

98 Streptomyces +  
240 phage genomes

GeneTack tool

21,487 annotated genes  
with TTA codons

Adding TTA-containing  
genes to clusters

6061 TTA-genes have similarity  
with 1077 identified clusters

72,744 predicted genes  
with frameshifts

Clustering

4,162 clusters (COFs) include  
16,092 frameshifted genes

