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Distinctive properties of a membrane-associated nuclease of *Mycoplasma meleagridis*

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The nuclease activity of mycoplasmas is an important factor in their pathogenicity. Nucleases may produce a broad spectrum of biological effects in hosts. In the present study, the ability of *Mycoplasma meleagridis* for nuclease synthesis was reported. Nuclease activity was found to be associated with a membrane protein named Mm19. BLASTP search analysis revealed a significant sequence similarity with a type II restriction enzyme belonging to the RE_AlwI super family. Further, Bio-informational analysis allowed the identification of a DNA methyl transferase which together with restriction enzymes forms restriction-modification (R-M) systems offering bacteria an effective defense system against foreign DNAs. Two sequences encoding for an endo nuclease of the RE_AlwI super family and for its DNA methyl transferase are found juxtaposed and oppositely oriented in *Mycoplasma meleagridis* genome sequence. Like most of type II restriction enzymes, Mm19-associated nuclease activity was enhanced with Mg²⁺. Mm19 showed significant homologies with AlwI related sequences in other mycoplasmas (*Mycoplasma mycoides* subsp. capri GM12 and *Mycoplasma bovis* PG45) and other bacterial species such as *Streptococcus*, *Bacillus* and *Staphylococcus*. Based on sequence alignments, the 714-aa methylase sequence was found to harbor two putative conserved domains differently organized compared to other mycoplasmas methylases domains. In fact, these two putative conserved domains were found to be located in the same CDS in *Mycoplasma meleagridis* methylase while they were disjointed in two separated CDSs in other mycoplasmas methylases. The *Mycoplasma meleagridis* Mm19 encoded-product might be involved in pathogenicity and in the survival of this mycoplasma in the host.

Biography

Boutheina Ben Abdelmoumen Mardassi is a Doctorate in Veterinary Medicine from National School of Veterinary Medicine at Sidi Thabet, Tunis-Tunisia. She has completed her PhD from Biotechnology Research Institute at Montreal (BRI) and Montreal University in Canada. She was Post Doctorate from Armand-Frappier Institute at Montreal, Quebec, Canada. Since 2000, she is a Permanent Researcher and a Head of Mycoplasmas Laboratory at Pasteur Institute of Tunis. She has published more than 15 papers in avian and human scientific journals.

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