

Publication

Contamination risks in work with synthetic peptides: flg22 as an example of a pirate in commercial peptide Preparations

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The pattern recognition receptor FLAGELLIN SENSING2 (FLS2) renders plant cells responsive to sub-nanomolar concentrations of flg22, the active epitope of bacterial flagellin. We recently observed that a preparation of the peptide IDL1, a signal known to regulate abscission processes via the receptor kinases HAESA and HAESA-like2, apparently triggered Arabidopsis thaliana cells in an FLS2-dependent manner. However, closer investigation revealed that this activity was due to contamination by a flg22-type peptide, and newly synthesized IDL1 peptide was completely inactive in FLS2 signaling. This raised alert over contamination events occurring in the process of synthesis or handling of peptides. Two recent reports have suggested that FLS2 has further specificities for structurally unrelated peptides derived from CLV3 and from Ax21. We thus scrutinized these peptides for activity in Arabidopsis cells as well. While responding to <1 nM flg22, Arabidopsis cells proved blind even to 100 μ M concentrations of CLV3p and axY(s)22. Our results confirm the exquisite sensitivity and selectivity of FLS2 for flg22. They also show that inadvertent contaminations with flg22-type peptides do occur and can be detected even in trace amounts by FLS2.

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