8335	<i>Klebsiella pneumoniae</i>	8	Acute myelogenous leukemia	Hangzhou
AR8336	<i>Klebsiella pneumoniae</i>	4	Acute myelogenous leukemia	Hangzhou
AR8345	<i>Klebsiella pneumoniae</i>	0.5	Acute lymphoblastic leukemia	Hangzhou
AR8381	<i>Klebsiella pneumoniae</i>	1	AML with maturation	Hangzhou
AR8388	<i>Klebsiella pneumoniae</i>	2	Follicular lymphoma	Hangzhou
AR8393	<i>Klebsiella pneumoniae</i>	0.125	Acute monocytic leukemia	Shanghai
AR8394	<i>Klebsiella pneumoniae</i>	0.25	Follicular lymphoma	Shanghai
AR8396	<i>Klebsiella pneumoniae</i>	1	Acute lymphoblastic leukemia	Shanghai
AR8398	<i>Klebsiella pneumoniae</i>	0.5	Multiple myeloma	Shanghai
AR8399	<i>Klebsiella pneumoniae</i>	0.25	Acute B lymphoblastic leukemia	Shanghai
AR8403	<i>Klebsiella pneumoniae</i>	2	Acute myelogenous leukemia	Shanghai
AR8406	<i>Klebsiella pneumoniae</i>	0.5	Acute lymphoblastic leukemia	Shanghai
AR8407	<i>Klebsiella pneumoniae</i>	0.25	Diffuse large B cell lymphoma	Shanghai
AR8408	<i>Klebsiella pneumoniae</i>	0.5	Diffuse large B cell lymphoma	Shanghai
AR8411	<i>Klebsiella pneumoniae</i>	0.25	Acute lymphoblastic leukemia	Shanghai
AR8412	<i>Klebsiella pneumoniae</i>	1	Burkitt lymphoma	Shanghai
AR8413	<i>Klebsiella pneumoniae</i>	0.5	Burkitt lymphoma	Shanghai
AR8414	<i>Klebsiella variicola</i>	0.25	NK cell lymphoma	Shanghai
AR8416	<i>Klebsiella pneumoniae</i>	>256	Acute lymphoblastic leukemia	Shanghai
AR8419	<i>Klebsiella pneumoniae</i>	0.06	Diffuse large B cell lymphoma	Shanghai
AR8423	<i>Klebsiella pneumoniae</i>	2	Diffuse large B cell lymphoma	Hangzhou
AR8424	<i>Klebsiella pneumoniae</i>	2	Diffuse large B cell lymphoma	Hangzhou

AR8447	<i>Klebsiella pneumoniae</i>	0.5	Acute mixed-lineage leukemia	Guangzhou
AR8452	<i>Klebsiella pneumoniae</i>	0.25	Multiple myeloma	Chengdu
AR8457	<i>Klebsiella pneumoniae</i>	0.125	Acute lymphoblastic leukemia	Chengdu
AR8458	<i>Klebsiella pneumoniae</i>	0.25	AML with maturation	Chengdu
AR8459	<i>Klebsiella pneumoniae</i>	0.25	Lymphoma	Chengdu
AR8471	<i>Klebsiella pneumoniae</i>	0.125	Acute monocytic leukemia	Chengdu
AR8476	<i>Klebsiella pneumoniae</i>	0.125	Acute T lymphoblastic leukemia	Shijiazhuang
AR8479	<i>Klebsiella pneumoniae</i>	0.5	Acute promyelocytic leukemia	Shijiazhuang
AR8480	<i>Klebsiella pneumoniae</i>	0.125	Acute lymphoblastic leukemia	Shijiazhuang
AR8481	<i>Klebsiella pneumoniae</i>	0.5	Acute myelogenous leukemia	Shijiazhuang
AR8484	<i>Klebsiella pneumoniae</i>	0.5	NK/T cell lymphoma	Shanghai
AR8487	<i>Klebsiella pneumoniae</i>	0.25	Acute myelogenous leukemia	Hangzhou
AR8488	<i>Klebsiella pneumoniae</i>	0.25	Acute lymphoblastic leukemia	Hangzhou
AR8489	<i>Klebsiella pneumoniae</i>	0.125	Acute myelogenous leukemia	Hangzhou
AR8490	<i>Klebsiella pneumoniae</i>	0.25	Non-Hodgkin lymphoma	Hangzhou
AR8498	<i>Klebsiella pneumoniae</i>	0.25	Acute T lymphoblastic leukemia	Shenyang
AR8499	<i>Klebsiella pneumoniae</i>	0.25	Chronic myelomonocytic leukemia	Shenyang
AR8500	<i>Klebsiella pneumoniae</i>	0.5	Acute lymphoblastic leukemia	Shenyang
AR8507	<i>Klebsiella pneumoniae</i>	2	AML with maturation	Hangzhou
AR8508	<i>Klebsiella pneumoniae</i>	0.5	Acute lymphoblastic leukemia	Hangzhou
AR8509	<i>Klebsiella pneumoniae</i>	4	AML with maturation	Hangzhou
AR8510	<i>Klebsiella pneumoniae</i>	2	Acute myelogenous leukemia	Hangzhou
AR8513	<i>Klebsiella pneumoniae</i>	1	Acute lymphoblastic leukemia	Hangzhou
AR8514	<i>Klebsiella pneumoniae</i>	1	Acute mixed-lineage leukemia	Hangzhou
AR8518	<i>Klebsiella pneumoniae</i>	2	Acute lymphoblastic leukemia	Hangzhou
AR8523	<i>Klebsiella pneumoniae</i>	1	Acute myelogenous leukemia	Hangzhou
AR8529	<i>Klebsiella pneumoniae</i>	2	Multiple myeloma	Suzhou
AR8530	<i>Klebsiella pneumoniae</i>	2	Angioimmunoblastic T cell lymphoma	Suzhou
AR8531	<i>Klebsiella pneumoniae</i>	2	Acute lymphoblastic leukemia	Suzhou
AR8532	<i>Klebsiella pneumoniae</i>	1	Acute leukemia	Suzhou
AR8533	<i>Klebsiella pneumoniae</i>	2	Acute myelogenous leukemia	Suzhou
AR8534	<i>Klebsiella pneumoniae</i>	0.5	Acute leukemia	Suzhou
AR8535	<i>Klebsiella pneumoniae</i>	1	Acute lymphoblastic leukemia	Suzhou
AR8537	<i>Klebsiella pneumoniae</i>	0.5	Acute B lymphoblastic leukemia	Suzhou
AR8538	<i>Klebsiella quasipneumoniae</i>	32	Acute lymphoblastic leukemia	Suzhou

All the strains were identified as *K. pneumoniae* via matrix-assisted laser desorption/ionization mass spectrometry and then verified by Kleborate with genome data. All the strains belong to *K. pneumoniae* species complex ¹.

Reference

1. Wyres KL, Lam MMC, Holt KE. Population genomics of *Klebsiella pneumoniae*. *Nat Rev Microbiol* 2020.