

SOL1 and other peptidases are responsible for CLE peptide processing mechanisms

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Plant growth is strictly regulated by numerous signaling systems. Intercellular communication and subsequent intracellular signaling are known to be involved in the regulation of plant growth. In recent decades, small, secreted peptide hormones have been found to play essential roles in these intercellular signaling pathways together with phytohormones.

Plant peptide genes encode small secretory proteins, and are widely distributed in higher plants. Most peptide hormones contain signal peptide sequences that are cleaved during exocytosis-based secretion and transportation outside the cell. Moreover, the active domain of the mature peptide hormone is excised by proteolytic processing. Some peptide hormones undergo further posttranslational modification.

SUPPRESSOR OF LLP1 1 (SOL1), a putative Zn²⁺ carboxypeptidase, has been found to exhibit proteolytic activity toward CLE peptides. SOL1 removes a C-terminal arginine residue from the CLE19 pro-peptide, and the removal of this residue confers full activity on the peptide. Here we will talk about CLE peptide processing mechanisms and its functions.