

研究论文

## 基于RNA杂交的马铃薯纺锤块茎类病毒检测芯片

谷宇<sup>1,3</sup>, 杜志游<sup>2</sup>, 郎秋蕾<sup>2</sup>, 陈集双<sup>2</sup>, 何农跃<sup>3</sup>

1. 南京中医药大学基础医学院生物学与生物化学系, 南京 210029;
2. 浙江大学微生物分子生物学实验室, 杭州 310029;
3. 东南大学生物电子学国家重点实验室, 南京 210096

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**摘要** 报道了一种检测植物类病毒RNA的新方法——RNA杂交芯片技术,即将cDNA芯片技术与RNA斑点杂交技术相结合,将马铃薯样品的总RNA直接固定在玻片上,用荧光标记制备检测马铃薯纺锤块茎类病毒(PSTVd)的特异探针,探针与芯片杂交后分析杂交信号以确定相应的样品有无PSTVd侵染.参照膜杂交的方法,确定了RNA芯片的制备条件,并用以检测了马铃薯样品的PSTVd侵染情况,检测结果与RT-PCR结果相符,阳性产物经克隆测序证实为PSTVd.

**关键词** [RNA芯片杂交](#) [斑点杂交](#) [cDNA芯片](#) [马铃薯纺锤块茎类病毒\(PSTVd\)](#)

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## Detection of Potato Spindle Tuber Viroid Using RNA Hybridized Chips

GU Yu<sup>1,3</sup>, DU Zhi-You<sup>2</sup>, LANG Qiu-Lei<sup>2</sup>, CHEN Ji-Shuang<sup>2</sup>, HE Nong-Yue<sup>3</sup>

1. Department of Biology and Biochemistry, School of Basic Medical Science, Nanjing University of Traditional Medicine, Nanjing 210029, China;
2. Laboratory of Microbial Molecular Biology, Zhejiang University, Hangzhou 310029, China;
3. State Key Laboratory of Bioelectronics, Southeast University, Nanjing 210096, China

### Abstract

Potato diseases caused by potato spindle tuber viroid(PSTVd) bring about substantial losses in agricultural production. So developing a high throughput, rapid, sensitive and specific detection method is necessary. This article reports a new method to detect plant viroid——RNA glass slide hybridization. This method combines dot blot hybridization technique with cDNA microarray technique. We could spot a number of RNA samples extracted from new leaves of potatoes onto a silanated glass slide directly and then perform the hybridization on the slide with Cy5-labeled probe of PSTVd prepared by PCR. Analyzing the results of hybridization, we could ascertain which sample is infected by PSTVd. The factors affecting the results were optimized and used to test six potato samples with PSTVd-specific probes. The developed method was used to detect two samples which infected by PSTVd. These results were in good accordance with those from the RT-PCR approach and the samples are proved to be PSTVd by cloning and sequencing. So it is an accurate and reliable method for detecting plant viroid and the first report for the diagnosis of PSTVd using dot blot hybridization and RNA glass side hybridization with fluorescently labeled probe.

**Key words** [RNA glass slide hybridization](#) [Dot blot hybridization](#) [cDNA microarray](#) [Potato spindle tuber viroid\(PSTVd\)](#)

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