

# Structural Insights into the Pathology of *Erwinia amylovora*, the Causative Agent of Fire Blight

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*Erwinia amylovora* is a gram negative bacterial pathogen of *Rosaceae* plants, known to infect over 100 species, but most devastating to cultivated apple and pear. Current control measures can reduce the rate of new infections, but the only effective control of existing infections is destruction of the infected plants, resulting in significant economic losses to pome fruit industries. As antibiotic spraying is banned in Europe, and antibiotic resistance is becoming more prevalent in other areas, there is increasing demand for new control measures.

Studying the molecular basis of infection is essential for identifying and understanding which genes are important for infection and their mechanisms of overcoming host resistance, and can provide a platform for the development of new targeted control measures to effectively manage this disease.

Infection associated proteins have been investigated based on their importance to the multiple molecular pathways required for successful infection. These include proteins involved in protein secretion, sugar metabolism, siderophore synthesis, exopolysaccharide synthesis, and pathogenic effector proteins. The structural and biochemical studies of these proteins have revealed new insights into their roles in infection and plant resistance, along with further potential applications in industry. A selection of these results relating to the various infection pathways will be presented.