Frequency of genomic islands in *Pseudomonas aeruginosa* strains isolated from patients with pneumonia

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**Background:** *Pseudomonas aeruginosa* is an important cause of severe infections in immuno-compromised patients. It has been commonly associated to repeated bronchial infections in patients with CF and nosocomial infections. Its pathogenic ability derives from the presence of several cell-associated and secreted virulence factors. Various genomic islands (PAPI-1, PAPI-2, PAGI-1, PAGI-2, PAGI-3, PAGI-4, and pKLC102) have been characterized in different *P. aeruginosa* strains from diverse habitats and geographical locations.

**Methods:** The aim of this study was to characterize phenotypically and genetically a set of 100 *P. aeruginosa* strains isolated from 85 unrelated patients with pneumonia hospitalized in an intensive care unit. To assess the occurrence of these genomic islands (GEIs) we built a chromosomal DNA macroarray of all *P. aeruginosa* strains based on >80% of homology identified among them presented 49 restriction patterns. The strains showed a variable number of specific antimicrobial pattern indicating that each one of them was an unrelated isolate. In terms of the number of genomic islands per strain, 7 GEIs were found in 34% of the strains, 6 in 18%, 5 in 12%, 4 in 14%, 3 in 10%, 2 in 7%, and 1 in 4%; only one isolate did not present any GEIs.

**Results:** Our results showed that almost all strains presented up to eight virulence genes. Only two strains were pilA gene negative. The dendrogram based on PFGE patterns showed that our strains based on >80% of homology identified among them presented 49 restriction patterns. The strains showed a variable number of islands or a different genes composition among them, besides of a specific genes according to each GEI. Additionally, PFGE patterns with SpeI, the frequency of virulence genes and susceptibility patterns of the strains were studied.

**Conclusion:** In conclusion our data show that the *P. aeruginosa* strains exhibited an epidemic population structure with high recombination rate resulting in a high frequency of GEIs.

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Immunogenic response of IgY polyclonal antibody 35 kDa outer membrane protein (OMP) adherence protein of *Proteus mirabilis*

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**Background:** *Proteus mirabilis* is opportunistic and nosocomial pathogen that usually found in clinical specimen from patients with catheter. The pathogenic mechanism of the bacteria are not fully elucidated especially its potential activity of the outer membrane protein (OMP) 35KDa.

**Methods:** The characterization was done in the following step. The first step was producing and isolating IgY polyclonal antibody by injecting 30 μm *P. mirabilis* 35 kDa antigen to chicken subcutaneously to induce immunogenic response from chicken’s body. Egg containing IgY antibody harvested after day-5 to day-17. The antibody then purified and isolated from the yolk. The second step was agglutination inhibition test and adherence inhibition test. Those test was done to find inhibitory activities from antibody against *P. mirabilis*. The test was carried out by mixing erithrocyte with antibody and then mixed it with bacteria. The antibody will blocking erithrocyte from *P. mirabilis*, thus inhibiting agglutination, the mixture between erithrocyte and bacteria is used as positive control. The adherence inhibition test was carried out by mixing antibody with vesica urinaria epithelial cell of rabbit and then mixed with bacteria. The antibody will block epithelial cell from OMP of *P. mirabilis*, thus rendering it unable to adhere. The adherence test between *P. mirabilis* and epithelial cell was done as a control. The third step was to analyze IgY antibodies against pilI and OMP protein of *P. mirabilis* by Western blot method.

**Results:** Both test shows that polyclonal antibody IgY of outer membrane protein (OMP) 35 kDa of *P. mirabilis* could inhibit hemagglutination of erithrocyte and *P. mirabilis* adherence to vesica urinaria epithelial cell of rabbit. The Western blotting test show IgY OMP 35 kDa showed a cross reaction to 19 kDa, 35 kDa, 45 kDa of pilI protein and 82 kDa of OMP protein.

**Conclusion:** The conclusion of the research that polyclonal antibody IgY of outer membrane protein (OMP) 35 kDa of *P. mirabilis* have immunogenic respond.

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