Antimicrobial Resistance Characterization in Metagenomes

NastyBugs → Bug_And_Drugs → Nasty_Metagenomes

FASTA (MAGs)

Prodigal (ORF)

AMR Hits
Contig context

BLAST
RefSeq
(Genomes,
Plasmids)

Visualization
- TAB
- PLOT (?)

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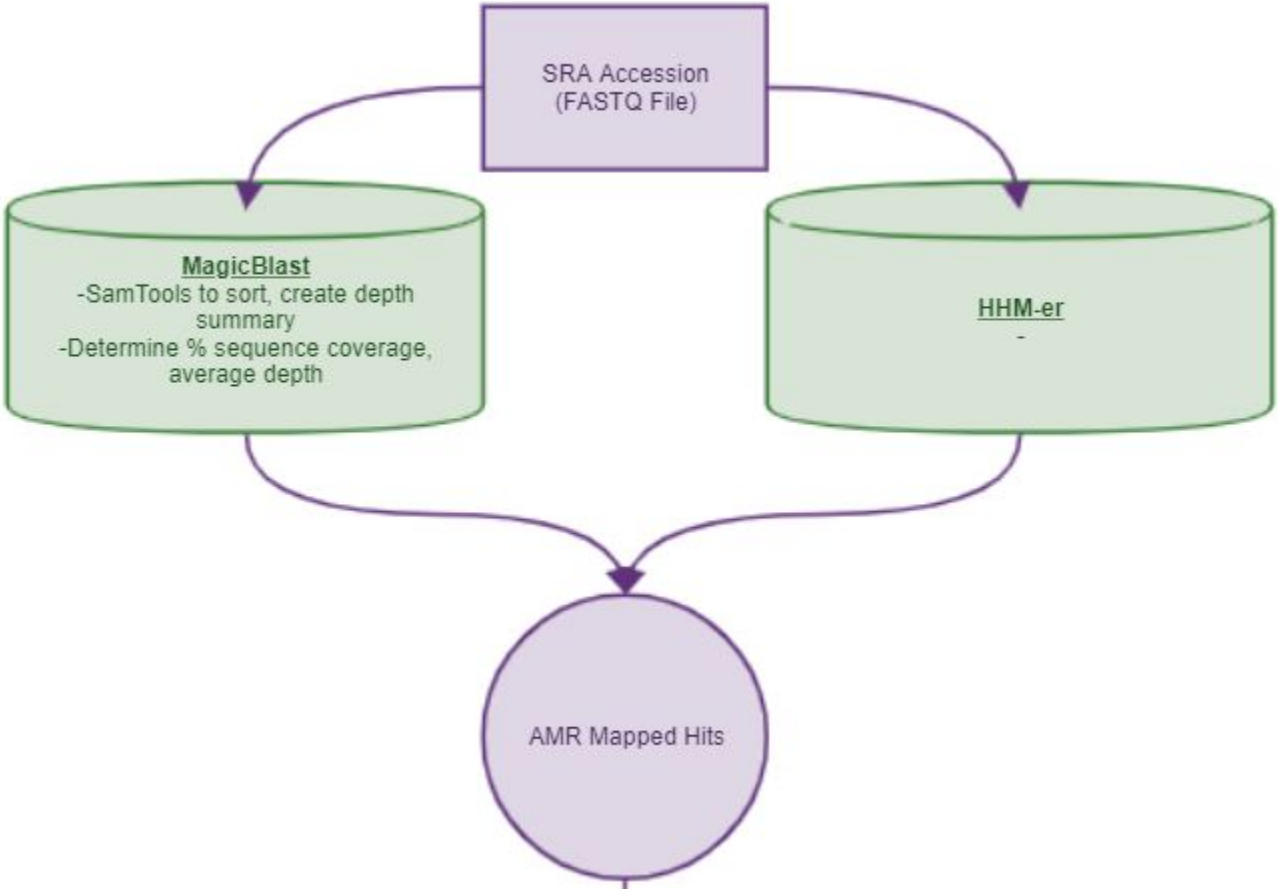
The goal:

- Comparison of MagicBlast to HMM-er
- Local assembly for AMR “hits”
- Species identification and plasmid detection

The tools:

- AMR Finder: includes CARD, resFinder, Lahey, Pasteur Institute Beta Lactamases, NIH
- Workflow: Nextflow
- Container: Docker

Workflow


SRA Accession
(FASTQ File)
MagicBlast
-SamTools to sort, create depth summary
-Determine % sequence coverage, average depth
HHM-er
-
AMR Mapped Hits

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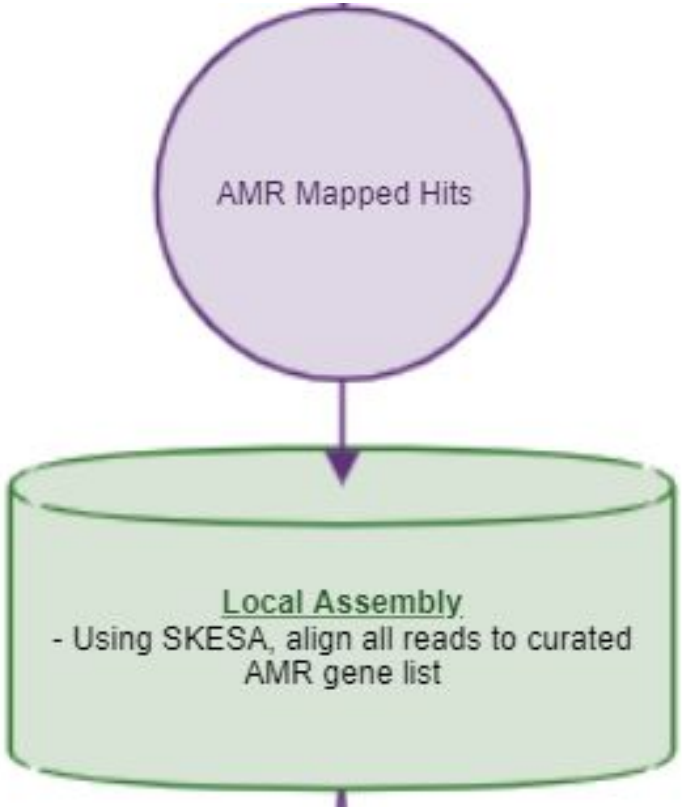
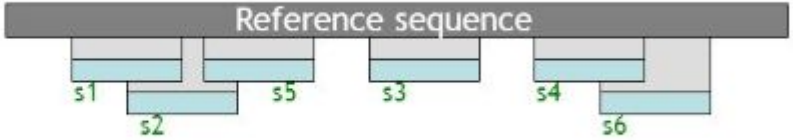
Workflow

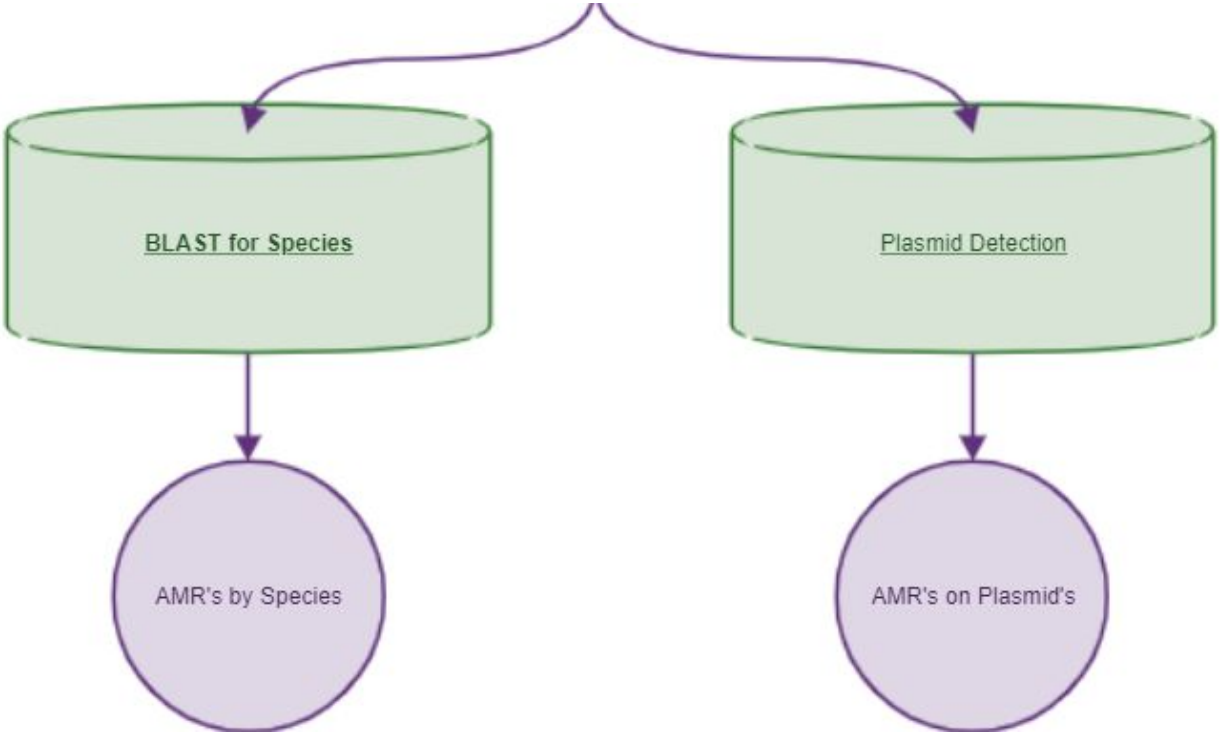


reference-guided



SKESA - Strategic Kmer Extension for Scrupulous Assemblies

Workflow


BLAST for Species
Plasmid Detection
AMR's by Species
AMR's on Plasmid's

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Work to be done

- HHM-er through SKESA
- AMR Species lists
- AMR plasmid identification
- Visualizations
- The workflow in Nextflow…