Research Note—

Pathogenicity of \textit{Mycoplasma meleagridis} for Chicken Cells

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SUMMARY. \textit{Mycoplasma meleagridis} (MM) is a known pathogen for turkeys only. In this study, MM was used to inoculate chicken embryos and tumor cells to assess its pathogenic potential for chickens. In chicken embryos, it caused abnormal-shaped toes and severely denuded tracheae. In chicken tumor cells, MM reduced the cellular capacity to release a chemoattractant that causes the migration of heterophils. MM also caused death and/or a reduced growth rate in chicken HD-11 cells, a macrophage-monocyte–derived cell line. Thus, the data show that MM is a potential pathogen for chicken embryos and chickens cells. Further exploration to determine the pathogenicity in chickens may be warranted.

RESUMEN. Nota de Investigación—Patogenicidad del \textit{Mycoplasma meleagridis} en células de aves.

El \textit{Mycoplasma meleagridis} es agente patógeno exclusivo de los pavos. Se empleó el \textit{M. meleagridis} para inocular embriones de pollo y células tumorales con el fin de evaluar su patogenicidad potencial en pollos. En embriones de pollo, el \textit{M. meleagridis} ocasionó anormalidades en los dedos y tráqueas sin epitelio. En células tumorales de pollo, el \textit{M. meleagridis} redujo la capacidad celular de liberar un agente quimioatractivo que ocasiona la migración de heterófilos. El \textit{M. meleagridis} ocasionó igualmente la muerte y una reducción en el índice de crecimiento en las células de pollo HD-11, una línea celular derivada de macrófagos y monocitos. Los datos demuestran que el \textit{M. meleagridis} es un patógeno potencial para embriones de pollo y células de pollo. Es necesario realizar estudios adicionales para determinar la patogenicidad del \textit{M. meleagridis} en pollos.

Key words: \textit{Mycoplasma meleagridis}, scanning electron microscopy, tracheae

Abbreviations: MM = \textit{Mycoplasma meleagridis}; PBS = phosphate-buffered saline

\textit{Mycoplasma meleagridis} (MM) is a specific pathogen of turkeys (4). Inoculation of MM into turkey embryos usually results in lesions of the air sacs and skeletal abnormalities (4,10,11) but causes minimal embryo mortality (10). Recently, Lam \textit{et al.} (9) found that the infected embryos also suffer severe damage in the tracheal epithelium.

Inoculation of MM into the yolk sacs of chicken embryos results in multiplication of MM to high titers without causing high mortality (10,11). It is apparent, therefore, that MM can grow in chicken embryos. Whether MM causes pathologic changes in chicken embryos, however, is unknown. This research shows that MM has the potential to cause damage to chicken embryos and chicken cells.

MATERIALS AND METHODS

\textit{Mycoplasma meleagridis}. The ATCC type strain of MM 17529 was used for the following experiments. The organisms were propagated in “B” medium (5), aliquoted, and stored frozen at \textdegree{}80 \textdegree{}C. The thawed culture had titers of $4 \times 10^5$ colony-forming units/ml of the organisms. To inoculate chicken tumor cells, embryos, and trachea explants, the thawed culture was diluted 1:10 in phosphate-buffered saline, and 100 \textmu{}l was inoculated into each sample.

\textbf{Chicken tumor cells.} Two virus-transformed cell lines, the HD-11 (3) cells and the MSB-1 cells (1), were used. These cells were propagated in RPMI 1640 medium (Gibco-Invitrogen, Grand Island, NY) supplemented with 10% fetal calf serum, l-glutamine,