**HAIRY MERISTEM with WUSCHEL confines CLAVATA3 expression to the outer apical meristem layers**

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The control of the location and activity of stem cells depends on spatial regulation of gene activities in the stem cell niche. Using computational and experimental approaches, we have tested and found support for a hypothesis for gene interactions that specify the Arabidopsis apical stem cell population. The hypothesis explains how the WUSCHEL gene product, synthesized basally in the meristem, induces *CLAVATA3*-expressing stem cells in the meristem apex but, paradoxically, not in the basal domain where *WUSCHEL* itself is expressed. The answer involves the activity of the small family of *HAIRY MERISTEM* genes, which prevent the activation of *CLAVATA3* and which are expressed basally in the shoot meristem.

Key words: HAM, WUS, CLV3, Meristem

**一种花生快速遗传转化方法的建立与应用**

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遗传转化是植物基因工程的重要手段。快速、高效地将目的基因导入植物细胞, 并缩短获得转基因后代的时间是遗传转化的关键。花生(*Arachis hypogaea*)是我国重要的油料及经济作物, 目前花生的遗传转化体系尚未完善, 制约着花生的基因功能解析和分子育种进程。该文以花生为实验材料, 建立了一套快速、稳定的遗传转化体系。通过将农杆菌注射于花生第二茎节的切面获得转化植株, 再将阳性植株进行移栽和回土, 采摘注射点以上的荚果进行后续鉴定与分析。结果表明, 该方法可获得40%以上的T0代嵌合体植株, 约5个月可收获T0代花生种子, 其中约有9%的T1代花生植株为非嵌合体的杂合体。针对部分转基因植株结实少的问题, 本文提出了将快速转化体系与传统组培方法相结合的优化方案。构建的快速转化方法对大蒜(*Allium sativum*)、马铃薯(*Solanum tuberosum*)和香雪兰(*Freesia refracta*)遗传转化具有潜在的应用价值, 对其它植物的遗传转化也具有重要参考价值。

**关键词：**快速转化，花生，大蒜，马铃薯，香雪兰