

Reducing the genome of *E. coli*: a top down approach to synthetic biology

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During the past 6 years Scarab Genomics LLC has created *E. coli* deletions removing ever greater amounts of the unnecessary portions of the genome including the elimination of non-essential genes, recombinogenic or mobile DNA, and cryptic, virulent genes. More than 70 deletions have been removed representing over 20% of the genome. This presentation will document some of the improved properties for research and commercial applications that have emerged as a result of this genome reduction such as; improved metabolic efficiency, greatly improved genome stability, freedom from lysis and cell death due to cryptic lysogens, improved transformation efficiency, higher growth rates, lower mutation rates and higher yields of plasmid DNA, expressed proteins, and lower molecular weight compounds.