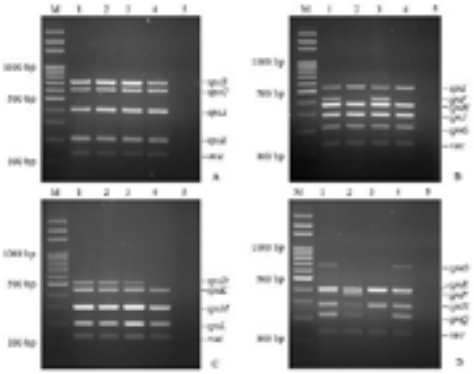
Nathita Phumthanakorn et al., Appli Microbiol Open Access 2018, Volume 4
DOI: 10.4172/2471-9315-C2-015

Detection of genes encoding cell wall-associated proteins in *Staphylococcus pseudintermedius* isolates from dogs, humans, and the environment

Nathita Phumthanakorn[a], **Pattrarat Chanchaithong**[a] and **Nuvee Prapasarakul**[a]
[a]Department of Microbiology, Faculty of Veterinary Science, Chulalongkorn University, Bangkok 10330, Thailand

The detection of 18 genes encoding cell wall-associated (CWA) proteins in *Staphylococcus pseudintermedius named spsA-spsR* were performed by using the new development of a set of multiplex PCRs (mPCRs). The distribution of these genes were detected in isolates from dogs (n=70), humans (n=25), and the environment of a veterinary hospital (n=40). The new 4 sets of mPCR comprising of 4-5 genes per set, including *nuc* gene as an internal control were developed. The mPCR sets could detect at least 1 pg/µl of DNA template. We found 23 sps gene profiles among the 135 isolates, with diverse gene combinations. spsD, spsF, spsI, spsO, spsP, and spsQ were variable detection but not statistically significant difference in each sources of isolates. Only spsP and spsQ encoded protein A or Spa were more frequently detected in the canine isolates from infected sites than from carriage sites suggested to play a role in pathogenicity. Interestingly, the positive amplicons of *spsR* gene in three human isolates showed gene deletions that were similar to the sequence in *S. aureus* ST398. The variation and difference of surface protein genes between human and animal *S. aureus,* including deletions, insertions, and truncation or pseudogenes have been reported and suggested to differentially affect host-specific adaptation.



Recent Publications:

1. Bannoehr J, Zakour NLB, Reglinski M, Inglis NF, Prabhakaran S, Fossum E, Smith DG, Wilson GJ, Cartwright RA, Haas J, Hook M, Broek AHMvd, Thoday KL and Fitzgerald JR. 2011. Genomic and surface proteomic analysis of the canine pathogen *Staphylococcus pseudintermedius* reveals proteins that mediate adherence to the extracellular matrix. Infect Immun. 79: 3074-3086.
2. Uhlemann AC, Porcella SF, Trivedi S, Sullivan SB, Hafer C, Kennedy AD, Barbian KD, McCarthy AJ, Street C, Hirschberg DL, Lipkin WI, Lindsay JA, DeLeo FR and Lowy FD. 2012. Identification of a highly transmissible animal-independent *Staphylococcus* aureus ST398 clone with distinct genomic and cell adhesion properties. mBio. 3(2).
3. Phumthanakorn N, Chanchaithong P and Prapasarakul N. 2017. Development of a set of multiplex PCRs for detection of genes encoding cell wall-associated proteins in *Staphylococcus pseudintermedius* isolates from dogs, humans and the environment. J Microbiol Methods. 142: 90-95.

Biography

Nathita Phumthanakorn is a Ph.D. student from the Department of Microbiology, Veterinary Science, Chulalongkorn, Thailand.

nathitaphumthanakorn@gmail.com