

**PangenomeNet: A Pan-genome-based Network Reveals Functional Modules on Antimicrobial Resistome for *Escherichia coli* Strains**

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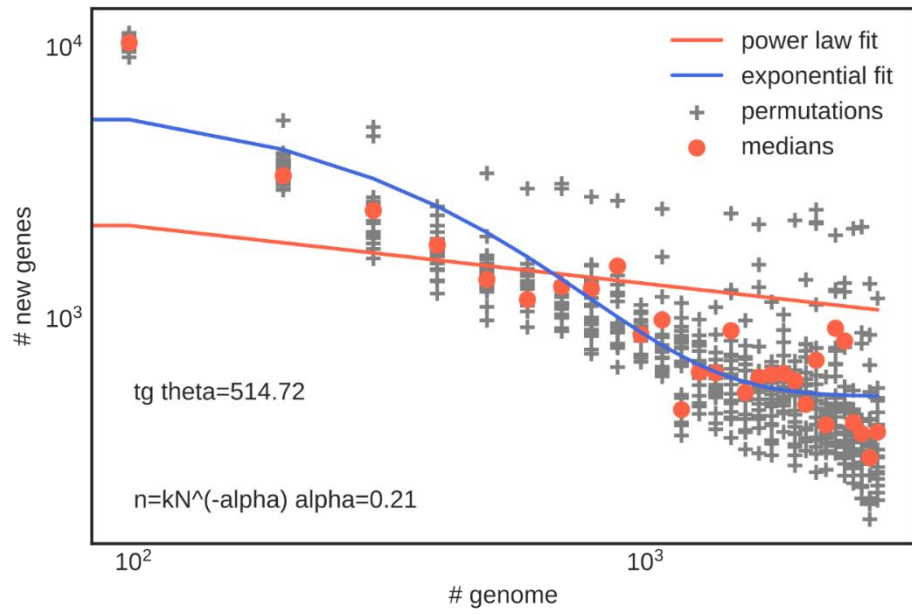
Supplementary Materials

Supplementary Figures S1-S8

Supplementary Table S1-S10

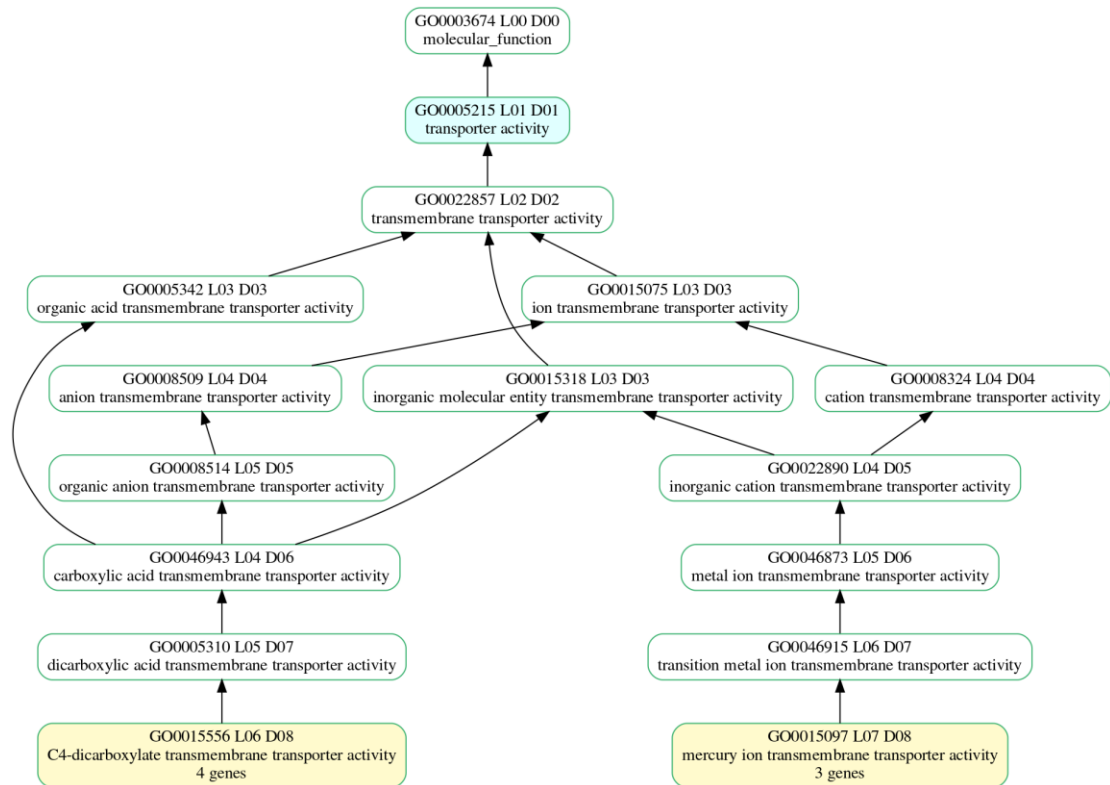
All resistome network is available on Ndex (Network data exchange):

<http://www.ndexbio.org/#/networkset/67b112d7-a23b-11eb-9e72-0ac135e8bacf?accesskey=954cbaa3fd709f9991a8e06248c939a5a391c7ad9cc72b675d5cefe3c175bfc1>

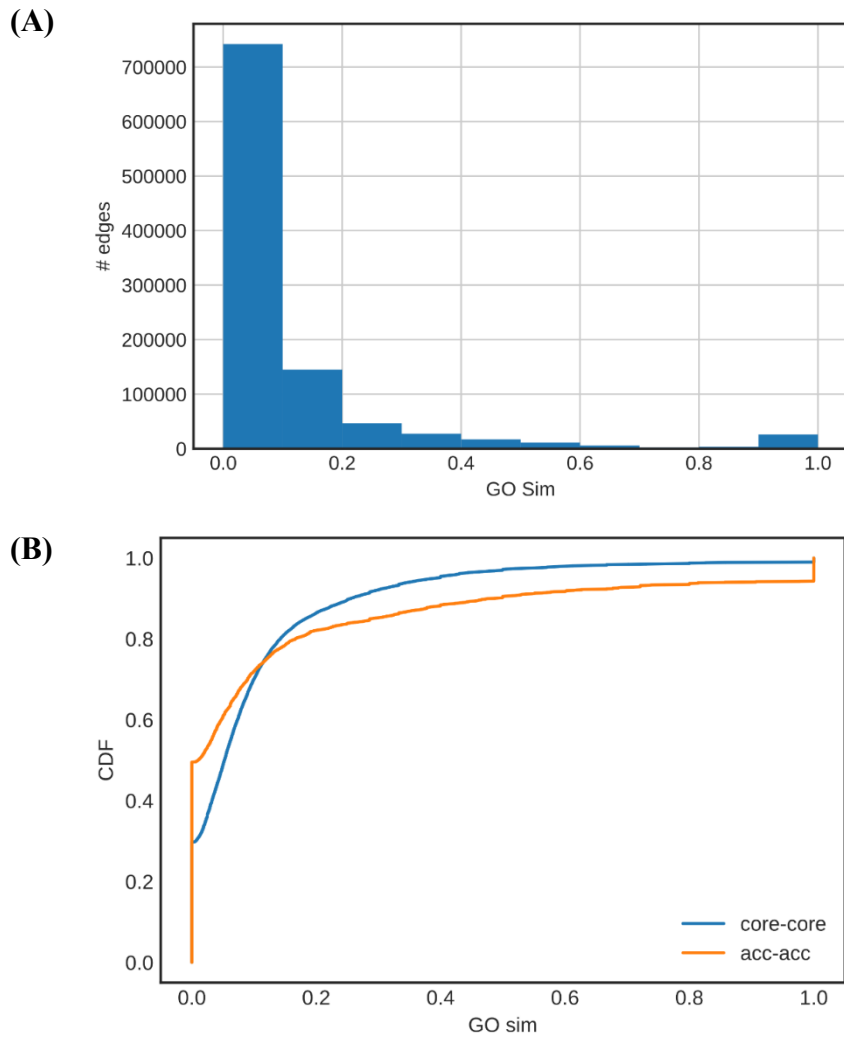


Supplementary Figure S1. Pan-genome growth curve fitting.

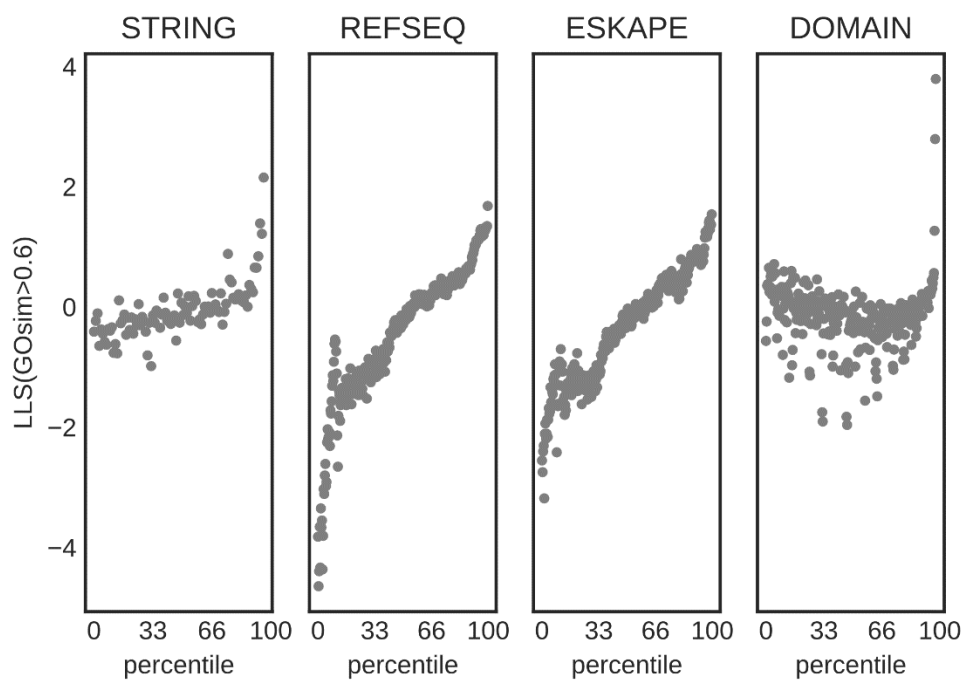




Supplementary Figure S3. GO enrichment analysis of meropenem resistance associated genes.

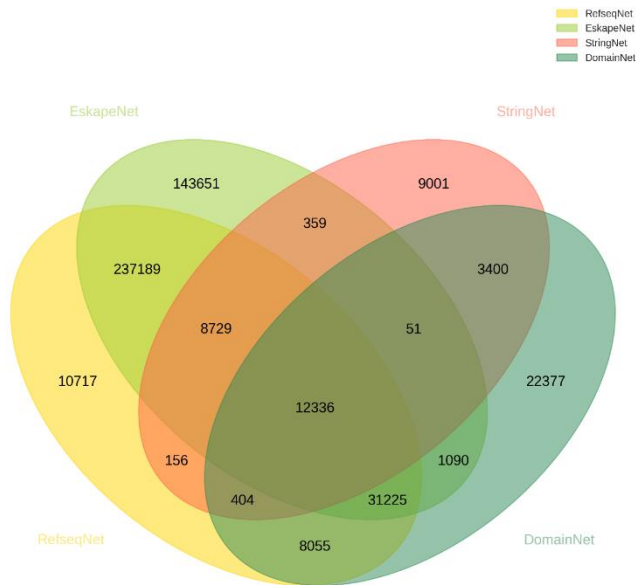


Supplementary Figure S4. GO term similarity score distribution of (A) all gene pairs; (B) cumulative distribution of core-core and accessory-accessory edges.

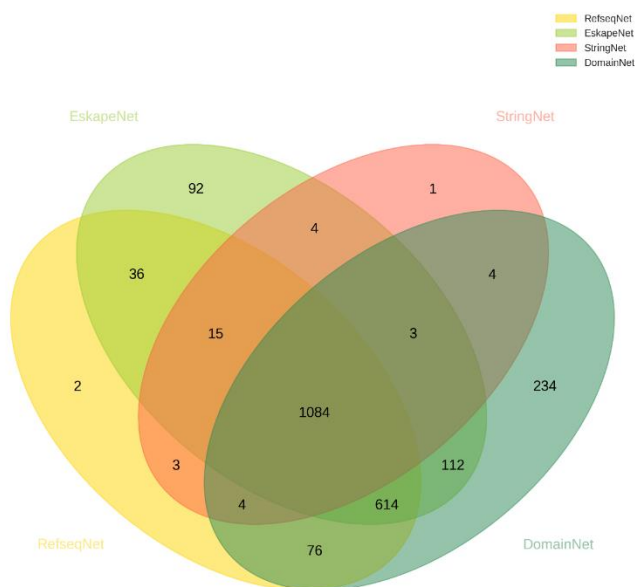


Supplementary Figure S5. The distribution of individual networks (including STRING, RefSeq, ESKAPE, and Domain-sharing networks) associated with log-likelihood scores (LLS; with GO term similarity > 0.6).

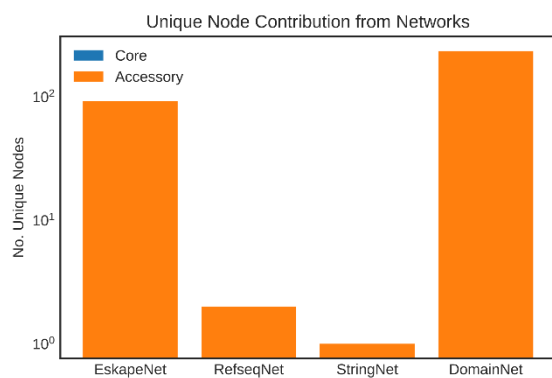
(A)



(B)



(C)



Supplementary Figure S6. (A) Edge and (B) node contribution of each network (C) Unique nodes are all accessory genes.

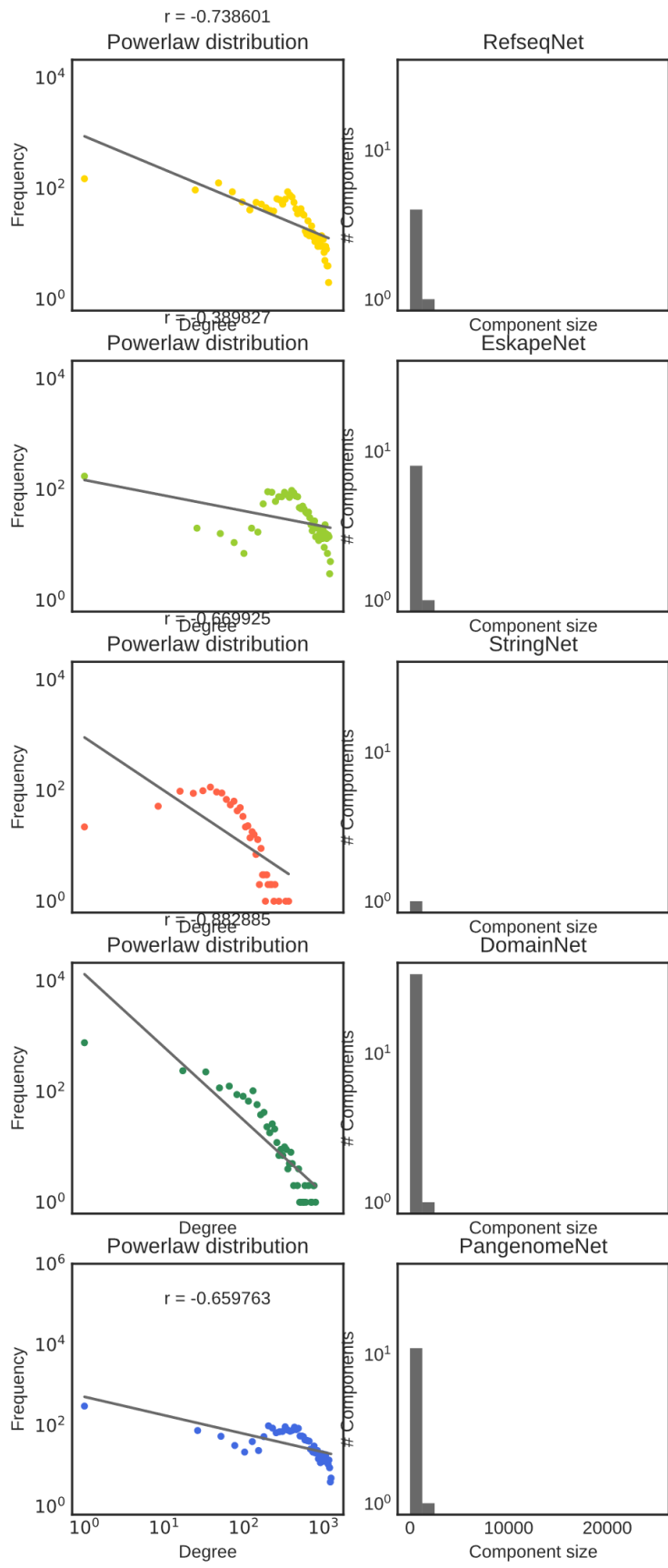


Figure S7 Power-law distributions and component sizes of all networks.



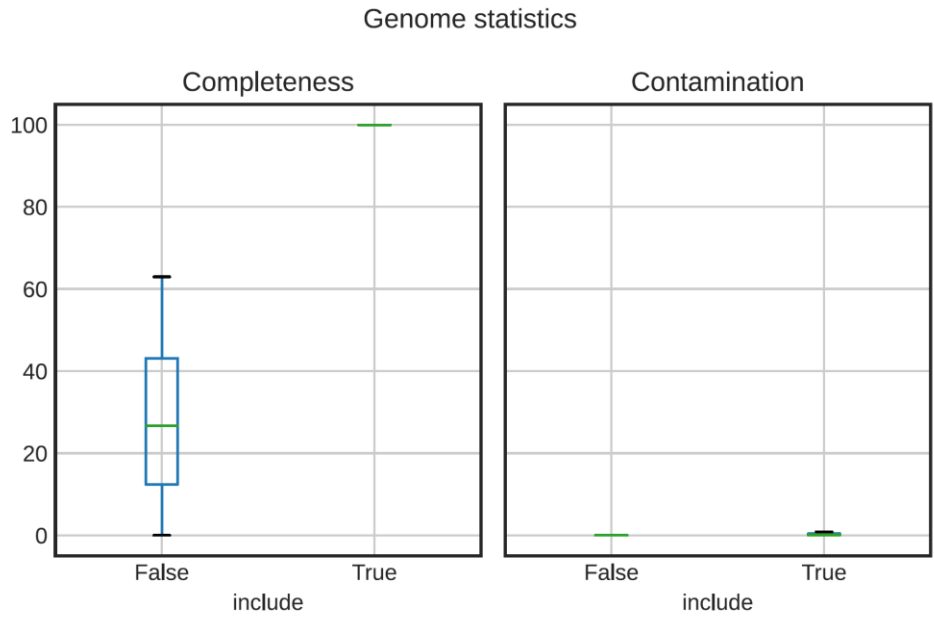


Figure S8 Genome statistics of the excluded and included genomes.

Supplementary Tables

**Table S1** Genome ID and statistics for *Escherichia coli* genome downloaded from PATRIC on February 2021

**Table S2** Gene cluster annotation of the pan-genome

**Table S3** Scoary-detected resistant gene annotation statistics

**Table S4** GO enrichment results for all Scoary-detected resistant genes

**Table S5** Resistant gene subnetwork scores. Node annotation are in Table S6

**Table S6** All resistant gene annotation.

**Table S7** Term enrichment result for the pan-resistome ontology

Table S8 Pan-genome GO term consistency under different amino acid cutoff

Table S9 Presence Absence pattern of all genes in the pan-genome across all *E.coli* species included in this paper.

File S10 FASTA file for representing gene of all pan-genome

All Tables are available in .csv/excel format on figshare

[https://figshare.com/articles/dataset/Supplementary\\_tables\\_for\\_PangenomeNet/14460252](https://figshare.com/articles/dataset/Supplementary_tables_for_PangenomeNet/14460252).