



Novel polypeptides and bacteriophages specific to *Klebsiella pneumoniae* K62 capsular type strains and their applications

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Experience:

<http://microbes.mc.ntu.edu.tw/main.php?Page=SA4B1&KeyID=5010582684577dce9586e4&Template=teacher02.php>

Market Needs:

Klebsiella pneumoniae is an important pathogen which causes various diseases in human. Recently, community-acquired pyogenic liver abscess (PLA) caused by *Klebsiella pneumoniae* complicated with metastatic meningitis and endophthalmitis has emerged globally, especially in Asia. Besides causing PLA, *K. pneumoniae* also has been reported to cause invasive infections leading to abscesses at other sites (such as kidney, spleen, brain, and prostate), necrotizing fasciitis, and severe pneumonia with bacteremia. The bacterial capsule is an important virulence factor for encapsulated human pathogens. Different capsular types are associated with different kinds of specific infections in humans. Accordingly, it is important to understand the prevalence rates of capsular types in clinical diseases. This information is essential in disease control and prevention.

Our Technology:

Our invention, the phage/enzyme typing system can be applied easily and accurately for capsular typing the *K. pneumoniae* bacteria in routine hospital labs. No capsule extraction or any molecular technique is needed. One μL of phage or glycosidase solution was spotted on the plate by an eight-channel micro-pipetter after the top agar with plating bacteria solidified. After 6-8 hours, the locations of the plaque(s) or semi-clear zone(s) were identified and the capsular type was then determined.

Strength:

1. high sensitivity and specificity
2. convenient
3. consistency

Competing Products:

Immunological diagnosis is usually used for identifying the capsular serotypes of *Klebsiella*. However, the anti-sera are expensive and have to be purchased from limited resources. Besides, a previous survey reported that approximately 50% of their *Klebsiella* strains were non-typable or reacted to more than one serotype by using anti-sera. Our invention will be more convenient and accurate in medical microbiological laboratory.

Intellectual Properties:

USA patent (pending), Taiwan patent (approval)

Contact (do not need to fill out):

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