

[首页](#)[资源导航](#)[知识应用](#)[林业专题](#)[获奖成果](#)[统计数据](#)[林草标准](#)[专家学术圈](#)[知识图谱](#)数据资源: [林业专题资讯](#)
 打印  下载    分享 <

## The HB40-JUB1 transcriptional regulatory network controls gibberellin homeostasis in Arabidopsis

编号	040032404
推送时间	20220103
研究领域	<a href="#">森林培育</a>
年份	2022
类型	期刊
语种	英语
标题	The HB40-JUB1 transcriptional regulatory network controls gibberellin homeostasis in Arabidopsis
来源期刊	Molecular Plant
期	第324期
发表时间	20211029
关键词	<a href="#">Arabidopsis</a> ; <a href="#">growth</a> ; <a href="#">gibberellin</a> ; <a href="#">homeostasis</a> ; <a href="#">transcription factor</a> ; <a href="#">HB40</a> ; <a href="#">JUB1</a> ; <a href="#">GA 2-oxidase</a> ; <a href="#">DELLA proteins</a> ;
摘要	<p>The phytohormones gibberellins (GAs) play fundamental roles in almost every aspect of plant growth and development. Although there is good knowledge about GA biosynthetic and signaling pathways, factors contributing to the mechanisms homeostatically controlling GA levels remain largely unclear. Here, we demonstrate that homeobox transcription factor HB40 of the HD-Zip family in Arabidopsis thaliana regulates GA content at two additive control levels. We show that HB40 expression is induced by GA and in turn reduces the levels of endogenous bioactive GAs by a simultaneous reduction of GA biosynthesis and increased GA deactivation. Hence, HB40 overexpression leads to typical GA-deficiency traits, such as small rosettes, reduced plant height, delayed flowering, and male sterility. In contrast, a loss-of-function hb40 mutation enhances GA-controlled growth. Genome-wide RNA-sequencing combined with molecular-genetic analyses revealed that HB40 directly activates transcription of JUNGBRUNNEN1 (JUB1), a key TF repressing growth by suppressing GA biosynthesis and signaling. HB40 also activates genes encoding GA 2-oxidases (GA2oxs) which are major GA catabolic enzymes. The effect of HB40 is ultimately mediated through induction of nuclear growth-repressing DELLA proteins. Our results thus uncover an important role of the HB40/JUB1/GA2ox/DELLA regulatory network in controlling GA homeostasis during plant growth.</p>
服务人员	孙小满
服务院士	<a href="#">尹伟伦</a>
PDF文件	<a href="#">浏览全文</a>


 相关链接: [中国工程院](#) [国家林业和草原局](#) [中国林业科学研究院](#) [中国林业信息网](#) [中国林业数字图书馆](#) [国家林业和草原科学数据中心](#)

 友情链接: [自然资源部](#) [科学技术部](#) [中国林学会](#) [中国科技资源共享网](#) [中国林草植物新品种保护](#) [中国林业知识产权网](#) [中国林业新闻网](#)

 主办单位: [中国林业科学研究院林业科技信息研究所](#) 电话: 010-62889748 E-mail: wangjiaosky92@163.com 京ICP备14021735号-2 访问量: 12440464

建议使用谷歌、火狐、360、IE8或IE8以上版本的浏览器