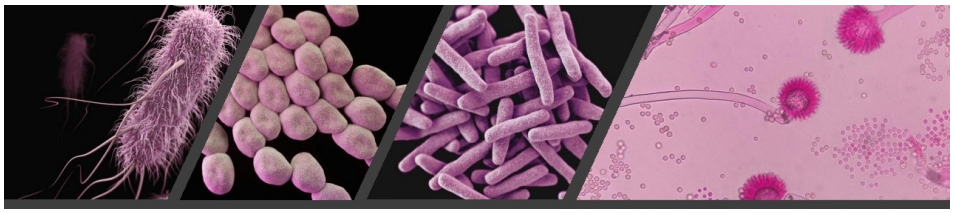

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Diversity of Mycobacterium avium virulence illustrated by mouse infection models

Friday 12 September 2025 14:15 (30 minutes)

Mycobacterium avium is the most important mycobacterial species with medical relevance besides M. tuberculosis and M. bovis. It is a slow-growing non-tuberculous mycobacterium divided into four subspecies (ssp.): M. avium ssp. avium (MAA), M. avium ssp. silvaticum (MAS), M. avium ssp. paratuberculosis (MAP) and M. avium ssp. hominissuis (MAH). Despite high genetic identity, they differ in growth, genome structure, pathogenicity and host preference.
MAA, MAS and MAP are obligate animal pathogens. MAA causes avian tuberculosis, mainly in poultry under extensive husbandry or in zoo enclosures. After oral infection, the disease manifests systemically, especially in liver, spleen and intestine. Rare infections occur in cattle, pigs and humans. MAS has been isolated from avian tuberculosis-like lesions in wild pigeons. MAP causes paratuberculosis, a fatal chronic enteritis of ruminants, typically in the distal ileum and ileocecal valve. It can also infect other species and humans, often subclinically. Its potential role in Crohn's disease remains debated. MAH, in contrast, is an opportunistic pathogen occurring in the environment with a broad host range. Rising incidence in pigs and humans suggests certain host preference. In pigs, oral infection leads mainly to regional lymphadenitis affecting intestinal, head and cervical lymph nodes. Infections in cattle, poultry and other animals are usually subclinical. In humans, MAH causes local to systemic infections, primarily in immunocompromised but occasionally also in immunocompetent individuals.
Relatively little is known about the pathogenicity and host preference of the subspecies. Despite many studies in mice, immunopathology remains insufficiently investigated. Examining immunopathology of M. avium subspecies in mice will provide insights into pathogenicity and contribute to understanding virulence in natural hosts.

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