



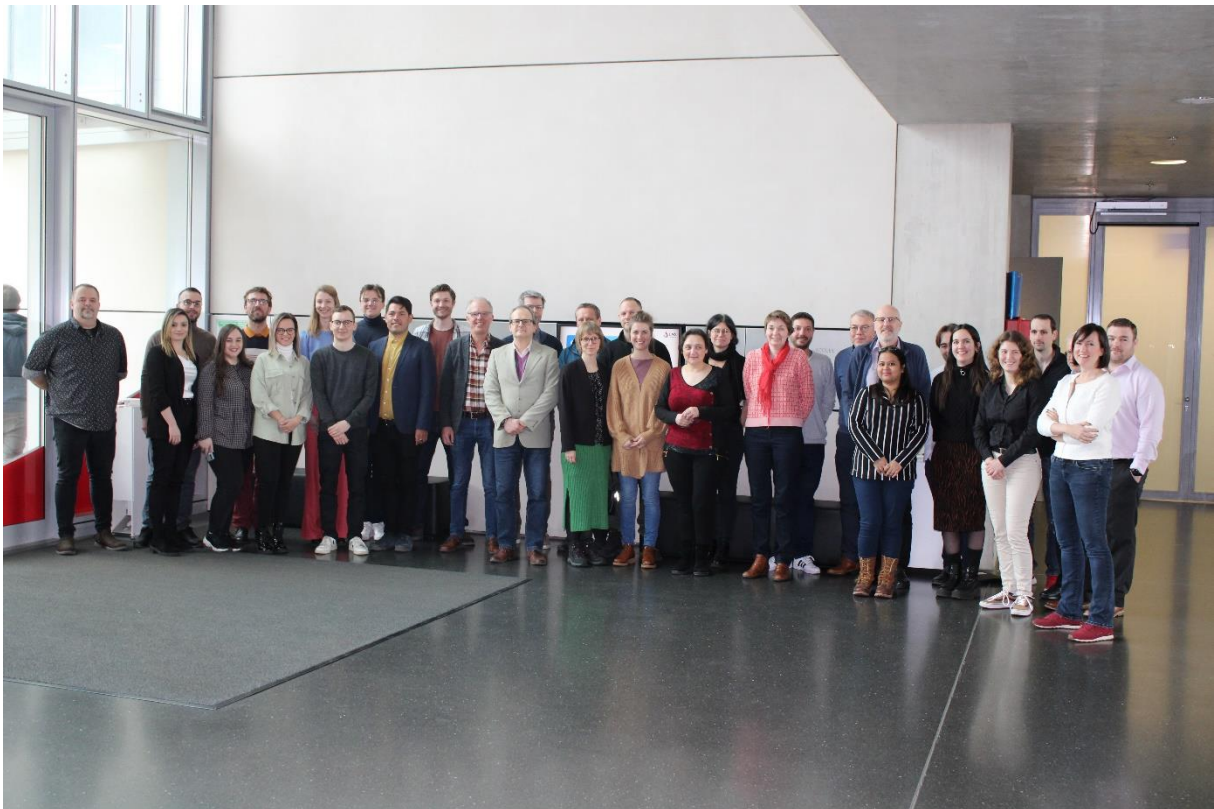
Science to end illicit drugs trafficking

BorderSens consortium met in Luxembourg at the end of March to test the prototypes for the detection of illicit drugs developed within the project

April 2023

On 29 and 30 March 2023, the consortium of the EU-funded project BorderSens met again to discuss the status of the project and its last outcomes. During the meeting, kindly hosted by the Luxembourgish Grand Ducale Police, the three prototypes for the detection of illicit drugs developed within the project were successfully tested with real samples. These prototypes are:

- The BorderSens array, which contains six electrochemical sensors with three different modifications (with graphene, low-charged carbon nanotubes and carbon nanotubes). When a sample is measured with all sensors, unique electrochemical fingerprints are recorded. By means of an AI-based algorithm, the six signals are analyzed to automatically identify the illicit drugs in the samples (if any).
- A single sensor device that allows the automatic detection of different drugs, provided that a flowchart is followed that tells the user which consumable (with a specific buffer solution) to choose.
- NanoMIPs sensors that allow the detection of both electroactive and non-electroactive drugs such as ketamine or amphetamine. The sensors are aimed to be very selective to a certain target and will work at different pHs and temperatures.



BorderSens consortium at the Laboratoire National de Santé facilities



The ultimate research aim of BorderSens is to develop a portable, wireless prototype device with the capability to quickly test for different types of illicit drugs, precursors and adulterants/cutting agents, with outstanding accuracy and reduced false positives and false negatives. To do so, BorderSens device will integrate electrochemical fingerprinting technologies, selective Nano Molecularly Imprinted Polymers (nanoMIPs), nanostructured sensors and advanced data analysis with customized algorithms.

BorderSens currently comprises 16 partners (universities, border authorities, police services in ports and airports, public organisations, and companies) from 8 EU member states, coordinated by the University of Antwerp (UA).

BorderSens team will meet again on 21 November 2023 in Antwerp (Belgium) for its final conference, which will include a demonstration of the BorderSens devices, lectures by relevant stakeholders (researchers, policy makers, LEAs...) and a panel discussion. The conference will be open to everyone free of charge (prior registration). More details will be announced in due date.

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