OMICS Group Conferences
Accelerating Scientific Discovery

3rd International Conference on
Clinical Microbiology & Microbial Genomics
September 24-26, 2014 Valencia Convention Centre, Spain

Comparative analysis of two avian mycoplasmas genomes

Boutheina Ben Abdelmoumen Mardassi[1], Elhem Yacoub[1], Pascal Sirand-Pugnet[2] and Alain Blanchard[2]
[1]Institut Pasteur de Tunis
[2]National Institute for Agronomical Research, France

Mycoplasma meleagridis (MM) and Mycoplasma gallinarum (Mgn) belong to Mollicutes. MM is a pathogen specific of turkey, while Mgn is generally non-pathogenic for chicken and turkey. No genomic data are hitherto available for these two avian Mycoplasmas. Here, we report the sequencing and a comparative analysis between the genome sequences of MM (ATCC 25294) and a Tunisian field strain of Mgn, named Mgn_IPT, isolated from chickens displaying respiratory symptoms and poor performance.

Genome sequencing of both strains was achieved by combining mate pair and paired-end libraries. De novo assembly was performed using CLC and ABySS softwares.

Sequencing and assembly resulted in 27 contigs organized in 7 scaffolds for MM and 67 contigs organized in 27 scaffolds for Mgn. The genome size of MM ATCC is 632.186-bp with 25.94% G+C content, while the genome of Mgn_IPT is larger, consisting of 800.663-bp with 26.27% G+C content. A total of 512 coding sequences (CDSs) were identified in MM, representing 91.64% coding density. Regarding Mgn, 625 CDSs were identified, yielding a coding density of 87.85%. The genome of each species harbored a set of 37 rRNA genes with 2 copies of 5S rRNA gene. Phylogenic analysis confirmed the affiliation of the two species to Hominis Group. Moreover, the identification of arginine dihydrolase pathway in both genome sequences is in agreement with their ability to use arginine for energy metabolism.

The data garnered from comparison of MM and Mgn genomes may be useful in understanding of their biology and in developing improved control strategies.

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 laboratories at Institute Pasteur de Tunis. She has published more than 15 papers in avian and human scientific journals.

boutheina.mardassi@pasteur.rns.tn, elhem_yacoub@yahoo.fr