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Letter

Ornithine monooxygenase and RNase J family beta-CASP ribonuclease. Can they be bacteriocins?

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Dear Editor:

After comprehensively read the article authored by Sánchez *et al.* (2017) and published in this journal, I strongly consider to clear up important aspects of this. Bacteriocins are a heterogeneous group of antimicrobial peptides synthesized ribosomally by bacteria, capable to inhibit Gram-negative and Gram-positive pathogenic bacteria. Within its classification, the enzymes ornithine monooxygenase and RNase J are not included (Kumariya *et al.*, 2019). Likewise, ornithine monooxygenase does not exhibit chelating activity of bacterial siderophores, conversely, this enzyme generates a catalytic reaction between L-ornithine, NADPH (nicotinamide adenine dinucleotide phosphate) and oxygen, with production of water, NADP and N5-hydroxyornithine (non-proteinogenic amino acid). N5-hydroxyornithine is the first product in the biosynthesis of some bacterial siderophores such as *Bacillus firmus*, *Pseudomonas aeruginosa* and *Streptomyces coelicolor* (UniProt Consortium, 2020; BRENDA, 2020). Microorganism which secrete these metabolites are able to efficiently capture and accumulate iron from the environment and transport it within the cell. Then, the incorporate iron, act as an enzyme cofactor in redox reactions related to cellular respiration, DNA synthesis, and protection against reactive species of oxygen (Kramer *et al.*, 2019).

On the other hand, many studies indicate that the *Lactobacillaceae* family does not synthesize siderophores. It might be because this bacterial group does not require iron (or its requirement is very low) as a nutrient for its metabolism, but they do use manganese (Arosio *et al.*, 2020).

Furthermore, the RNase J enzyme belongs to the family of β-CASP ribonucleases. They are proteins of approximately 50 to 77 kDa that contribute to the control of cellular gene expression, fulfilling endo and exoribonuclease function related to maturation at the 5' end of 16S rRNA and RNA degradation (InterPro, 2020; Clouet-d'Orval *et al.*, 2015).

Therefore, based on the available scientific information, it is concluded that the molecules ornithine monooxygenase and RNase J are enzymes instead of bacteriocins and they do not have antimicrobial properties. However, they do participate in the metabolic functions of nutritional type and regulation of cell expression, important for bacteria and other microorganisms.

Keywords: Ornithine monooxygenase; ribonucleases; bacteriocins; enzymes; antimicrobial properties.

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