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# Bacterial microbe associated molecular patterns (MAMPs) elicitors of plant innate immunity: Recognition and signal transduction in Arabidopsis

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## Abstract

Innate immune defences of plants include a set of basal responses that can be triggered by the perception of general elicitors that have been termed Microbe Associated Molecular Patterns (MAMPs). Examples of MAMPs include lipopolysaccharides (LPS) from Gram-negative bacteria, peptidoglycans (PGN) from both Gram-positive and Gram-negative bacteria, flagellin, fungal cell wall glucans and chitin. Recognition of MAMPs in both insects and animals leads to activation of defences and is often mediated by LRR (Leucine Rich Repeat) proteins such as Toll in Drosophila and the Toll-like receptors (TLRs) in mammals. LRR proteins also serve as receptors for MAMPs in plants; examples include the flagellin receptor FLS2 and elongation factor Ef-Tu receptor EFR. It is now established that LPS and PGN have myriad effects in plants including elicitation of plant defence responses, induction of the oxidative burst, nitric oxide synthesis, and phosphorylation of mitogen-activated protein (MAP) kinase. I will present data showing that two lysine motif (LysM) containing plasma membrane proteins, LYM1 and LYM3 from the model plant Arabidopsis, interact with PGN; and that the transmembrane LysM receptor kinase CERK1 is involved in transmembrane signalling. Still, little is known about the perception of LPS and PGN by plants or the associated signal transduction pathways that trigger the plant immune responses. I will present our progress towards identification of the plant receptors and the following plant signal transduction pathways induced by LPS and PGN purified from the black rot pathogen *Xanthomonas campestris*.

## Biography

Newman completed her Ph.D in 1995. Both her PhD studies and her following postdoctoral studies were carried out at the outstanding Sainsbury Laboratory located at the John Innes Centre (JIC) in Norwich, UK. In 2001 she moved to the University of Copenhagen, Denmark as an Associate Professor in Molecular Plant Pathology. Her work has, throughout her career, concentrated on Innate Immunity of Plants. She has published more than 50 papers in reputed journals. She is frequently called for assessment of other international projects, and also acts in several Editorial and Advisory Boards, and as a referee for international journals. She has several scientific memberships and has been invited speaker at many international meetings.