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(54) **PCR METHOD FOR IDENTIFYING A SEROTYPE OF *KLEBSIELLA PNEUMONIAE* BY USING CPS REGION PRIMERS AND APPLICATION THEREOF**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2011/0065111 A1 * 3/2011 Sampath et al. 435/6

OTHER PUBLICATIONS

Yu et al., Journal of Infectious Diseases 195, 1235-1236 (2007). *
Pan, et al., Capsular Polysaccharide Synthesis Regions in *Klebsiella pneumoniae* Serotype K57 and a New Capsular Serotype, Journal, Jul. 2008, Journal of Clinical Microbiology, pp. 2231-2240, American Society for Microbiology.

* cited by examiner

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(57) **ABSTRACT**

The present invention relates to a method of identifying a serotype of *Klebsiella pneumoniae*, in particular to a method using specific polymerase chain reaction (PCR) primer sets designed according to a fragment of a capsular polysaccharide synthesis (cps) region to identify a K57 or a NTUH-N1 serotype and its application. NTUH-N1 is a novel serotype which differs from the previously reported 77 serotypes. This PCR-based cps genotyping method not only solves the problems of insufficient specificity and sensitivity caused by conventional immune method, but can be applied in clinical diagnosis with the advantages of rapidity and low cost. In addition, the rate of unidentifiable strains can also be reduced by this method.

3 Claims, 7 Drawing Sheets