Supplementary materials

Tracking microevolution events among ST11 carbapenemase-producing hypervirulent Klebsiella pneumoniae outbreak strains

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Supplementary table 1. Genome statistics of the ST11 CR-hvKP \textit{K. pneumoniae} strains.

|                         | \textit{K. pneumoniae 5} | \textit{K. pneumoniae 4} | \textit{K. pneumoniae 1} |
|-------------------------|--------------------------|--------------------------|--------------------------|
| Chromosome Size (bp)    | 5,408,302                | 5,388,721                | 5,390,059                |
| G+C content (%)         | 57.4                     | 57.4                     | 57.4                     |
| Number of CDS           | 5207                     | 5205                     | 5197                     |
| number of rRNA          | 25                       | 24                       | 24                       |
| number of tRNA          | 76                       | 82                       | 73                       |
| Prophages               | 9                        | 9                        | 8                        |
| number of ICE           | 2                        | 2                        | 2                        |
| number of IS            | 44                       | 44                       | 43                       |
| ISPlu15                 | 6                        | 6                        | 6                        |
| IS407                   | 2                        | 2                        | 2                        |
| IS903                   | 1                        | 1                        | 1                        |
| IS5                     | 14                       | 15                       | 12                       |
| IS3                     | 2                        | 1                        | 1                        |
| IS6                     | 2                        | 2                        | 3                        |
| IS1                     | 3                        | 3                        | 3                        |
| IS481                   | 4                        | 4                        | 3                        |
| IS150                   | 5                        | 5                        | 5                        |
| IS1182                  | 1                        | 1                        | 1                        |
| IS1380                  | 2                        | 2                        | 4                        |
| IS1111                  | 2                        | 2                        | 2                        |
| chromosome-borne        | aadA2, sul1, blashV-11   | aadA2, sul1, blashV-11   | aadA2, sul1, blashV-11   |
| antimicrobial resistance genes |                       |                           |                           |
| number of plasmids      | 5                        | 5                        | 5                        |

ICE, integrative and conjugative elements; IS, insertion sequence.
**Supplementary table 2. Information of plasmids in the ST11 CR-hvKP isolates.**

|                      | Length (bp) | G+C (%) | Number of CDS identified with RAST |
|----------------------|-------------|---------|-----------------------------------|
|                      | CR-HvKP5    | CR-HvKP4| CR-HvKP1                          | CR-HvKP5| CR-HvKP4| CR-HvKP1| CR-HvKP5| CR-HvKP4| CR-HvKP1|
| pVir-CR-HvKP*        | 177,694     | 178,154 | 177,790                           | 50.5    | 50.5    | 50.5    | 180      | 179      | 180      |
| pKPC-CR-HvKP*        | 177,587     | 177,585 | 177,591                           | 53.1    | 53.1    | 53.1    | 219      | 218      | 216      |
| p3-CR-HvKP*          | 99,717      | 99,722  | 99,717                            | 49.8    | 49.8    | 49.8    | 104      | 105      | 107      |
| p4-CR-HvKP*          | 11,970      | 11,970  | 11,970                            | 55.6    | 55.6    | 55.6    | 13       | 13       | 13       |
| p5-CR-HvKP*          | 5,596       | 5,596   | 5,596                             | 51.1    | 51.1    | 51.1    | 9        | 9        | 9        |
Supplementary figure S1. Comparison between virulence plasmids pVir-CR-HvKP4 (GenBank accession: MF437313) and pLVPK (GenBank accession: AY378100) in *K. pneumoniae*. Green arrows indicate the predicted genes in the plasmids. Regions of divergences (RD) were labeled with blue square brackets.
Supplementary Figure S2. Alignment of \textit{bla}_{KPC-2} bearing plasmids pKPC-CR-HvKP4 (GenBank accession: MF437312) and pKPGD4 (CP025952) in \textit{K. pneumoniae}. The plasmid sequence of pKPC-CR-HvKP4 was used as the reference (outermost circle). Antimicrobial resistance genes and the 11.4 Kb region of divergence were labelled in the figure.