

# SMILE project:

a SAW-MIP Integrated device for oral cancer Early detection



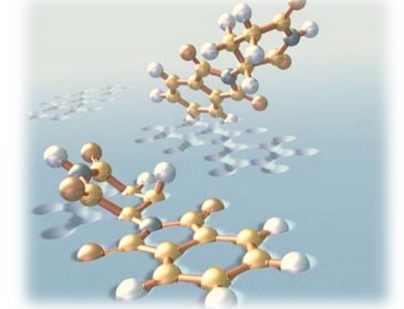
Head and neck cancer

Oral Squamous Cells Cancer

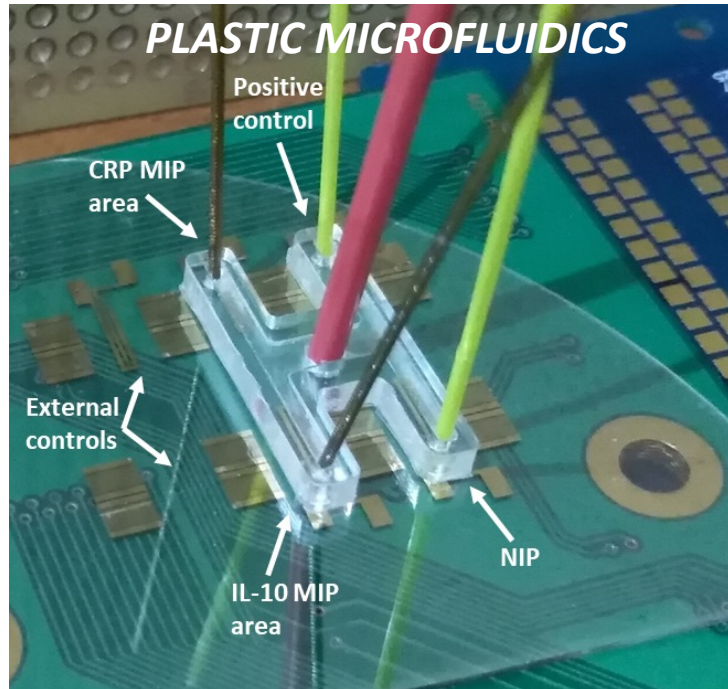
border of lips,  
palates or tongue

- 6<sup>th</sup> of common types cancer in Europe
- Late diagnosis: invasive surgery and postoperative chemotherapy
- Need of early detection

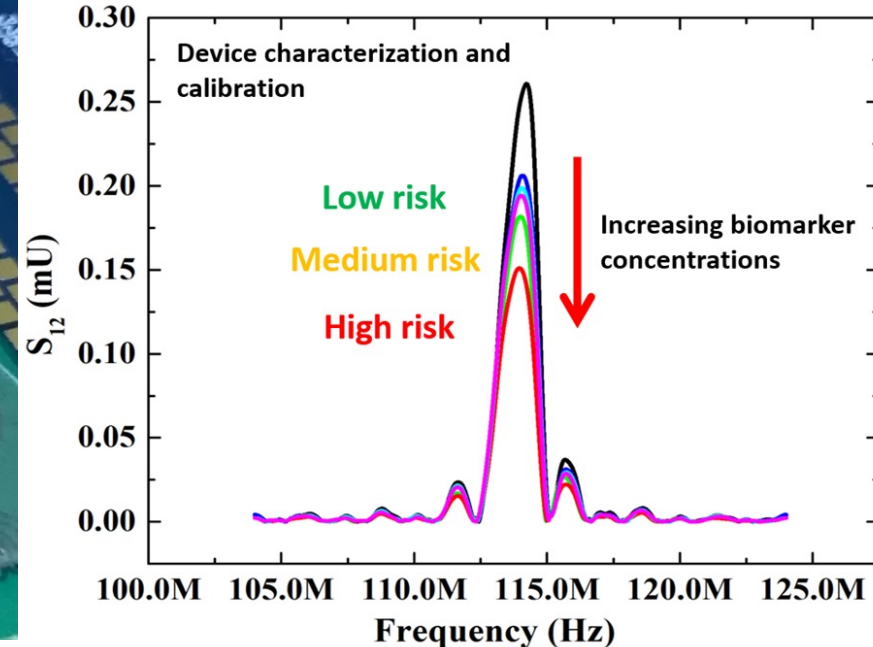
MIP BASED DETECTION



- ✓ **SAW sensing:** high sensitivity
- ✓ **MIP (artificial antibodies) capture probes:** high selectivity and no need for dedicated storage conditions
- ✓ **Selected biomarker from saliva:** highly affordable body fluid
- ✓ **Tool for physicians and dentist:** improved patient compliance



SAW ANALYSIS OF SALIVA SAMPLES



# SMILE project:

Commitment to COVID-19 research



Detection of biomarkers of Oral  
Cancer in saliva samples



Detection of SARS-Cov2 from  
saliva samples

FDA approved home saliva collection  
on 8<sup>th</sup> May 2020

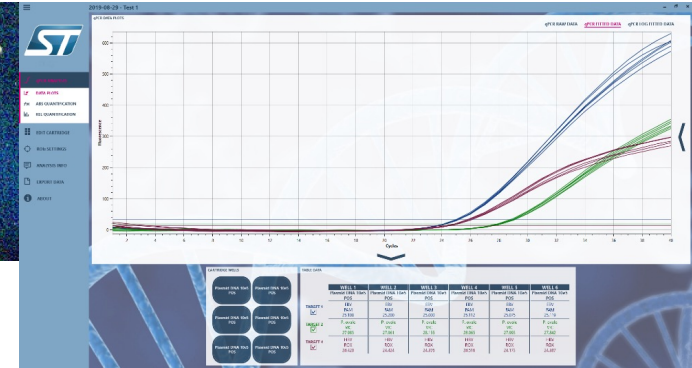
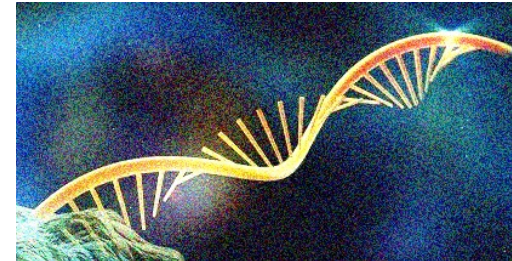


Sample preparation module required!

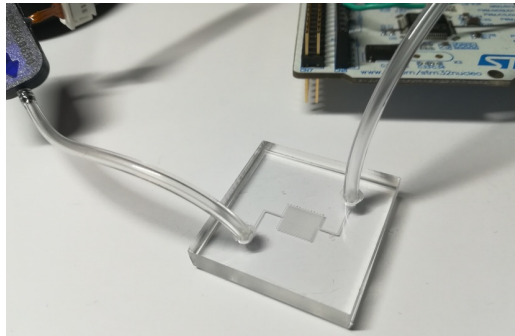
our approach:

✓ Plastic  
microfluidics

- ❑ Highly customizable design
- ❑ Micromilled-shaped channels
- ❑ Function integration (mixing, addition of reagents, storage and waste)
- ❑ Low costs – high throughput production



✓ Downstream molecular analysis:  
on-chip real time PCR system  
(STMicroelectronics)



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