

## THE RNA CHAPERONE Hfq AFFECTS THE PROTEIN EXPRESSION IN *Actinobacillus pleuropneumoniae* SEROTYPES 8 AND 15

Josicelli Souza Crispim<sup>1</sup>, Giarlã Cunha da Silva<sup>1</sup>, Júlia Albano de Barros<sup>1</sup>, Renato Pedrozo Menicucci<sup>1</sup>, Lanna Clícia Carrijo<sup>2</sup>, Maria Cristina Pereira-Baracat<sup>2</sup>, Yanwen Li<sup>3</sup>, Janine T. Bossé<sup>3</sup>, Paul R. Langford<sup>3</sup>, Denise Mara Soares Bazzoli<sup>1\*</sup>.

<sup>1</sup>Laboratory of Microbial Molecular Genetics, Department of Microbiology, BIOAGRO, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.

<sup>2</sup>Laboratory of Proteomics and Biochemistry of Proteins, Department of Biochemistry and Molecular Biology, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.

<sup>3</sup>Section of Paediatrics, Imperial College London, St. Mary's Campus, London W21PG, England, United Kingdom.

*Actinobacillus pleuropneumoniae* is a Gram-negative bacterium that causes the porcine pleuropneumonia, a severe and contagious disease in the pig husbandry. This bacterium consists in different 15 serotypes based in the capsule antigenic properties. The virulence in *A. pleuropneumoniae* is multifactorial (biofilm-forming capacity, capsule, iron-acquisition systems and RTX exotoxins) and the protein Hfq is essential in pathogenesis and stress resistance. Then, the goal of this work was to evaluate the impact of Hfq in protein expression in wild-type (WT) and mutants *hfq* gene ( $\Delta hfq$ ) strains of *A. pleuropneumoniae* serotype 8 MIDG\_2331 and 15 HS143. For this, a comparison of the protein profiles between WT and  $\Delta hfq$  strains of each serotype was performed by two-dimensional electrophoresis (2-DE). The differentially significant spots were excised and digested with trypsin. Posteriorly, the resulting peptides were identified by mass spectrometry MALDI/TOF-TOF. The MIDG\_2331 and HS143 strains showed variation in the expressed proteins profile when compared WT and  $\Delta hfq$  strains, being 31 and 54 proteins given as significant, respectively for each serotype analyzed. The MALDI/TOF-TOF mass spectrometry allowed the identification of 9 and 15 proteins for MIDG\_2331 and HS143 strains, respectively. The identified proteins are involved in metabolism, amino acid biosynthesis and translation process in both serotypes. The AHAS protein, an acetohydroxyacid synthase required for branched chain amino acid (BCAA) biosynthesis was identified in both serotypes. The BCAA is related to the regulation of genes involved in the virulence of *A. pleuropneumoniae*, being required for the survival and virulence of this bacterium in pigs. Our results showed a different protein expression regulation in the serotypes investigated, indicating that regulation by Hfq is specific for each serotype and that Hfq is involved in the regulation of proteins related to virulence, contributing to the drastic effect of virulence attenuation in *A. pleuropneumoniae*  $\Delta hfq$ .

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