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Extracellular vesicles derived from Acholeplasma laidlawii PG8

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Abstract

Extracellular vesicle production is believed to be a ubiquitous process in bacteria, but the data on such a process in Mollicutes are absent. We report the isolation of ultramicroforms - extracellular vesicles from supernatants of Acholeplasma laidlawii PG8 (ubiquitous mycoplasma; the main contaminant of cell culture). Considering sizes, morphology, and ultrastructural organization, the ultramicroforms of A. laidlawii PG8 are similar to membrane vesicles of Gram-positive and Gram-negative bacteria. We demonstrate that A. laidlawii PG8 vesicles contain genetic material and proteins, and are mutagenic to lymphocytes of human peripheral blood. We show that Mycoplasma gallisepticum S6, the other mycoplasma, also produce similar structures, which suggests that shedding of the vesicles might be the common phenomenon in Mollicutes. We found that the action of stress conditions results in the intensive formation of ultramicroforms in mycoplasmas. The role of vesicular formation in mycoplasmas remains to be studied. ©2011 with author. Published by TheScientificWorld.

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Keywords

Acholeplasma laidlawii, DNA, Membrane vesicles, Morphology, Mutagenicity, Mycoplasmas, Proteins, Ultramicroforms