

**Title: Supplementary Data 1:**

**Description: List of systems, rules and HMM profiles used in DefenseFinder and defense systems mechanisms**

**Title: Supplementary Data 2:**

**Description: References for systems, HMM profiles and protein accession numbers used to create HMM profiles.**

Systems: List of all systems with the reference paper. HMM: List of all HMM used in DefenseFinder with their name, their systems, their accession number (if not custom), and the GA cut used in DefenseFinder. Protein accession: a table with all the protein accession numbers used in this study, the associated HMM and system and the accession type. (IMG:

<https://img.jgi.doe.gov/> , NCBI <https://www.ncbi.nlm.nih.gov/protein> , Patric : <https://www.patricbrc.org/> and REBASE <http://rebase.neb.com/> ).

**Title: Supplementary Data 3:**

**Description: Protein Specificity and sensitivity of Doron's systems, DISARM and CBASS**

For more details see Methods and Supplementary Figures 1 and 2.

**Title: Supplementary Data 4:**

**Description: RefSeq accession**

21 738 genomes accession used in this study.

**Title: Supplementary Data 5:**

**Description: Antiviral systems detected**

List of all antiviral systems detected in 21 738 complete genomes. For each system, the table shows system ID (sys\_id), NCBI assembly accession (Assembly), replicon, name of the system (syst\_name), subsystem (syst\_name\_type), size of the genome in base pair, beginning and end of the system (start\_sys and end\_sys) and size of the system in base pair (Size\_system).

**Title: Supplementary Data 6:**

**Description: Genes involved in anti-phage systems**

List of all genes detected in the 21 738 complete genomes that are part of a defense system. Columns are the NCBI assembly accession (ID), gene ID (hit\_id), replicon, name of the protein (gene\_name), system name (sys\_id), the beginning and the end of gene in the genome, system name (syst\_name) and subsystem name (syst\_name\_type).

**Title: Supplementary Data 7:**

**Description: Anti-phage systems per genome**

**Title: Supplementary Data 8:**

**Description: Number of genus where each system was detected**

**Title: Supplementary Data 9:**

**Description: Number and proportion of genomes without system in all genera with more than 10 genomes.**

**Title: Supplementary Data 10:**

**Description: Detection of prophages**