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TITLE

PRELIMINARY STUDY ON “PAN-SURFOME” OF TRUEPERELLA PYOGENES ISOLATED FROM PIGS IN SPAIN

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CONTENT

Background and Objectives
Trueperella pyogenes is an opportunistic pathogen responsible for different clinical manifestations in livestock animals, being especially important in swine, in which is causes suppurative infections (abscesses, pneumonia, arthritis, endocarditis or lymphadenitis) rising number of condemnations at slaughterhouse.Programs based on vaccination would be an ideal tool to control these diseases. The surface proteins, exposed to antibodies, could be good vaccine candidates. The objective of this work was to study the “pan-surfome” of T. pyogenes to identify some new antigen(s) to be used in further studies as a vaccine candidate.
Material & Methods
In this study, 16 Trueperella pyogenes obtained from slaughtered pigs were analysed by proteomics. They were “shaved” (alive cells digestion using trypsin) and analysed by LC/MS/MS to identify the “pan-surfome.
Results
A total of 170 surface proteins were identified, corresponding 29 of them to lipoproteins (4.74%), 44 (25.9%) to cell wall and 82 (48.23%) to membrane proteins, also 15 (8.82%) proteins secreted were identified. We classified the proteins into three categories according to the frequency of appearance in the isolates. Group I gathered all the proteins identified in more than 70% of isolates, group II in 50-70%, and group III in 30-50%. Group I included 18 proteins, group II 3 and group III 28. These proteins would be good vaccine candidates.
Discussion & Conclusion
The “pan-surfome” of Trueperella pyogenes is described for the first time, applying the “shaving” method. Despite the contamination with cytosolic proteins, due to lysis, the majority of identified proteins were surface ones; a set of 18 proteins included in Group I (8 Cell Wall proteins, 6 Lipoproteins and 4 secreted proteins) are attractive to develop recombinant vaccines or subunit ones, although further studies are necessary. This demonstrates the excellent application of this method on this microorganism to determine the “pan-surfome”.