Pathogen-associated molecular pattern-triggered immunity (PTI) builds one of the first layers of plant disease resistance. In susceptible plants, PTI is overcome by adapted pathogens. This can be achieved by suppression of PTI with the help of pathogen virulence effectors. However, effectors may also contribute to modification of host metabolism or cell architecture to ensure successful pathogenesis.

Barley responds to treatment with the pathogen-associated molecular patterns flg22 or chitin with phosphorylation of mitogen-activated protein kinases and an oxidative burst. RAC/ROP GTPases can act as positive or negative modulators of these plant immune responses. The RAC/ROP GTPase RACB is a powdery mildew susceptibility factor of barley. However, RACB apparently does not negatively control early PTI responses but functions in polar cell development during invasion of the pathogen into living host epidermal cells. Here, we further discuss the incomplete picture of PTI in Triticeae.