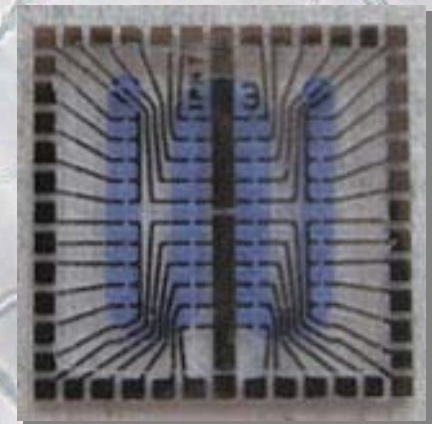
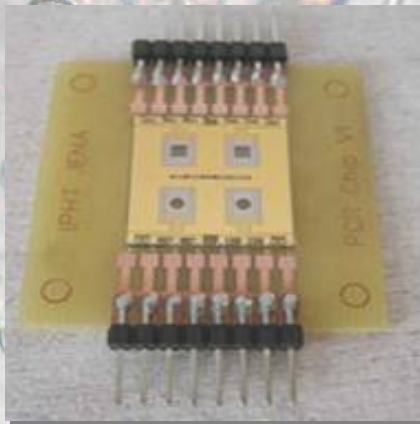


Nanobiotechnology for *Phytophthora* diagnosis

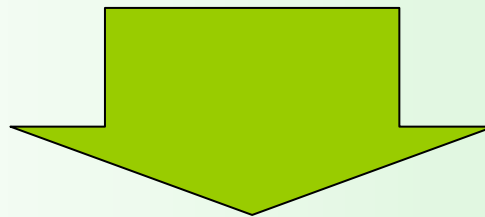
M. Riedel, S. Julich, L. Dressler, R. Möller, S. Wagner, A. Breitenstein, T. Henkel and
S. Werres



aim of the project

Development of a detection system

- species specific
- robust
- applicable in the field
- sensitive
- easy to handle
- results within short time

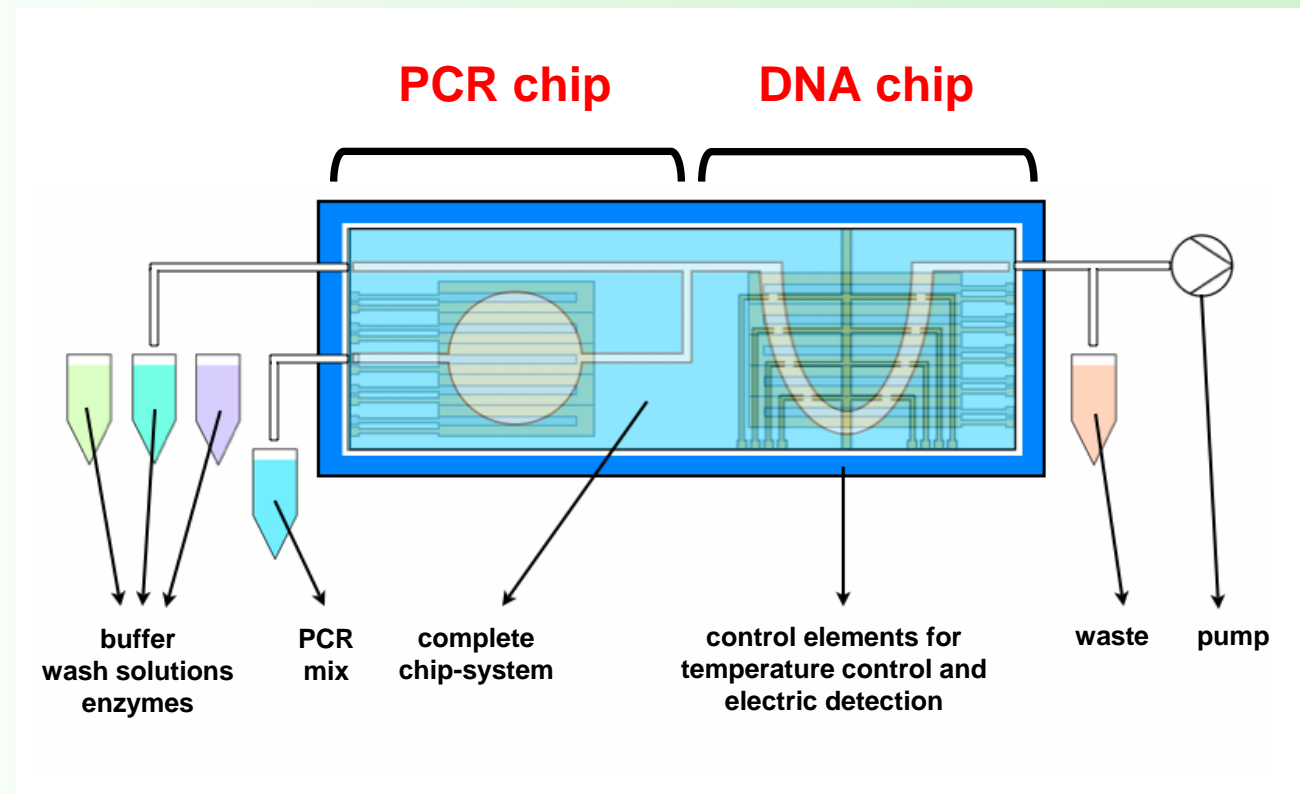


chip-based diagnostic system

functional principle of the chip system

combined microchip for **chip based PCR** amplification (PCR chip) and **DNA detection** (DNA chip) via hybridization

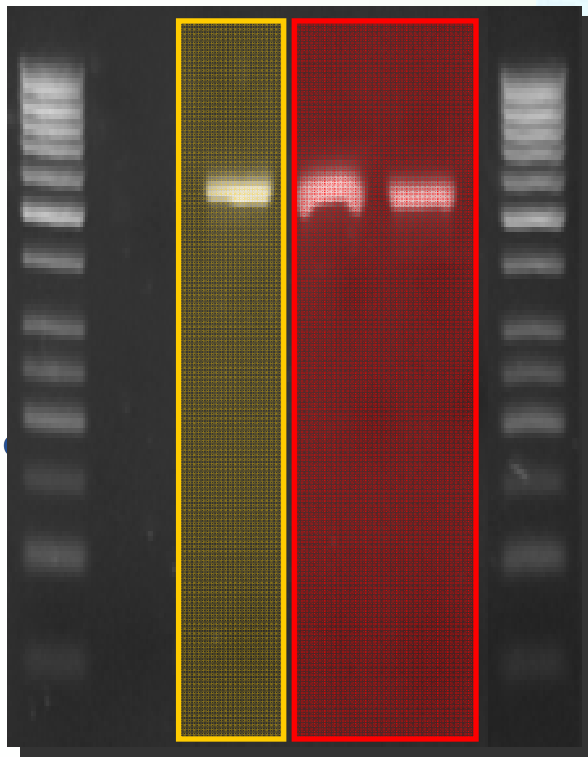
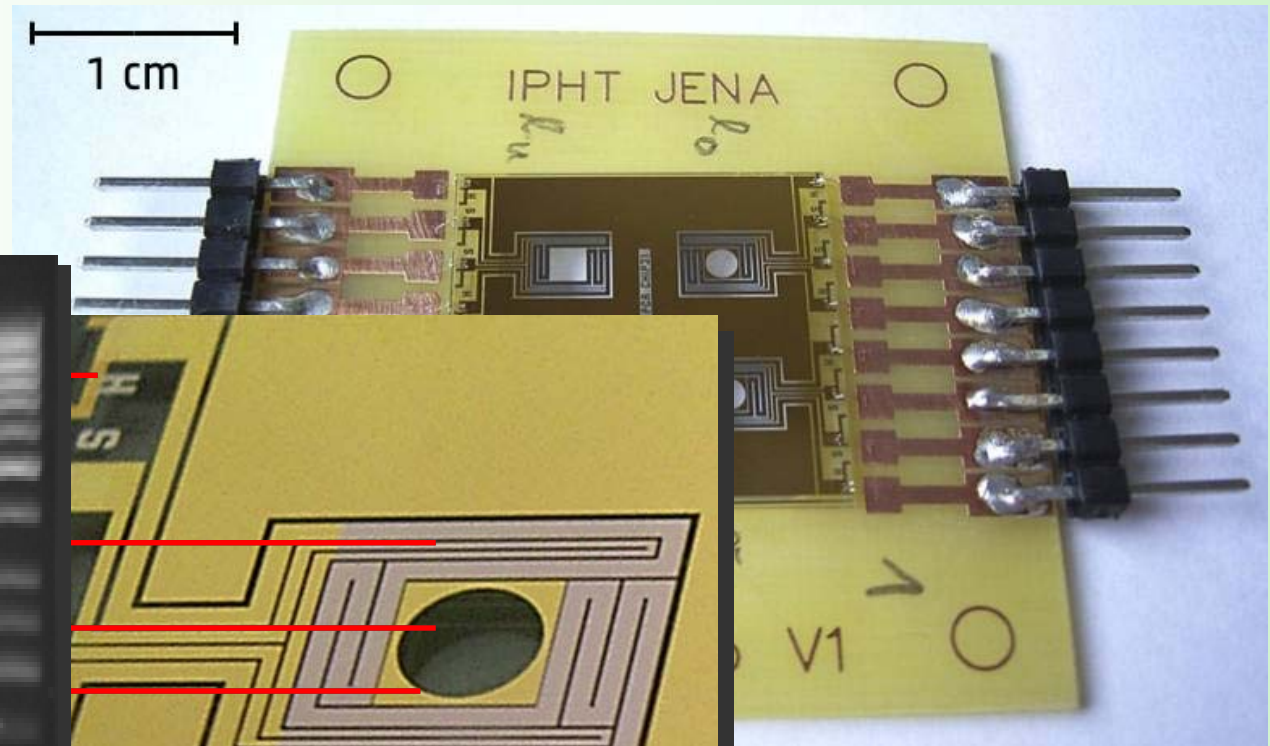
scheme of micro-systemic implementation of automated chip systems combined with an integrated microfluidic system for analysis of nucleic acids



PCR chip module

on chip amplification und labeling of DNA by PCR

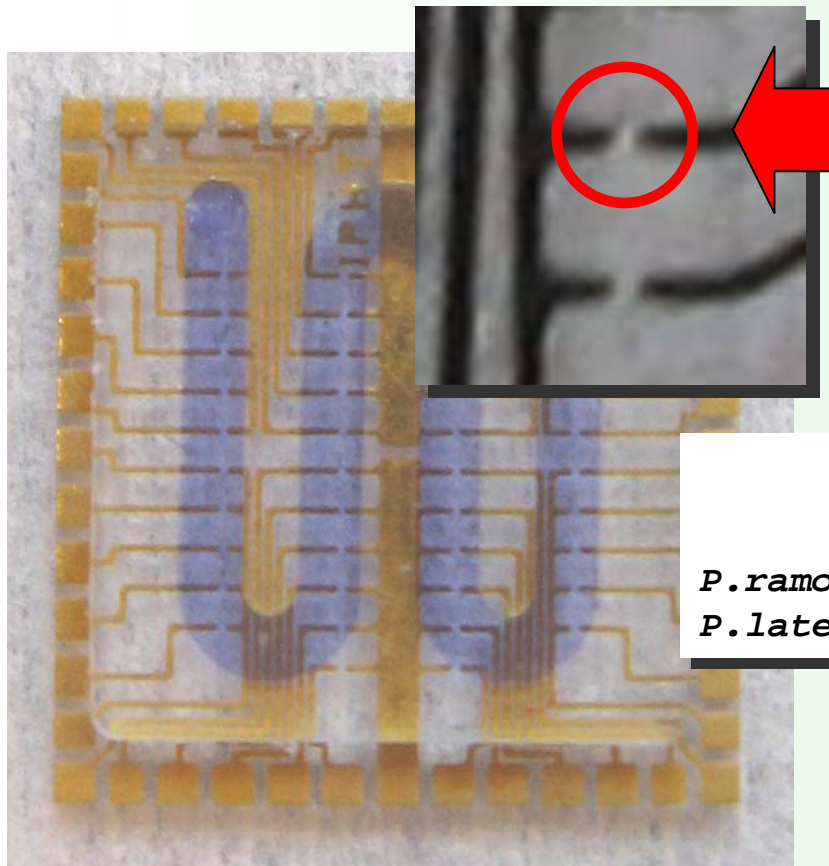
single PCR chip



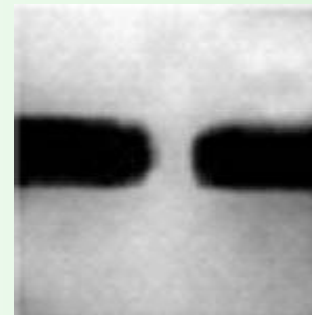
results with amplification analysis software
ITS2 fragment identical with conventional
thermocycler and PCR-chip

DNA chip module

detection of *Phytophthora* DNA fragments on chip

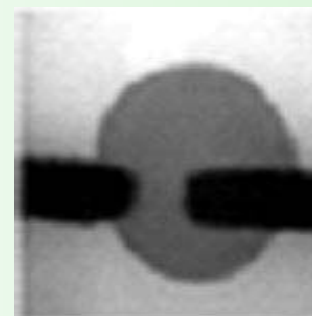


first results: hybridization of closely related *Phytophthora* taxa



unspecific hybridization:

P. lateralis : *P. ramorum*



specific hybridization:

P. ramorum : *P. ramorum*

combined gold chip with 42 detection sites and microfluidic

Acknowledgements



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