|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table S5. all C. freundii genomes from China from public data on NCBI | | | | | | | | | | |
| Assembly | Location | Date | Isolation type | *bla*IMP | *bla*KPC | *bla*NDM | *bla*OXA | *bla*TEM | AMR genes | AMR genotypes |
| GCA\_001922445.1 | Guangdong | 2015-09 | environmental/other | 0 | 0 | 0 | 0 | 0 | 2 | *bla*CFE, *qnrB* |
| GCA\_009856695.1 | Guangdong | 2015 | environmental/other | 0 | 0 | 0 | 0 | 1 | 10 | *aac(3)-IId, aadA2, bla*CMY-2, *bla*TEM-1*, catA1, dfrA12, fosA3*  *, mph(A), qnrB9, sul1, tet(B)* |
| GCA\_021417265.1 | Guangdong | 2018-12 | clinical | 0 | 0 | 0 | 0 | 1 | 6 | *aadA2, bla*CMY*, bla*TEM-1*, dfrA12, qnrS1, sul1* |
| GCA\_002189125.1 | Guangdong | 2014 | environmental/other | 0 | 0 | 0 | 1 | 1 | 19 | *aac(3)-IVa, aac(6')-Ib-cr5, aac(6')-If, aadA1,*  *aadA2, ant(2'')-Ia, sul3, tet(A), sul1, sul2, qnrA1*  *aph(3')-Ia, aph(4)-Ia, arr-3, blaCMY-151,*  *bla*OXA-1*, bleO, catB3, cmlA1, dfrA12, floR, fosA7,*  *mcr-1.1, mcr-3.19, oqxA, oqxB,* |
| GCA\_021417245.1 | Guangdong | 2018-12 | clinical | 0 | 1 | 0 | 0 | 0 | 7 | *aadA2, bla*CMY*, bla*KPC-2*, dfrA12, dfrA1, qnrB4, sul1* |
| GCA\_023330605.1 | Guangdong | 2021-07 | NA | 0 | 0 | 1 | 0 | 0 | 3 | *bla*CMY*, bla*NDM-1*, ble* |
| GCA\_001306025.1 | Guangdong | 2014-08 | environmental/other | 0 | 0 | 0 | 0 | 1 | 14 | *aac(6')-Ib-cr5, aadA16, aph(3'')-Ib, aph(6)-Id, arr-3,*  *bla*CMY, *bla*TEM-1*, dfrA27, floR, qnrB6, sul1, sul2, tet(A)*  *, tet(D)* |
| GCA\_001411885.1 | Guangdong | 2014-08 | environmental/other | 0 | 0 | 0 | 0 | 1 | 14 | *aac(6')-Ib-cr5, aadA16, aph(3'')-Ib, aph(6)-Id, arr-3,*  *bla*CMY*, bla*TEM-1*, dfrA27, floR, qnrB6, sul1, sul2, tet(A),*  *tet(D)* |
| GCA\_017151445.1 | Guangdong | 2018-11 | NA | 0 | 0 | 1 | 0 | 1 | 20 | *aac(3)-IId, aac(6')-Ib-cr5, aadA16, aph(3'')-Ib,*  *aph(3')-Ia, aph(6)-Id, arr-3, bla*CMY-152*, mph(A),*  *bla*CTX-M-3*, bla*EC, *qnrS1, sul1, sul2, tet(A), floR,*  *bla*NDM-5*, bla*TEM-1*, ble, dfrA27* |
| GCA\_017151595.1 | Guangdong | 2019-02 | environmental/other | 0 | 0 | 1 | 0 | 1 | 26 | *aac(3)-IId, aac(6')-Ib3, aadA22, aadA2, aph(3')-Ia,*  *aph(3')-Ia, aph(6)-Id, arr-2, arr-3, blaCMY-35, sul3,*  *bla*CTX-M*, bla*LAP-2*, floR, lnu(F), mph(A), sul1, sul2, qnrB9*  *bla*NDM-5*, bla*TEM-1*, ble, dfrA12, dfrA14, qnrB91, tet(A)* |
| GCA\_013371705.1 | Guangdong | 2018-08 | clinical | 0 | 0 | 1 | 0 | 1 | 13 | *aac(3)-IId, aph(3'')-Ib, aph(6)-Id, bla*CMY-152*, tet(A)*  *bla*CTX-M-55*, bla*NDM-1*, bla*SHV-12*, bla*TEM*, ble, floR, fosA3, sul2,* |
| GCA\_009857035.1 | Guangdong | 2018-03 | clinical | 0 | 0 | 1 | 0 | 0 | 15 | *aac(3)-IId, aac(6')-Ib-cr5, aadA16, aph(3'')-Ib,*  *aph(6)-Id, arr-3, bla*CMY-78*, bla*NDM-1*, ble,*  *catB3, dfrA27, fosA7, mph(A), sul1, sul2* |
| GCA\_020683225.1 | Guangxi | 2020-10 | environmental/other | 0 | 0 | 0 | 0 | 0 | 9 | *aac(3)-IId, aadA2, bla*CMY*, bla*TEM-1*, dfrA12,*  *mph(A), qnrB6, sul1, sul2* |
| GCA\_019731005.1 | Heilongjiang | 2020-03 | clinical | 0 | 0 | 0 | 0 | 1 | 10 | *aph(3'')-Ib, aph(6)-Id, bla*CMY-72*, bla*LAP-2*,*  *bla*TEM-1*, catA2, dfrA14, qnrS1, sul2, tet(A)* |
| wang1hy | Henan | 2021-09 | clinical | 0 | 1 | 0 | 0 | 0 | 10 | DDDDJGJ454KK |
| wang9hy | Henan | 2021-09 | clinical | 1 | 1 | 1 | 1 | 1 | 20 | YYYUK455 |
| GCA\_022646275.1 | HongKong | 2018 | clinical | 0 | 0 | 0 | 0 | 0 | 2 | *bla*CMY-48, *tet(X4)* |
| GCA\_014218795.1 | HongKong | 2018 | clinical | 0 | 0 | 0 | 0 | 0 | 3 | *bla*CMY-48*, floR, tet(X4)* |
| GCA\_015894005.1 | HongKong | 2012-12 | clinical | 1 | 0 | 0 | 0 | 1 | 7 | *bla*CMY-86*, bla*IMP-4*, bla*LAP-2*, bla*TEM-1*, qnrB30,*  *qnrS1, tet(D)* |
| GCA\_015893905.1 | HongKong | 2012-05 | clinical | 0 | 0 | 1 | 0 | 1 | 21 | *aac(3)-IId, aadA2, aadA2, aph(3'')-Ib, aph(3')-I, ble,*  *aph(6)-Id, bla*CMY*, bla*DHA-1*, bla*NDM-1*, bla*SHV-12*, sul1, qnrB4,*  *bla*TEM-1*, catA2, dfrA12, dfrA12, dfrA19, mcr-9.1,*  *mph(A), qnrB13,* |
| GCA\_002738435.1 | Hubei | 2014 | clinical | 0 | 0 | 1 | 0 | 1 | 18 | *aac(3)-IId, aph(3'')-Ib, aph(6)-Id, armA, bla*CMY-152*,*  *bla*NDM-1*, bla*SFO-1*, bla*TEM-1*, bla*VEB-3*, ble, sul1, qnrS1,*  *dfrA12, dfrA14, fosA3, mph(A), mph(E), msr(E),* |
| GCA\_019795045.1 | Hunan | 2019-04 | clinical | 0 | 0 | 0 | 0 | 0 | 2 | *bla*CMY*, qnrB75* |
| GCA\_022585175.1 | Jiangsu | 2020 | environmental/other | 0 | 0 | 0 | 0 | 0 | 9 | *aph(3'')-Ib, aph(6)-Id, bla*CMY*, catA2, sul2, tet(A)*  *dfrA14, floR, qnrS1,* |
| GCA\_019660585.1 | Jiangsu | 2015 | clinical | 0 | 0 | 1 | 0 | 0 | 4 | *bla*CMY, *bla*NDM-1*, bla*SHV-12*, ble* |
| GCA\_015731115.1 | Jiangsu | 2019 | environmental/other | 0 | 0 | 0 | 0 | 1 | 13 | a*adA2, aph(3'')-Ib, aph(3')-Ia, aph(6)-Id, bla*CMY-48*,*  *bla*TEM-1*, dfrA12, floR, qnrS2, sul1, sul2, tet(D), tet(X4)* |
| GCA\_019659905.1 | Jiangsu | 2016 | clinical | 0 | 0 | 1 | 1 | 1 | 18 | *aac(6')-Ib-cr5, aadA5, aph(3')-Ia, arr-3, bla*CMY,  *bla*DHA-1*, bla*NDM-1*, bla*OXA-1*, bla*SHV-12*, sul1, tet(A)*  *blaTEM-1, ble, catB3, dfrA17, floR, mph(A), qnrB4,* |
| GCA\_023276795.1 | Jiangsu | 2020 | environmental/other | 0 | 0 | 0 | 0 | 1 | 19 | *aac(3)-IId, aac(6')-Ib-cr5, aadA16, aadA2, aph(3'')-Ib,*  *aph(6)-Id, arr-3, bla*CMY*, bla*SHV-12*, bla*TEM-1*, tet(X4)*  *dfrA27, floR, lnu(F), mph(A), qnrB6, sul1, sul2, tet(A),* |
| GCA\_019660345.1 | Jiangsu | 2016 | clinical | 0 | 0 | 1 | 0 | 1 | 17 | *aac(3)-IId, aadA1, aadA2, bla*CMY-48*, bla*DHA-1*, sul1, sul2*  *bla*NDM-1*, bla*SHV-12*, bla*TEM-1*, ble, catA2, dfrA12, sat2,*  *dfrA1, mph(A), qnrB4,* |
| GCA\_019660505.1 | Jiangsu | 2015 | clinical | 0 | 0 | 1 | 0 | 1 | 18 | *aac(3)-IId, aadA1, aadA2, bla*CMY-48*, bla*DHA-1*,*  *bla*NDM-1*, bla*SHV-12*, bla*TEM-1*, ble, catA2, dfrA12,*  *dfrA1, mph(A), qnrB4, sat2, sul1, sul2, tet(D)* |
| GCA\_019660945.1 | Jiangsu | 2014 | clinical | 0 | 0 | 1 | 0 | 1 | 18 | *aac(3)-IId, aadA1, aadA2, bla*CMY-48*, bla*DHA-1*,*  *bla*NDM-1*, bla*SHV-12, *bla*TEM-1*, ble, catA2, dfrA12,*  *dfrA1, mph(A), qnrB4, sat2, sul1, sul2, tet(D)* |
| GCA\_019660135.1 | Jiangsu | 2015 | clinical | 0 | 0 | 1 | 0 | 1 | 20 | *aac(3)-IId, aac(3)-IIg, aac(6')-IIc, aac(6')-Ib3, aadA1,*  *aph(3'')-Ib, aph(3')-Ia, aph(6)-Id, arr, bla*CMY-48*, sul1*  *bla*DHA-1*, bla*NDM-1*, bla*SHV-12*, bla*TEM-1*, ble, tet(D), sul2,*  *catA2, dfrA19, dfrA1, ere(A), mcr-9.1, qnrB4, sat2,* |
| GCA\_011077955.1 | Shandong | 2018 | environmental/other | 0 | 0 | 0 | 0 | 0 | 13 | *aac(6')-Ib-cr5, aadA16, aph(6)-Id, arr-3, qnrB6, sul1,*  *catA, dfrA27, floR, mph(A), oqxB, tet(A), vat* |
| GCA\_011077325.1 | Shandong | 2018 | environmental/other | 0 | 0 | 1 | 0 | 0 | 16 | *aac(6')-Ib-cr5, aadA16, aph(6)-Id, arr-3, tet(A), vat*  *bla, bla*NDM-5*, ble, catA, dfrA27, floR, qnrB6, sul1,*  *mph(A), oqxB,* |
| GCA\_001273815.1 | Sichuan | 2015-01 | environmental/other | 0 | 1 | 1 | 1 | 1 | 17 | *aac(6')-Ib-cr5, arr-3, bla*CMY-137*, bla*CMY-6*, qnrB10, sul1*  *bla*CTX-M-12*, bla*CTX-M-14*, bla*KPC-2*, bla*NDM-1*, mph(A), fosA3,*  *bla*OXA-1*, bla*SHV-12*, bla*TEM*, ble, catB3,* |
| GCA\_022343635.1 | Sichuan | 2019-02 | environmental/other | 0 | 0 | 0 | 0 | 0 | 1 | *bla*CMY-48 |
| GCA\_022430505.1 | Sichuan | 2019-08 | environmental/other | 0 | 1 | 1 | 1 | 1 | 19 | *aac(3)-IId, aac(6')-Ib-cr5, aadA2, arr-3, bla*CMY*,*  *bla*CTX-M-14*, bla*KPC-2*, bla*NDM-1*, bla*OXA-1*, sul2, tet(D), qnrA1,*  *bla*SHV-12*, bla*TEM-1*, ble, catB3, dfrA12, mph(A), sul1,* |
| GCA\_016076075.2 | Taiwan | 2015 | environmental/other | 1 | 0 | 0 | 1 | 1 | 25 | *aac(3)-IId, aac(6')-Ib4, aac(6')-Ib, aadA2, ampC*  *, armA, bla*CMY-48*, bla*CMY*, bla*CTX-M-3*, bla*GES-5*, sul2, tet(D)*  *bla*IMP-8*, bla*OXA-1*, bla*SHV-12*, bla*TEM-1*, catA2, catB3, dfrA12,*  *dfrA1, mph(A), mph(E), msr(E), qnrB2, sul1, sat2,* |
| GCA\_020639355.1 | Zhejiang | 2020-01 | clinical | 0 | 0 | 1 | 1 | 1 | 19 | *aac(3)-IId, aac(6')-Ib-cr5, aadA1, arr-3, bla*CMY-48*, sat2,*  *bla*DHA-1*, bla*NDM-5*, bla*OXA-1*, bla*TEM-1*, ble, tet(D), sul2, sul1,*  *catA2, catB3, dfrA1, mph(A), qnrB4,* |
| GCA\_020809005.1 | Zhejiang | 2020-01 | clinical | 0 | 0 | 1 | 1 | 1 | 19 | *aac(3)-IId, aac(6')-Ib-cr5, aadA1, arr-3, bla*CMY-48,  *bla*DHA-1*, bla*NDM-5*, bla*OXA-1*, bla*TEM-1*, ble, tet(D), sul1, sul2,*  *catA2, catB3, dfrA1, mph(A), qnrB4, sat2,* |
| GCA\_004103775.1 | Zhejiang | 2017 | environmental/other | 0 | 0 | 0 | 0 | 1 | 12 | *aac(3)-IId, aadA2, bla*CMY*, bla*DHA-1*, bla*TEM-1*, sul2, tet(D)*  *catA2, dfrA12, mph(A), qnrB4, sul1,* |
| GCA\_002252065.1 | Zhejiang | 2016-01 | environmental/other | 0 | 1 | 0 | 0 | 0 | 5 | *bla*CMY*, bla*KPC-2, *tmexC2, tmexD2, toprJ2* |
| GCA\_002252125.1 | Zhejiang | 2016-01 | environmental/other | 0 | 1 | 0 | 1 | 0 | 19 | aac(6')-Ib-cr5, aadA5, armA, arr-3, blaCMY,  *bla*CTX-M-14*, bla*KPC-2*, bla*OXA-1*, bla*TEM-1*,*  *catB3, dfrA17, fosA3, mph(A), mph(E), msr(E), qnrB32,*  *tmexC2, tmexD2, toprJ2* |
| GCA\_002252025.1 | Zhejiang | 2016-01 | environmental/other | 0 | 1 | 0 | 1 | 1 | 20 | *aac(6')-Ib-cr5, aadA5, armA, arr-3, bla*CMY*, tmexC2,*  *bla*CTX-M-14*, bla*KPC-2*, bla*OXA-1*, bla*TEM-1*, tmexD2, toprJ2*  *catB3, dfrA17, fosA3, mph(A), mph(E), msr(E), qnrB32,*  *sul1,* |
| GCA\_002215385.1 | Zhejiang | 2015-01 | environmental/other | 0 | 1 | 0 | 0 | 0 | 5 | *bla*CMY*, bla*KPC-2*, tmexC2, tmexD2, toprJ2* |
| Citrobacter\_braakii |  |  | GCF\_009648935 |  |  |  |  |  |  |  |
| Citrobacter europaeus |  |  | GCF\_003795375 |  |  |  |  |  |  |  |
| Citrobacter portucalensis |  |  | GCF\_008693605 |  |  |  |  |  |  |  |
| Citrobacter freundii |  |  | GCF\_003812345 |  |  |  |  |  |  |  |
| Citrobacter\_sedlakii |  |  | GCF\_018128425 |  |  |  |  |  |  |  |
| Citrobacter\_gillenii |  |  | GCF\_003429605 |  |  |  |  |  |  |  |
| Citrobacter\_murliniae |  |  | GCF\_004801125 |  |  |  |  |  |  |  |
| Citrobacter\_cronae |  |  | GCF\_016893685 |  |  |  |  |  |  |  |
| Citrobacter\_werkmanii |  |  | GCF\_008693645 |  |  |  |  |  |  |  |
| Citrobacter\_pasteurii |  |  | GCF\_019047765 |  |  |  |  |  |  |  |
| Citrobacter\_koseri |  |  | GCF\_000018045 |  |  |  |  |  |  |  |
| Citrobacter\_amalonaticus |  |  | GCF\_001558935 |  |  |  |  |  |  |  |
| Citrobacter\_rodentium |  |  | GCF\_021278985 |  |  |  |  |  |  |  |
| Citrobacter\_farmeri |  |  | GCF\_003938205 |  |  |  |  |  |  |  |
| Citrobacter\_youngae |  |  | GCF\_900638065 |  |  |  |  |  |  |  |
| Citrobacter\_telavivensis |  |  | GCF\_009295665 |  |  |  |  |  |  |  |