μACTIVE

MicroActive - Project no 17319

Automatic Detection of Disease Related Molecular Cell Activity

Presented by

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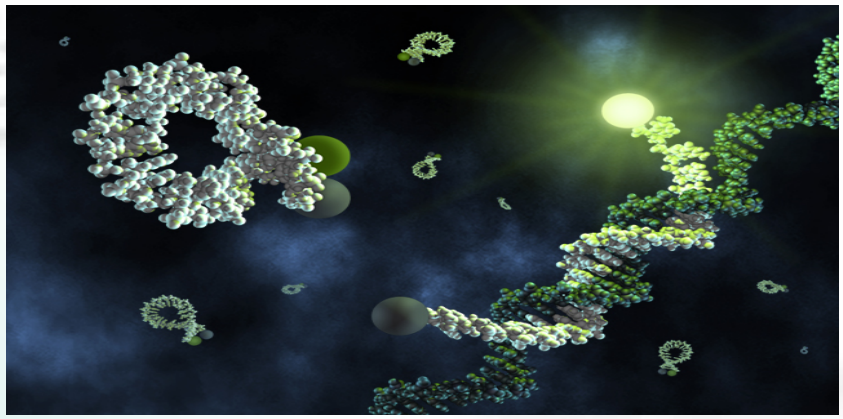

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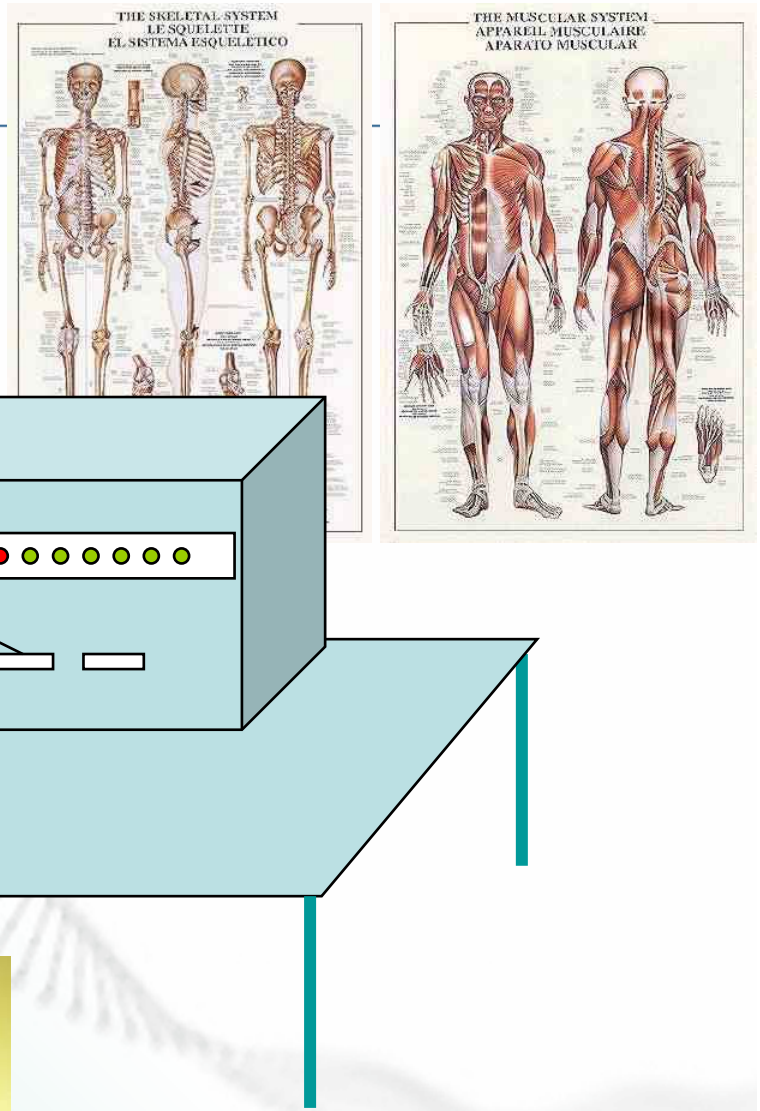
Main objective for MicroActive

To develop an instrument for molecular diagnostics intended for use in the doctors' office



- Human papilloma virus
- Cervical cancer
- RNA
- Two microchips
- Instrument

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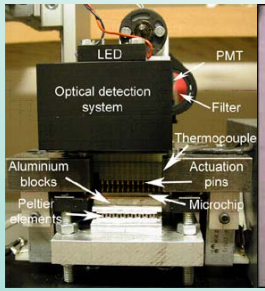
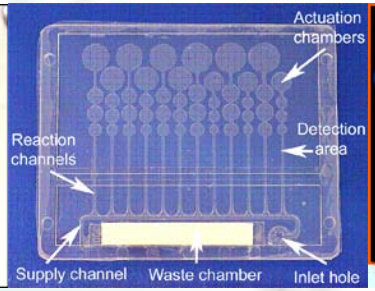
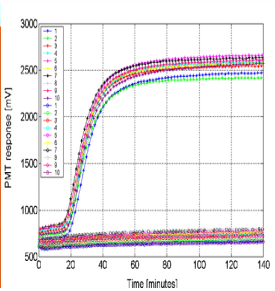
MicroActive - partners

Workpackages highly interconnected for integrated system







WP1	WP2	WP3	WP4	WP5	WP6
Automatic Diagnosis System	Sample preparation chip	Amplification and detection chip	Surface modification and spotting	NASBA reaction	Meeting the needs of end-users

Close cooperation between biochemists, doctors and physicists gives corrections and new insight

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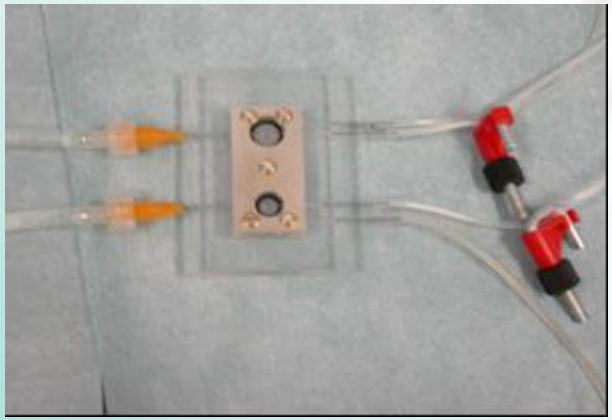
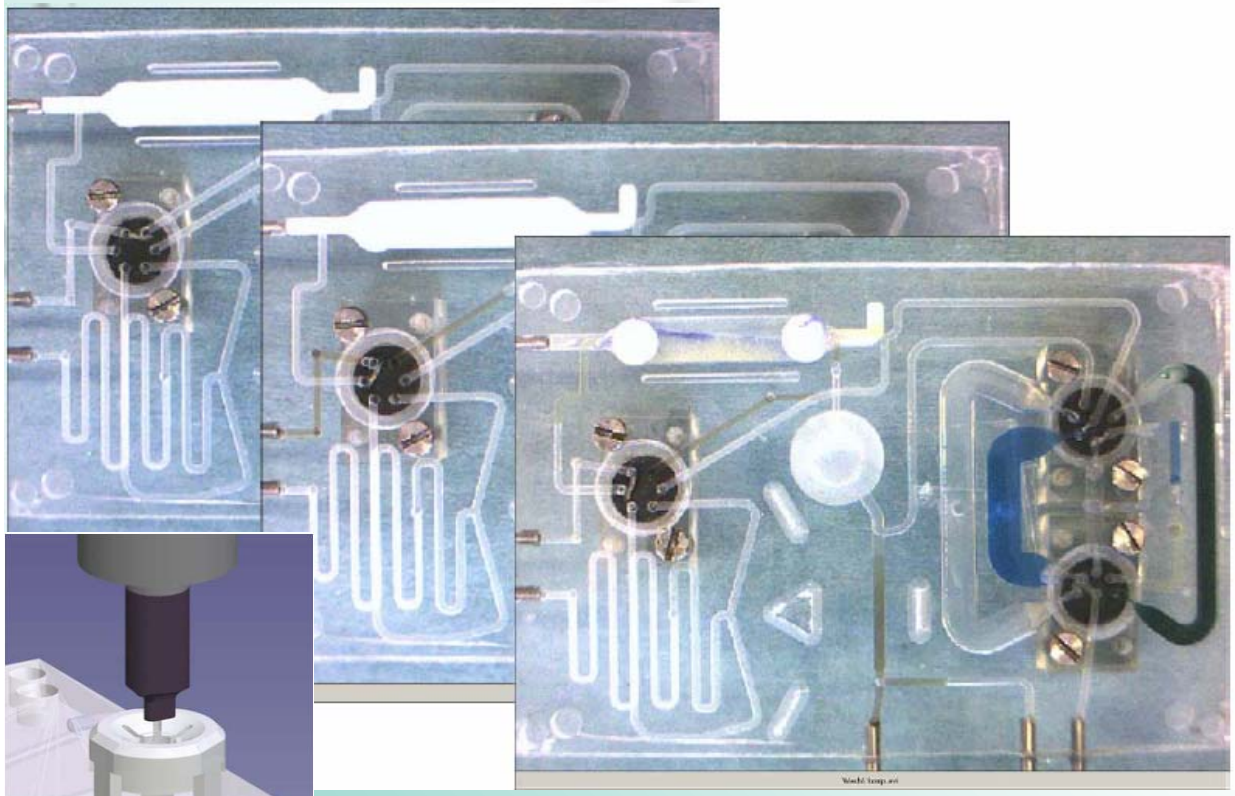
Sample preparation tests using cervical cells



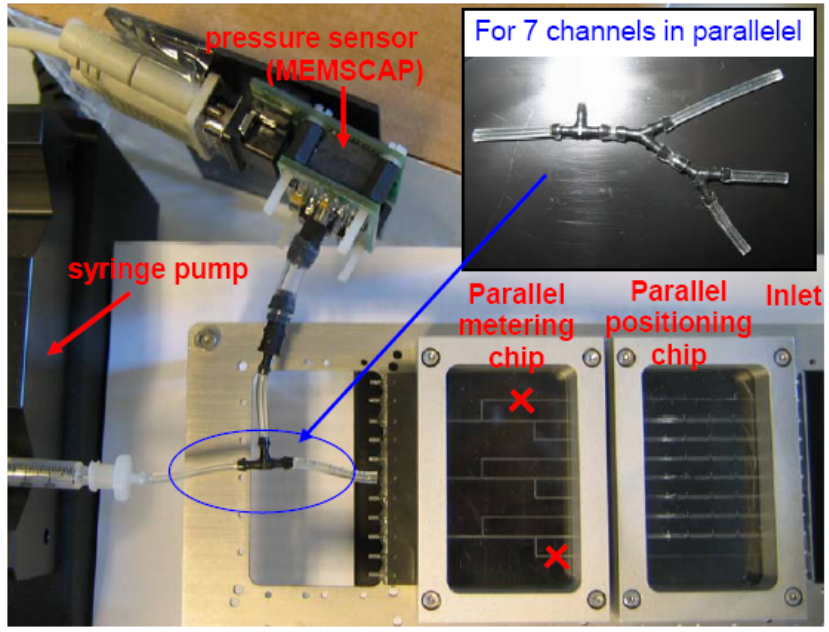
- Cell concentration
- Cell lysis
- Nucleic acid capture and purification
- Nucleic acid elution

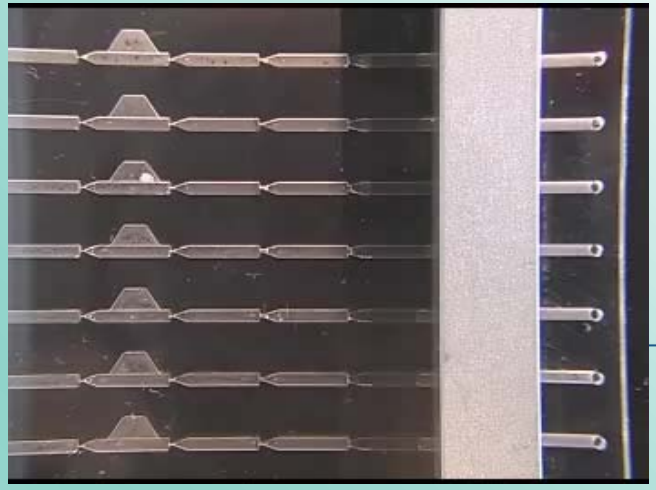
- Compare with gold laboratory standards
- Use Biobank of clinical specimens established in project

Sample preparation chip



- Reagent and buffer storage
- Filters
- Optical control
- Pumps, valves
- Extracted RNA transferred to next chip





Amplification and detection chip

Metering of parallel plugs for analysis

Parallel plug actuation method based on pressure and surface patterned channels

Number and sized of reaction chambers with dried reagents decided

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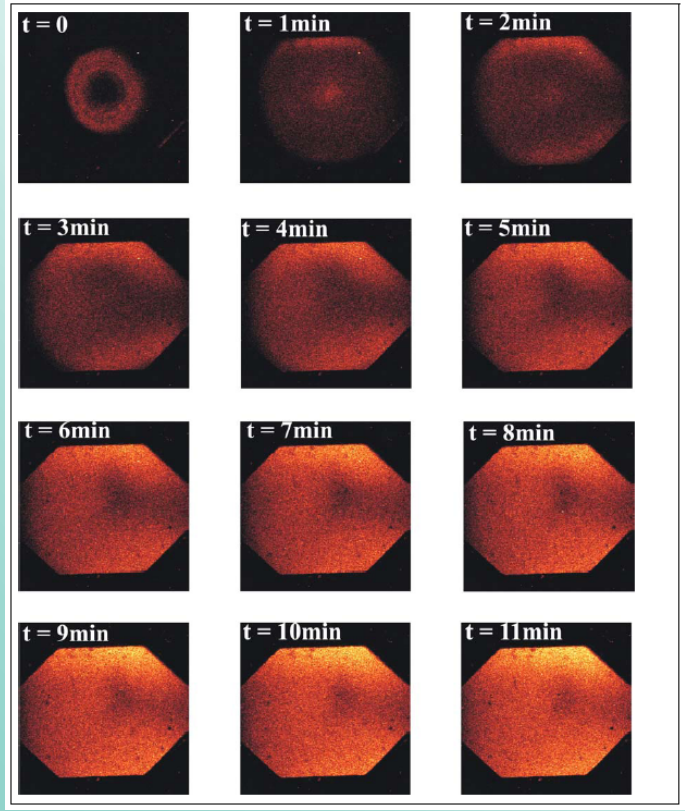
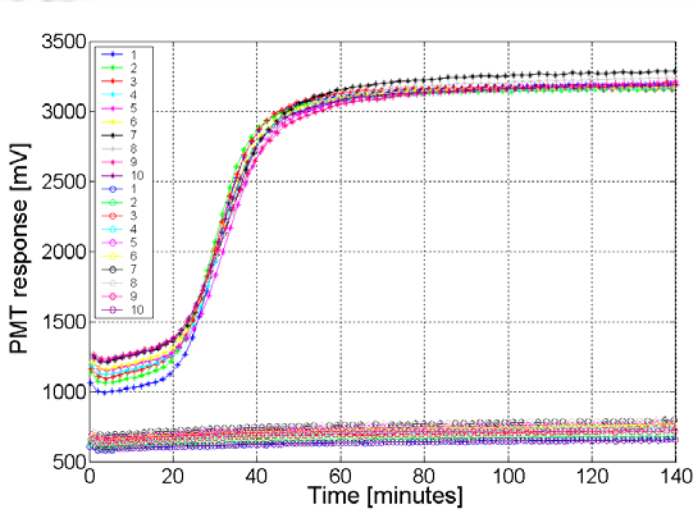
NASBA amplification in micro-chambers



- Re-hydration and mixing of dried reagents
- Optimization of drying agents
- Re-activation of dried reagents
- NASBA amplification in sample plugs using dried reagents – partly successful

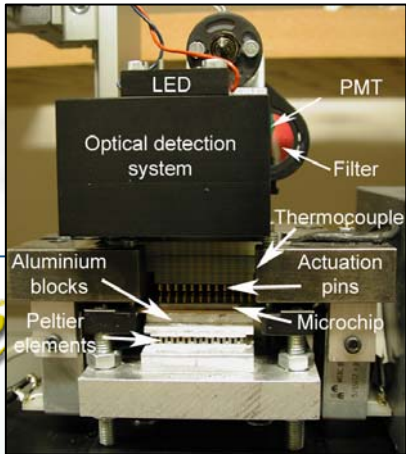


Exploitation potential

- Cervical cancer – caused by HPV viruses
- Time to result 2 hours – compared to 3 weeks
- Few false positive results

- For use in doctors' offices, laboratories
- Doctors' questionnaire
  - General practitioners inexperienced with molecular diagnostics
  - Clear procedure needed for follow up of positive results

- BioFluidics manufacturing potential
- NorChip, distribution potential



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