数据资源： 林业专题资讯 打印 下载 分享

Chemical control of receptor kinase signaling by rapamycin-induced dimerization

编号	040029502
推送时间	20210614
研究领域	森林培育
年份	2021
类型	期刊
语种	英语
标题	Chemical control of receptor kinase signaling by rapamycin-induced dimerization
来源期刊	Molecular Plant
期	第295期
发表时间	20210504
关键词	leucine-rich repeat; receptor; kinase; brassinosteroids; BRI1; BAK1; FLS2;

摘要 Membrane-localized leucine-rich repeat receptor kinases (LRR-RKs) sense diverse extracellular signals, and coordinate and specify cellular functions in plants. However, functional understanding and identification of the cellular signaling of most LRR-RKs remain a major challenge owing to their genetic redundancy, lack of ligand information, and subtle phenotypes of LRR-RK overexpression. Here, we report an engineered rapamycin-inducible dimerization (RiD) receptor system that triggers a receptor-specific LRR-RK signaling independent of their cognate ligands or endogenous receptors. Using the RiD-receptors, we demonstrated that the rapamycin-mediated association of chimeric cytosolic kinase domains from the BRI1/BAK1 receptor/co-receptor, but not the BRI1/BRI1 or BAK1/BAK1 homodimer, is sufficient to activate downstream brassinosteroid signaling and physiological responses and that the engineered RiD-FLS2/BAK1 activates flagellin-22-mediated immune signaling and responses. We also identified the potential function of an unknown orphan receptor in immune signaling and revealed the differential activities of SERK co-receptors of LRR-RKs. Our results demonstrated that the RiD method can serve as a synthetic biology tool for precise temporal manipulation of LRR-RK signaling and for understanding LRR-RK biology.

服务人员	孙小满
服务院士	尹伟伦
PDF文件	浏览全文

相关记录 更多

Integration of multi-omics data reveals interplay between brassinosteroid and Tar...	2022-09-19
Recent Advances in Arabidopsis CLE Peptide Signaling	2020-12-07

相关主题

光受体 生长素受体 受体 激素受体 感受基因 已糖激酶 硫激酶 腺苷酸激酶 蛋白激酶 酪氨酸激酶

相关论文

拟南芥突变体L1.3的表型分析及遗传定...
BAK1调控植物免疫信号识别和转导的...
雌激素受体α基因多态性与帕金森病的...
麻疯树BRI1基因的鉴定及其在不同发...
影响嗅感觉神经元再生的相关因素的...
Graves病动物模型研究进展

Brassinosteroid-Activated BRI1-EMS-SUPPRESSOR 1 Inhibits Flavonoid Biosynthes... 2020-09-28

Brassinosteroids: Multi-Dimensional Regulators of Plant Growth, Development, an... 2020-01-27

相关图谱