

# #082

## Hormonal Responses to *Plasmodiophora brassicae* Infection in *Brassica napus* Cultivars Differing in Their Pathogen Resistance

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Hormonal dynamics after *Plasmodiophora brassicae* infection were compared in two *Brassica napus* cultivars—more resistant SY Alister and more sensitive Hornet, in order to elucidate responses associated with efficient defense. Both cultivars responded to infection by the early transient elevation of active cytokinins (predominantly cis-zeatin) and auxin indole-3-acetic acid (IAA) in leaves and roots, which was longer in Hornet. Moderate IAA levels in Hornet roots coincided with a high expression of biosynthetic gene nitrilase NIT1 (contrary to TAA1, YUC8, YUC9). Alister had a higher basal level of salicylic acid (SA), and it stimulated its production (via the expression of isochorismate synthase (ICS1)) in roots earlier than Hornet. Gall formation stimulated cytokinin, auxin, and SA levels—with a maximum 22 days after inoculation (dai). SA marker gene PR1 expression was the most profound at the time point where gall formation began, in leaves, roots, and especially in galls. Jasmonic acid (JA) was higher in Hornet than in Alister during the whole experiment. To investigate SA and JA function, SA was applied before infection, and twice (before infection and 15 dai), and JA at 15 dai. Double SA application diminished gall formation in Alister, and JA promoted gall formation in both cultivars. Activation of SA/JA pathways reflects the main differences in clubroot resistance.

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