nutrishield

Fact-based personalised nutrition for the young

H2020-SFS-2018-1
No. 818110
16 Partners - 48 months
Started: Nov. 2018
Coordinated by: Alpes Lasers

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 818110

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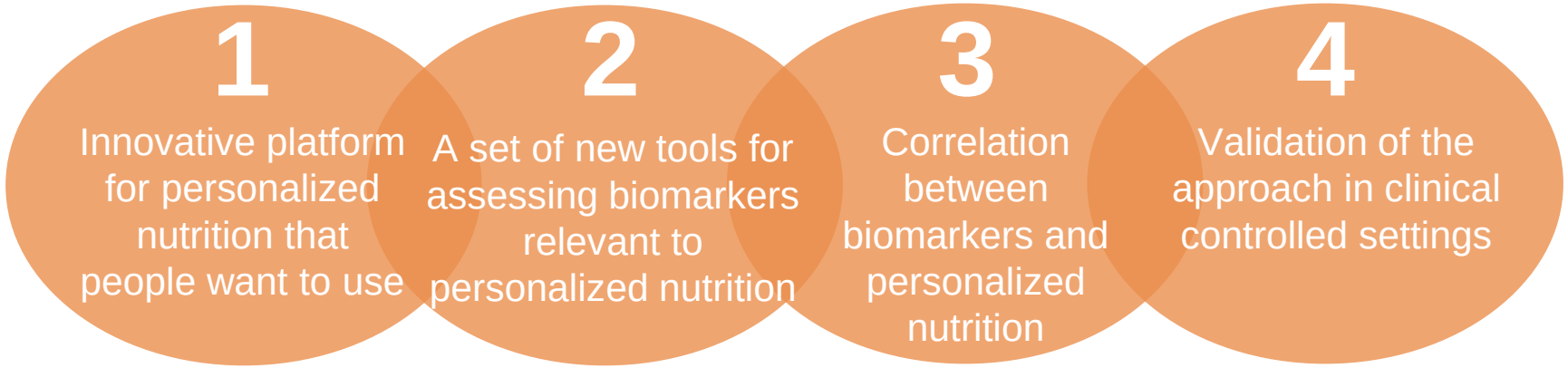
Concept



Use cases

Study I
Children with obesity and/or diabetes

Study II
Prematurely born infants and their lactating mothers

Study III
Avoid the development of cognitive decline in children

Drivers for photonics

Need for big data → Need for analysers → Need for lasers

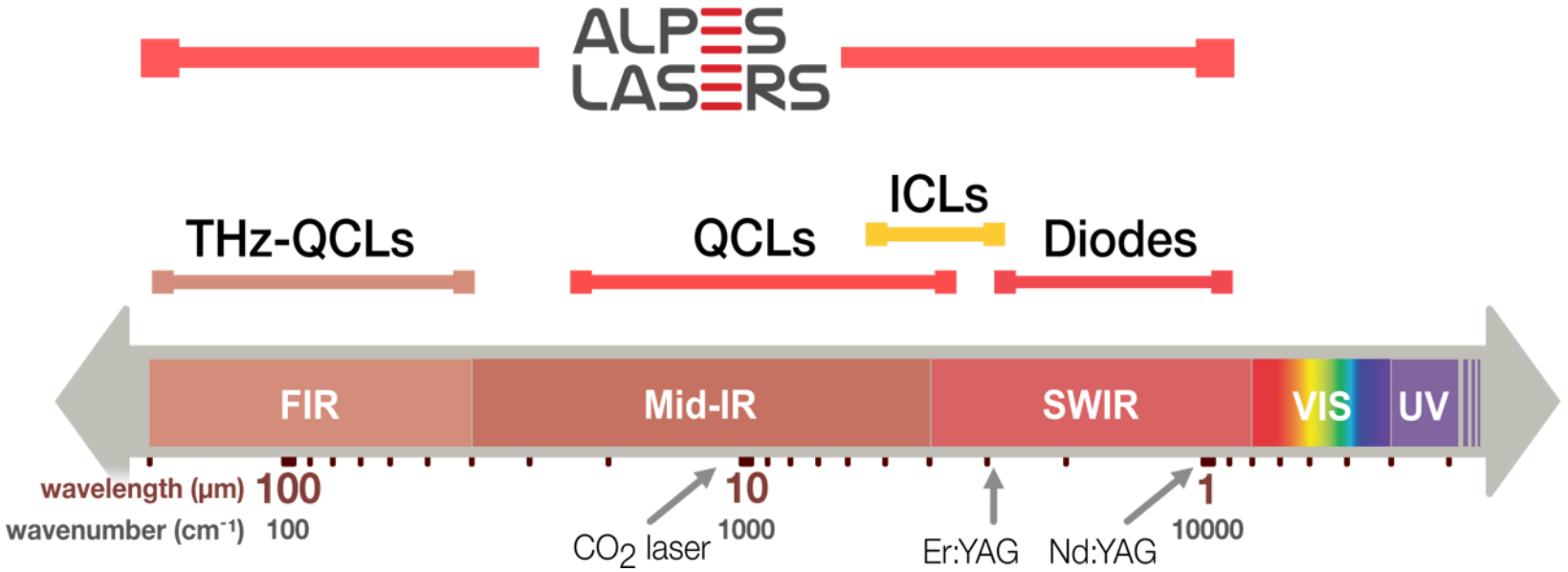
Analysers under development

Urine analyser

Human milk analyser

Breath analyser

Infrared laser sources (0.9-16 µm)
Terahertz laser sources (1.5- 5 THz)
QCLs – Quantum Cascade Lasers
ICLs – Interband Cascade Lasers
Diode Lasers









Urine Prototype – the path

Medical doctors/ nutritionists define the needs → Spectroscopy experts design the procedure → Tailor-designed lasers → System Integration → Validation in clinical settings

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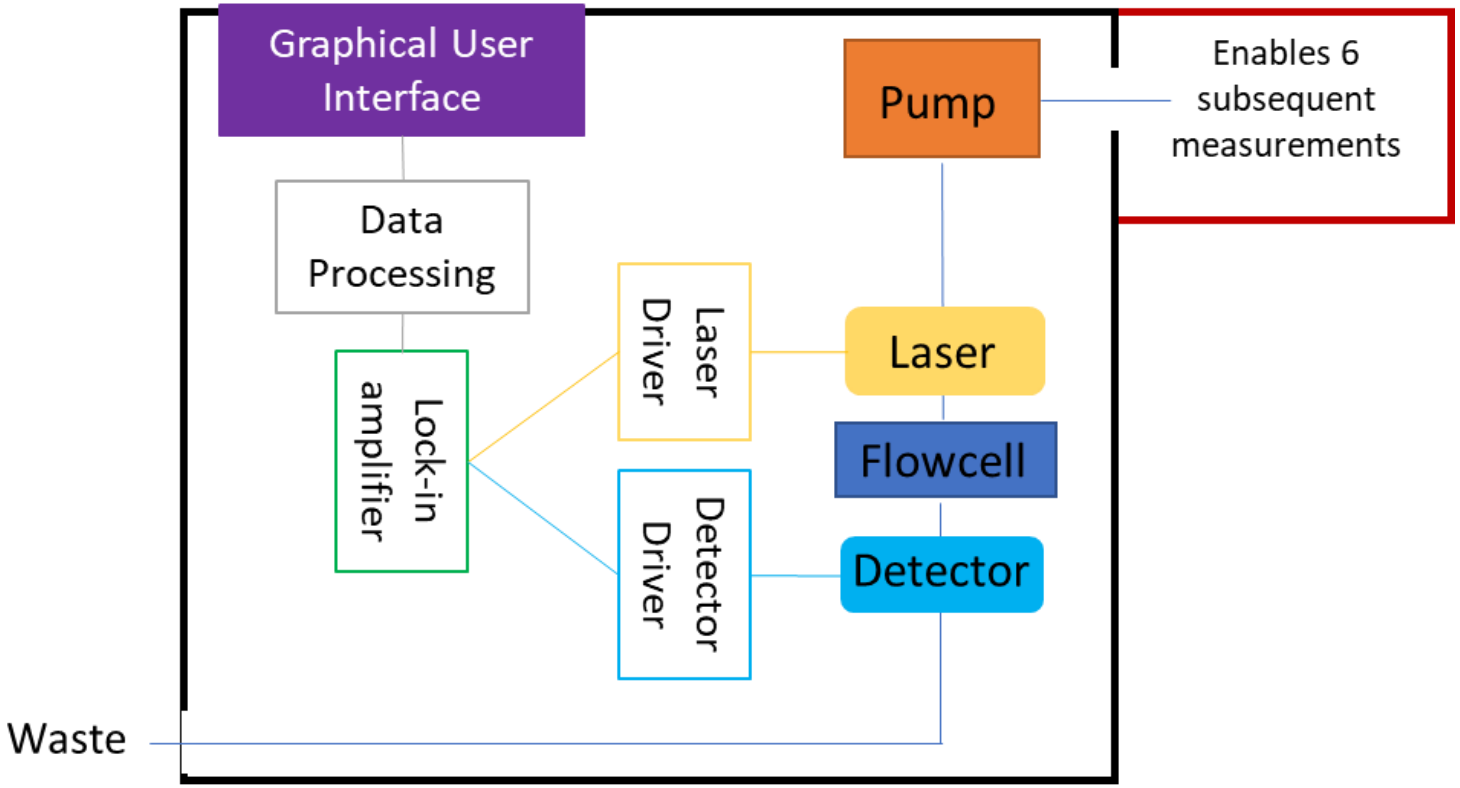
<u>Analytes</u>

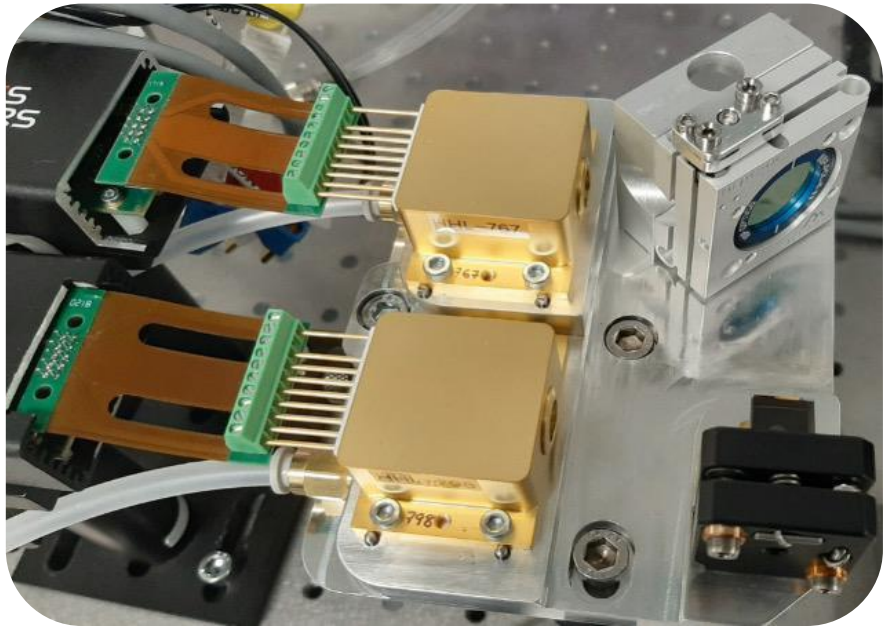
Phosphate

Creatinine

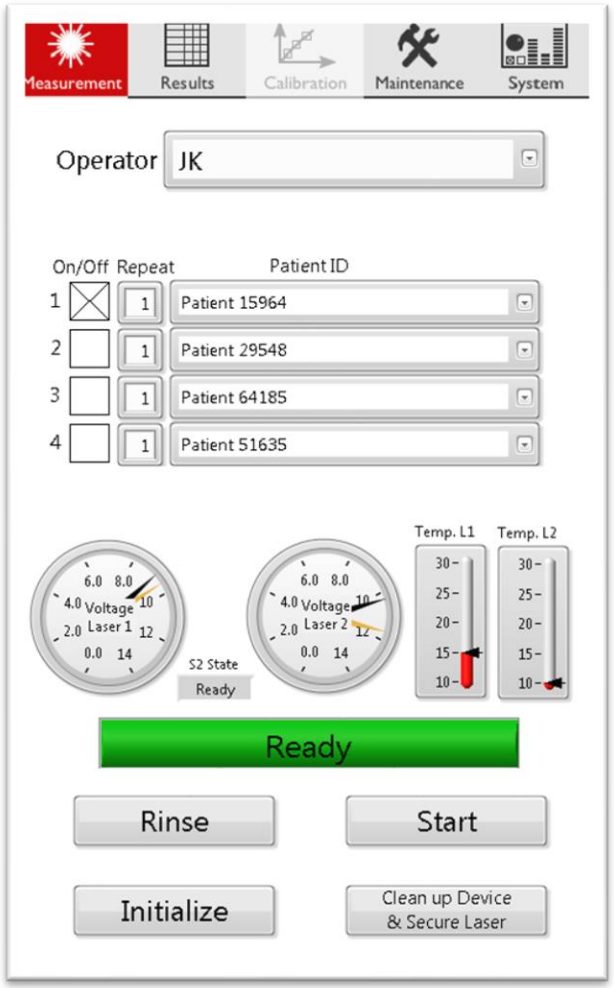
(around 10 and 7 µm)

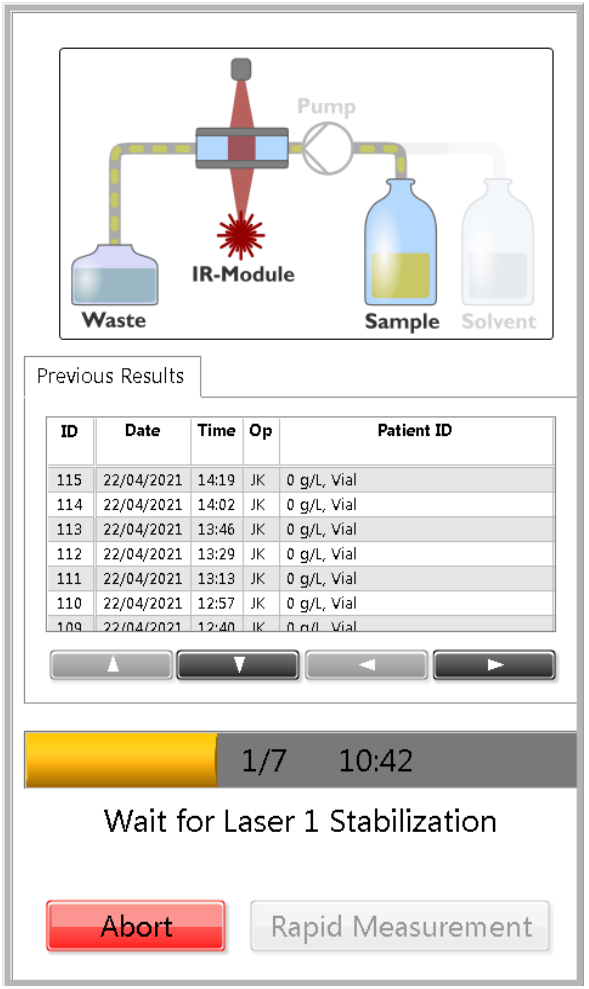
Urine Prototype – Laser integration





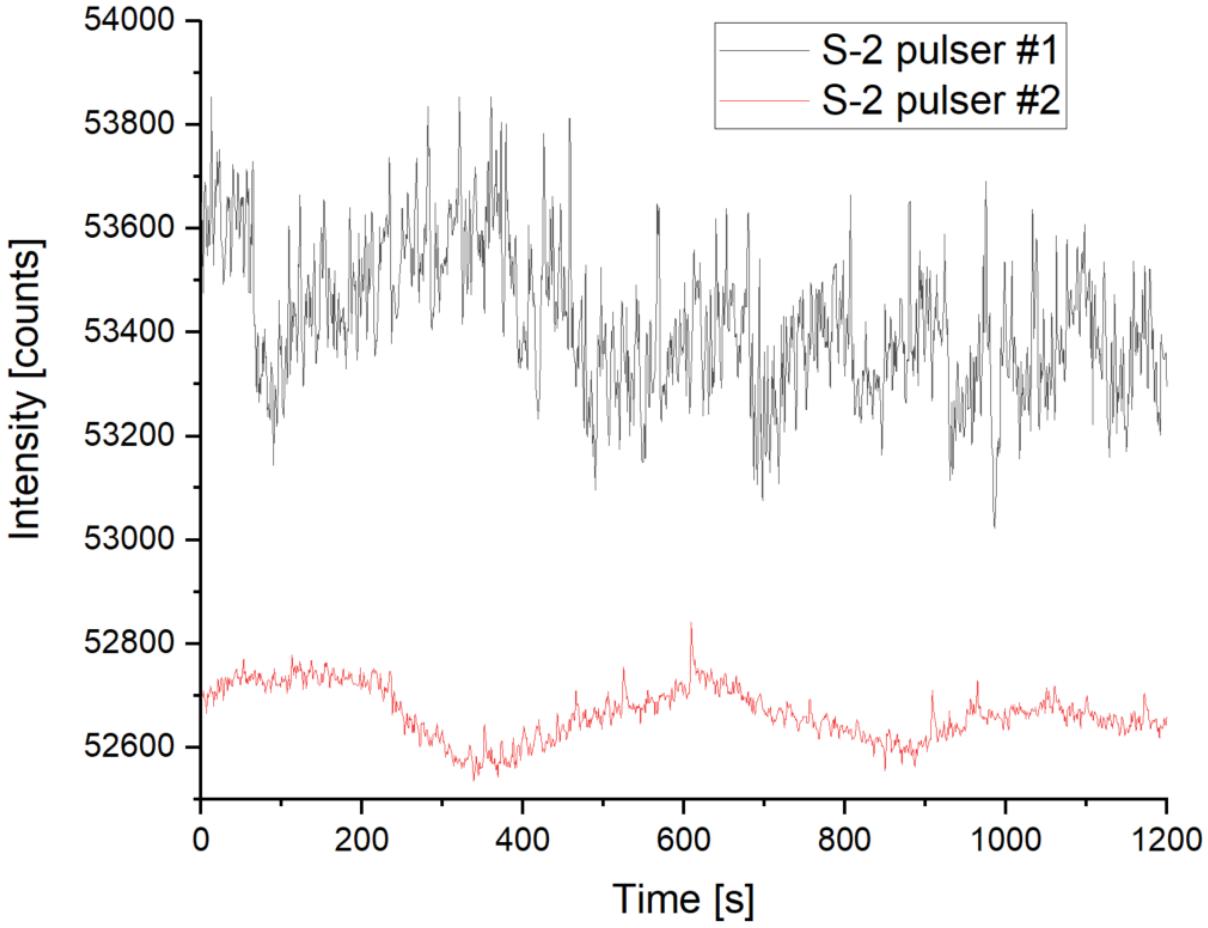
Urine Prototype – Ready for validation





0.35 m x 0.355 m × 0.355 m and 13 kg

Need for miniaturized laser drivers

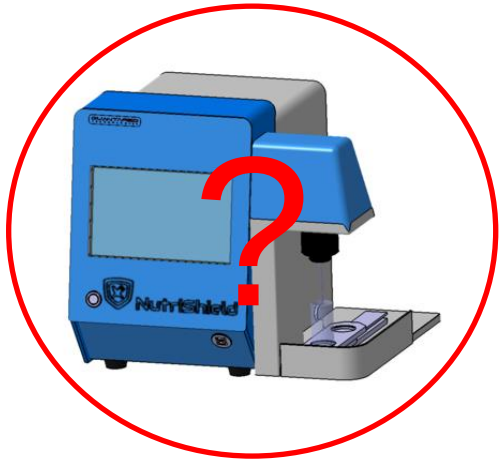


S-2 pulsers by Alpes Lasers used for CW mode:

- 20s peak to peak noise improvement from 2.69 to 0.50 mAU with firmware improvement
- 83 x 43 x 23 mm in housing

Vision

Medical doctors/ nutritionists define the needs → Spectroscopy experts design the procedure → Tailor-designed lasers → System Integration → Validation in clinical settings



- Measurement of more high impact analytes
- Further miniaturization of the device
- Use of tiny amounts of liquids
- User friendly / automated operation
- Enhanced performance (accuracy, measurement speed, …)
- Address other needs from the end users

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