

Mechanism of strigolactone reception through pea receptor studies

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Strigolactone plant hormones control plant architecture and are signals in soil to parasitic weeds (*Striga* and *Orobanche*) and symbiotic arbuscular mycorrhizal fungi. They contain an ABC tricyclic lactone connected to a butenolide group, the D ring. The D14 strigolactone receptor belongs to the superfamily of α/β -hydrolases and hydrolyzes strigolactone in ABC and D parts. In this presentation, we will present our results concerning the characterization of the binding and catalytic functions of RMS3, the pea ortholog of rice D14 strigolactone receptor. Using novel profluorescent probes with strigolactone-like bioactivity, we proposed a hypothesis that explains the apparent low enzymatic rate of RMS3. The formation of a covalent RMS3/D-ring complex, essential for bioactivity, was identified by mass spectrometry data. These results reveal an undescribed mechanism of plant hormone reception where the receptor itself performs an irreversible enzymatic reaction to generate its own D ring ligand.