



## ***ABSTRACT***

*“The action of cytokinin, a phytohormone, in plant immunity”*

**Prof Ildoo Hwang**

**Department of Life Sciences**

**POSTECH Biotech Center**

**Pohang University of Science and Technology**

**Pohang**

**KOREA**

Cytokinins affect plant immunity to various pathogens; however, the mechanisms coupling plant-derived cytokinins to pathogen responses have been elusive. We recently revealed that plant-derived cytokinins promote resistance of a model plant *Arabidopsis* to a bacterial pathogen *Pseudomonas syringae*. Modulated cytokinin levels or signaling activity correlate with altered resistance. Cytokinin directly modulates the expression of salicylic acid (a defense-related plant hormone) or defense-related genes via cytokinin-activated transcription factors called type-B ARR, which interact with the salicylic acid response factor TGA3 and contribute to resistance against the pathogen by potentiating salicylic acid signaling. Other than SA signaling, cytokinin affects an elicitor flagellin-induced stomata closure and FRK1 induction, implying its role for pre-invasive defense mediated via PAMP recognition. Interestingly, cytokinin also confers a priming effect, which induces a rapid and strong defense response. Taken together, our results indicate that cytokinins modulate multitude of defense signaling to augment resistance against a bacterial pathogen. I will further discuss how plant modulates a priming defense response, especially the transcriptional competence of defense-related genes.