

Bordetella hinzii Pneumonia in Patient with SARS-CoV-2 Infection

Appendix

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BOR-1 MNRRTFGAGMLAALGAACMPFPWARAGVRRRAARFADAAAQQRQLALLEQRHGARLGVQVQ 60
PBL-1 MDRRTFGAGVLAWLGASAAGLPALAGVDRSLS--AAGDDAQQRQLARLEAREGGRLGVSL 58
HBL-1 MDRRTFGAGVLAWLGASAAGLPALAGVDRSLP--AASDDAQQRQLARLEAREGGRLGVSL 58
HBL-2 MDRRTFGAGVLAWLGASAAGLPALAGVDRSLP--AASDDAQQRQLARLEAREGGRLGVSL 58
HBL-3 MDRRTFGAGVLAWLGASAAGLPALAGVDRSLP--AASDDAQQRQLARLEAREGGRLGVSL 58
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BOR-1 DRDSGGAFSHRADERFPLCSTFKLLAAA□AVLARADRGDDSLARLIRYGATDIVAYSFVTG 120
PBL-1 DVQSGYAIAYRADERFALCSTFKLLAVGAVLTRVARGEDDLSRPMRLSAADIVTYSFVTQ 118
HBL-1 DVQSGYAIAYRADERFALCSTFKLLAVGAVLTRVARGEDDLSRPMRLSAADIVDYSPVTQ 118
HBL-2 DVQSGYAIAYRADERFALCSTFKLLAVGAVLTRVARGEDDLSRPMRLSAADIVDYSPVTQ 118
HBL-3 DVQSGYAIAYRADERFALCSTFKLLAVGAVLTRVARGEDDLSRPMRLSAADIVDYSPVTQ 118
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    S70 K73

BOR-1 PRQAEGMTLEQLCEAAVTRSDNTAGNLL□LSTIGGPPGLTAYARGLGDRVTRLDRIETALN 180
PBL-1 QRLNEGMTLGQCEAALLWGDNTAANLL□LSTIGGPPGLTAYARALGDGVTRLDRLETALN 178
HBL-1 QRLNEGMTLGQCEAALLWGDNTAANLL□LSTIGGPPGVTAAYARALGDGATRLDRLETALN 178
HBL-2 QRLNEGMTLGQCEAALLWGDNTAANLL□LSTIGGPPGVTAAYARALGDGATRLDRLETALN 178
HBL-3 QRLNEGMTLGQCEAALLWGDNTAANLL□LSTIGGPPGVTAAYARALGDGATRLDRLETALN 178
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    S130 N136 R164 E166

BOR-1 EARPGDPRD□TTTTPAAMAGNLRLLLGDALQPASRQRLADWLLASRTGDTRLRAGLPAGWR 240
PBL-1 EARPGDERD□TTTTPAAMGNL□RLQVLG□DVLPAPERERLRDWMQCR□TGRERLRAGLPAAWA 238
HBL-1 EARPGDERD□TTTTPAAMGNL□RLQVLG□DALPAPERERLRDWMQCR□TGQQLRAGLPAGWS 238
HBL-2 EARPGDERD□TTTTPAAMGNL□RLQVLG□DALPAPERERLRDWMQCR□TGQQLRAGLPASWS 238
HBL-3 EARPGDERD□TTTTPAAMGNL□RLQVLG□DALPAPERERLRDWMQCR□TGQQLRAGLPAGWS 238
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    D179

BOR-1 IGDKTGAGGNGTNDVGV□IWRDGPVLTITAYLTQSSASRETQNAVLAEVGRIAAHAVA 300
PBL-1 LAHRSGAGGGHSCNDIGVAWPAAPVLI□SAYLTESPLDLPGRE□RVLA□EAARILAHALVS 298
HBL-1 L□GHRTGAGGGH□GCNDIGVAWPTPT□PPV□ISVYL□TESPLDLPGRE□RVLA□EAARILAHALAS 298
HBL-2 L□GHRTGAGGGH□GCNDIGVAWPTPT□PPV□ISVYL□TESPLDLPGRE□RVLA□EAARILAHALAS 298
HBL-3 L□GHRTGAGGGH□GCNDIGVAWPTPT□PPV□ISVYL□TESPLDL□PER□RVLA□EAARILAHALAS 298
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    R/K234

BOR-1 WRLGG- 305
PBL-1 ARLHAG 304
HBL-1 ARLHAG 304
HBL-2 ARLHAG 304
HBL-3 ARLHAG 304
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Appendix Figure. Sequence alignment of β -lactamases BOR-1 from *Bordetella parapertussis* (WP_033463656 [1]); PBL-1 (*Pseudohinzii Bordetella* Lactamase) from *B. pseudohinzii* (WP_068945286), HBL-1 from *B. hinzii* CHAR-1 (this study, accession number pending and WP_080700357.1), HBL-2 from *B. hinzii* (WP_142176586.1), and HBL-3 from *B. hinzii* (WP_029580329.1). Conserved boxes in class A β -lactamases are indicated by black boxes, residues involved in hydrolysis or substrate stabilization in the active site are highlighted in gray, and the Omega loop is underlined (2). Amino acid differences among *B. hinzii* β -lactamases are indicated in bold. S130G substitution has been shown to be involved in inhibitor resistance (3).

References

1. Lartigue MF, Poirel L, Fortineau N, Nordmann P. Chromosome-borne class A BOR-1 beta-Lactamase of *Bordetella bronchiseptica* and *Bordetella parapertussis*. *Antimicrob Agents Chemother.* 2005;49:2565–7. [PubMed https://doi.org/10.1128/AAC.49.6.2565-2567.2005](https://doi.org/10.1128/AAC.49.6.2565-2567.2005)
2. Verma D, Jacobs DJ, Livesay DR. Variations within class-A β -lactamase physiochemical properties reflect evolutionary and environmental patterns, but not antibiotic specificity. *PLOS Comput Biol.* 2013;9:e1003155. [PubMed https://doi.org/10.1371/journal.pcbi.1003155](https://doi.org/10.1371/journal.pcbi.1003155)
3. Cantón R, Morosini MI, de la Maza OM, de la Pedrosa EG, De la Pedrosa EG. IRT and CMT beta-lactamases and inhibitor resistance. *Clin Microbiol Infect.* 2008;14(Suppl 1):53–62. [PubMed https://doi.org/10.1111/j.1469-0691.2007.01849.x](https://doi.org/10.1111/j.1469-0691.2007.01849.x)