

Features of basal and race-specific defences in photosynthetic *Arabidopsis thaliana* suspension cultured cells

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Summary

Plant suspension cell cultures display many features of the innate immune responses observed *in planta* and have been extensively applied to the study of basal and race-specific defences. However, no single model including photosynthetic cultured cells has been used for the exhaustive characterization of both basal and race-specific defences to date. In this article, we report the activation of basal and race-specific defences in green cultured cells from *Arabidopsis thaliana*. Inoculation of cultured cells with isogenic virulent or avirulent strains of *Pseudomonas syringae* pv. *tomato* DC3000 (Pst) was used to evaluate race-specific defences. The proliferation of avirulent Pst was found to be lower than that of virulent Pst in the inoculated cultures. Extracellular pH changes, sustained oxidative burst (5–13 h post-inoculation), enhancement of salicylic acid, and massive cell death were specifically stimulated by the avirulent bacterium. Neither avirulent nor virulent Pst induced markers of basal resistance, such as callose deposition or early oxidative burst (1–5 h post-inoculation). However, both basal defences were activated when cells were exposed to *Pseudomonas syringae* pv. *phaseolicola* or to the Pst mutant defective in the type III secretion system (TTSS), Pst-hrpL⁻. Thus, in these cells, basal defences may be inhibited by Pst in a TTSS-dependent manner. Recapitulation of classical defence features demonstrates the usefulness of this system for the fine characterization of plant innate immune components.