



Draft Genome Assembly of *Ralstonia pickettii* Type Strain K-288 (ATCC 27853)

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We present the genome assembly of *Ralstonia pickettii* K-288 (ATCC 27511), consisting of 27 contigs placed into a single scaffold. This 4.76-Mbp genome has 64.0% G+C content and 4,425 coding sequences. Because this is the type strain, inclusion of its data set among other *Ralstonia* genomes should provide a historical genomic perspective.

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Ralstonia pickettii is a Gram-negative rod-shaped member of the β-proteobacteria commonly found in moist environments and is an increasing cause of nosocomial human infection (1, 2). R. pickettii K-288 (ATCC 27511) is the type strain of the genus, originally isolated from a tracheotomy patient. As of this writing, only six genome assemblies of R. pickettii (3 complete and 3 draft) are available in the public database and none for this type strain, which was originally described in 1973 (3).

High-quality genomic DNA was extracted from a 100-mL bacterial culture of a purified isolate using the QIAgen Genomic Tip-500 at the USAMRIID Diagnostic Systems Division (DSD). Draft sequence data included a 100-bp Illumina library (279-fold genome coverage) and a separate long-insert paired-end library $(9,590-\pm 2,397$ -bp insert, 42-fold genome coverage) (Roche 454 Titanium platform). The two data sets were assembled together in Newbler (Roche, version 2.6) and the consensus sequences were computationally shredded into 2-kbp overlapping fake reads (shreds). The raw reads were also assembled in Velvet (version 1.1.05), and those consensus sequences were computationally shredded into 1.5-kbp overlapping shreds (4). All draft data were then assembled together in Allpaths (version 39750), and the consensus sequences were computationally shredded into 10-kbp overlapping shreds (5). We then integrated the Newbler consensus shreds, Velvet consensus shreds, Allpaths consensus shreds, and a subset of the long-insert read pairs using parallel Phrap version SPS-4.24 (High Performance Software, LLC). Possible misassemblies were corrected, and some gap closure was accomplished with manual editing in Consed (6–8).

Automatic annotation of the *R. pickettii* K-288 genome utilized an Ergatis-based workflow at LANL with minor manual curation.

The final annotated assembly includes 4,425 coding sequences, 5 rRNAs, and 49 tRNAs in the 4,762,999-bp genome.

Nucleotide sequence accession number. This genome is available in NCBI under the accession number JOVL000000000.

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REFERENCES

- 1. Ryan MP, Pembroke JT, Adley CC. 2007. *Ralstonia pickettii* in environmental biotechnology: potential and applications. J. Appl. Microbiol. 103: 754–764. http://dx.doi.org/10.1111/j.1365-2672.2007.03361.x.
- Ryan MP, Pembroke JT, Adley CC. 2006. Ralstonia pickettii: a persistent Gram-negative nosocomial infectious organism. J. Hosp. Infect. 62: 278–284. http://dx.doi.org/10.1016/j.jhin.2005.08.015.
- Ralston E, Palleroni NJ, Doudoroff M. 1973. Pseudomonas pickettii, a new species of clinical origin related to Pseudomonas solanacearum. Int. J. Syst. Bacteriol. 23:15–19. http://dx.doi.org/10.1099/00207713-23-1-15.
- Zerbino DR, Birney E. 2008. Velvet: algorithms for *de novo* short read assembly using de Bruijn graphs. Genome Res. 18:821–829. http:// dx.doi.org/10.1101/gr.074492.107.
- Butler J, MacCallum I, Kleber M, Shlyakhter IA, Belmonte MK, Lander ES, Nusbaum C, Jaffe DB. 2008. ALLPATHS: *de novo* assembly of wholegenome shotgun microreads. Genome Res. 18:810–820. http://dx.doi.org/ 10.1101/gr.7337908.
- Ewing B, Hillier L, Wendl MC, Green P. 1998. Base-calling of automated sequencer traces using Phred. I. Accuracy assessment. Genome Res. 8:175–185. http://dx.doi.org/10.1101/gr.8.3.175.
- Ewing B, Green P. 1998. Base-calling of automated sequencer traces using Phred. II. Error probabilities. Genome Res. 8:186–194.
- Gordon D, Abajian C, Green P. 1998. Consed: a graphical tool for sequence finishing. Genome Res. 8:195–202. http://dx.doi.org/10.1101/gr.8.3.195.