

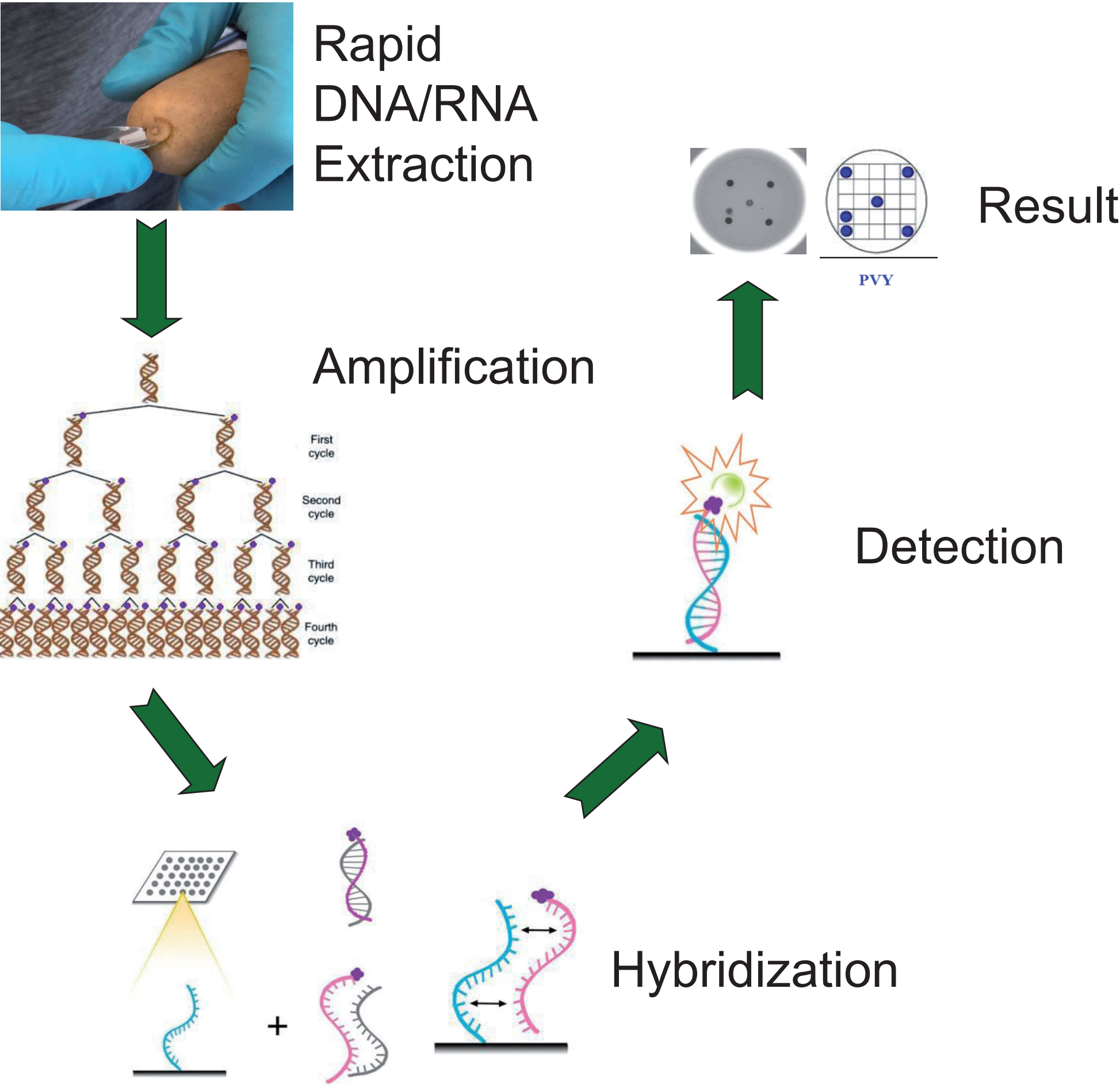
PCR Macroarray for multiplex virus detection

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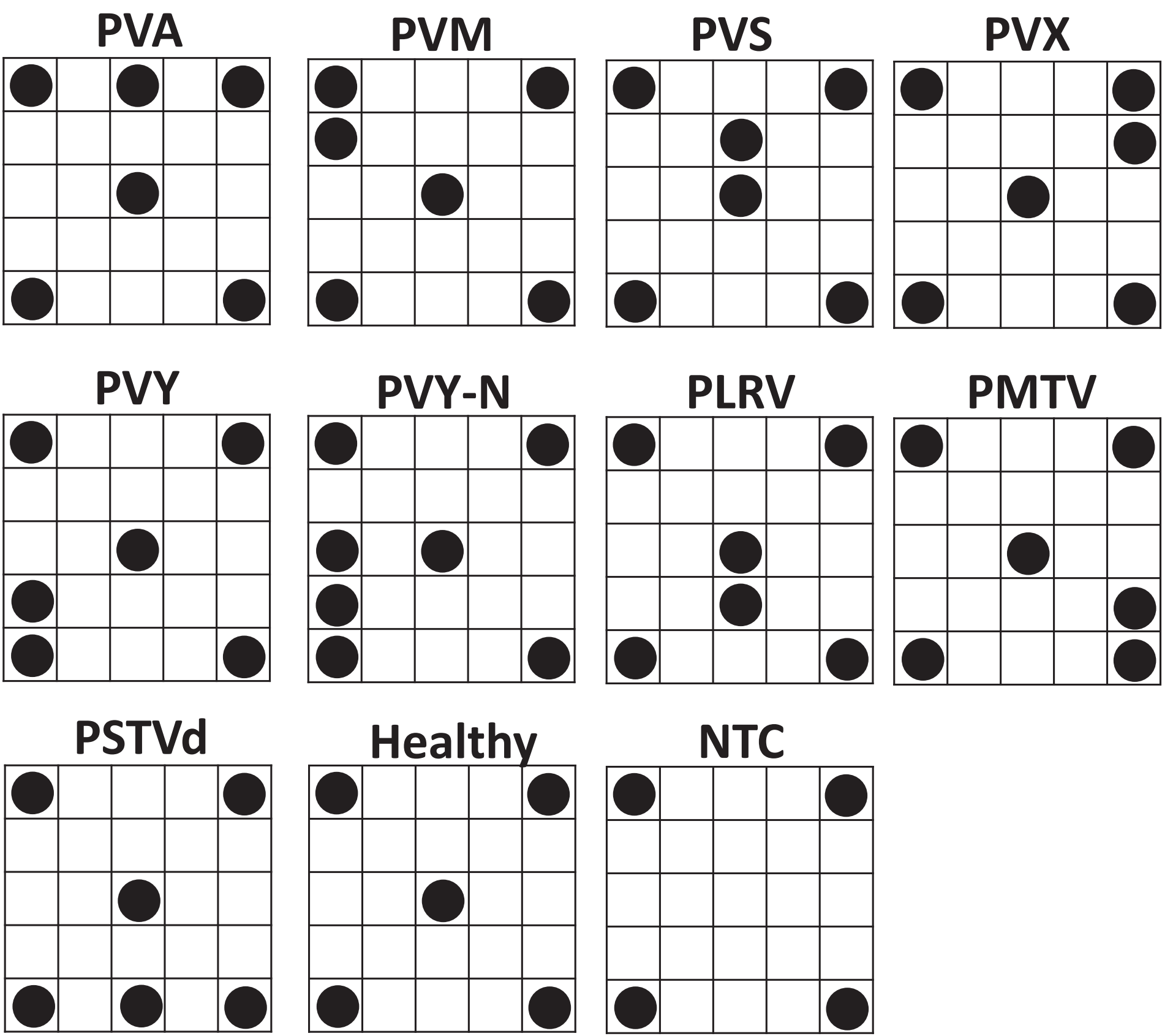
Introduction

- New accredited PCR-based diagnostic tool for seed potato certification (developed in collaboration with Genetop, Taiwan).
- Multiplex detection for 7 viruses (PVA, PVM, PVS, PVX, PVY, PLRV, PMTV) and one viroid (PSTVd). Internal control included (plant host gene).
- Fast and reliable: in combination with a rapid nucleic acid extraction method (RNA and DNA; 2 buffers, no column).
- 96-well format; possibility to scale-up.

Method



Scheme for analysis



Results

| | Analysis | | Analysis | PVY strain |
|--|--------------------|--|----------|-------------|
| | Healthy | | Healthy | - |
| | NTC | | PVY-O+ | PVY O-768 |
| | PVM+, PVS+, PLRV+ | | PVY-O+ | PVY O-803 |
| | PVM+, PVS+, PLRV+ | | PVY-N+ | PVY N-605 |
| | PVM+, PVS+, PVY-N+ | | PVY-N+ | PVY NTN |
| | PVX+ | | PVY-N+ | PVY N-Wilga |
| | PVM+ | | PVY-N+ | PVY McDo |

**Virus detection
from dormant tubers**

**Detection of different
PVY strains**

- The PCR macroarray is 10 to 30 times more sensitive than ELISA (depending on the virus).
- The sensitivity of the PCR macroarray is comparable to the sensitivity of quantitative PCR (qPCR).
- The PCR macroarray allows the detection of viruses from dormant tuber.
- Validation (done with the support of Agroscope, Switzerland) data show that the PCR macroarray is suitable for seed potato certification from dormant tuber (in comparison with ELISA on about 700 samples).