

# KlebSeq: amplicon sequencing screening tool for *Klebsiella* species.

Published date: Aug. 17, 2017

## Technology description

Researchers at TGen and Northern Arizona University have developed a highly informative screening tool called KlebSeq that detects *Klebsiella* species and identifies clinically important strains and characteristics using highly multiplexed amplicon sequencing without a live culturing step. KlebSeq comprises 5 species identification assays, 35 strain identification assays, 77 antimicrobial resistance assays, and 15 virulence gene assays, and uses a proprietary amplicon sequencing analysis pipeline to report results. KlebSeq can be used to analyze complex specimens including urine, feces, wound swabs, and various tissue types including respiratory tissue. KlebSeq identifies *Klebsiella* species and clonal groups and also determines antimicrobial resistance and virulence profiles, including capsule typing. Healthcare-acquired infections (HAIs) kill tens of thousands of people each year and add significantly to healthcare costs. Multidrug resistant and epidemic bacterial strains are a large proportion of HAI agents, and multidrug resistant strains of *Klebsiella pneumoniae*, a leading HAI agent, have become an urgent public health crisis. In the healthcare environment, patient colonization of *K. pneumoniae* precedes infection, and transmission via colonization leads to outbreaks. Periodic patient screening for *K. pneumoniae* colonization has cost-saving and life-saving potential. KlebSeq can be used by healthcare institutions to screen patients for *Klebsiella* colonization upon admission and periodically during their stay to assess risk of infection and outbreak potential. Information acquired from KlebSeq will allow healthcare staff to assess the risk of infection or transmission of any *Klebsiella* that may be detected. Variations of this tool can be used for other diagnostic applications.

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