

### How to scale up a method from low throughput to high throughput for the quantification of 16 nucleosides? Lesson from experience.

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#### ▶ To cite this version:

Quentin Vandoolaeghe, Valérie Bouchart, Isabelle Vaudorne, Raphaël Delépée. How to scale up a method from low throughput to high throughput for the quantification of 16 nucleosides? Lesson from experience.. Congrès ANALYTICS 2022, Sep 2022, Nantes, France. hal-03846446

#### HAL Id: hal-03846446 https://normandie-univ.hal.science/hal-03846446

Submitted on 10 Nov 2022

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# How to scale up a method from low throughput to high throughput for the quantification of 16 nucleosides? Lesson from experience.

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### Context: Agriculture, pesticides and cancer

Link between occupational exposures and cancers demonstrated in farmers

Other determinants?

- Molecular epidemiology approach
- ☐ Investigation on biobanks samples
- ☐ Important statistical power needed

Pesticides exposure effects?

Agricultural cohort with exposure description and tasks listing

### EPIBIO97 Biobank

#### Biobank made with

- ❖ 795 individuals at initial sample time in Calvados department area with blood and urine samples
- **300 follow up** after 10 years

### Working in

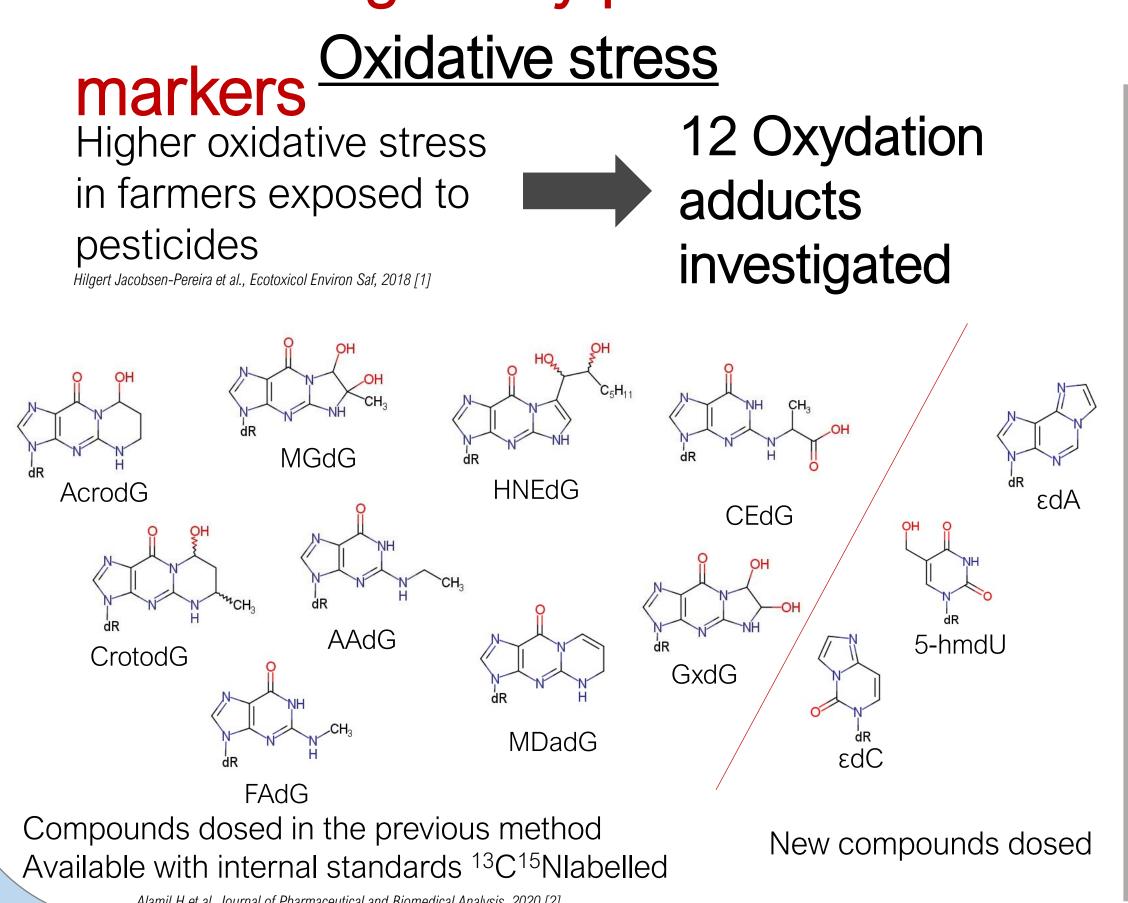
- Field Crop
- Bovine breeding

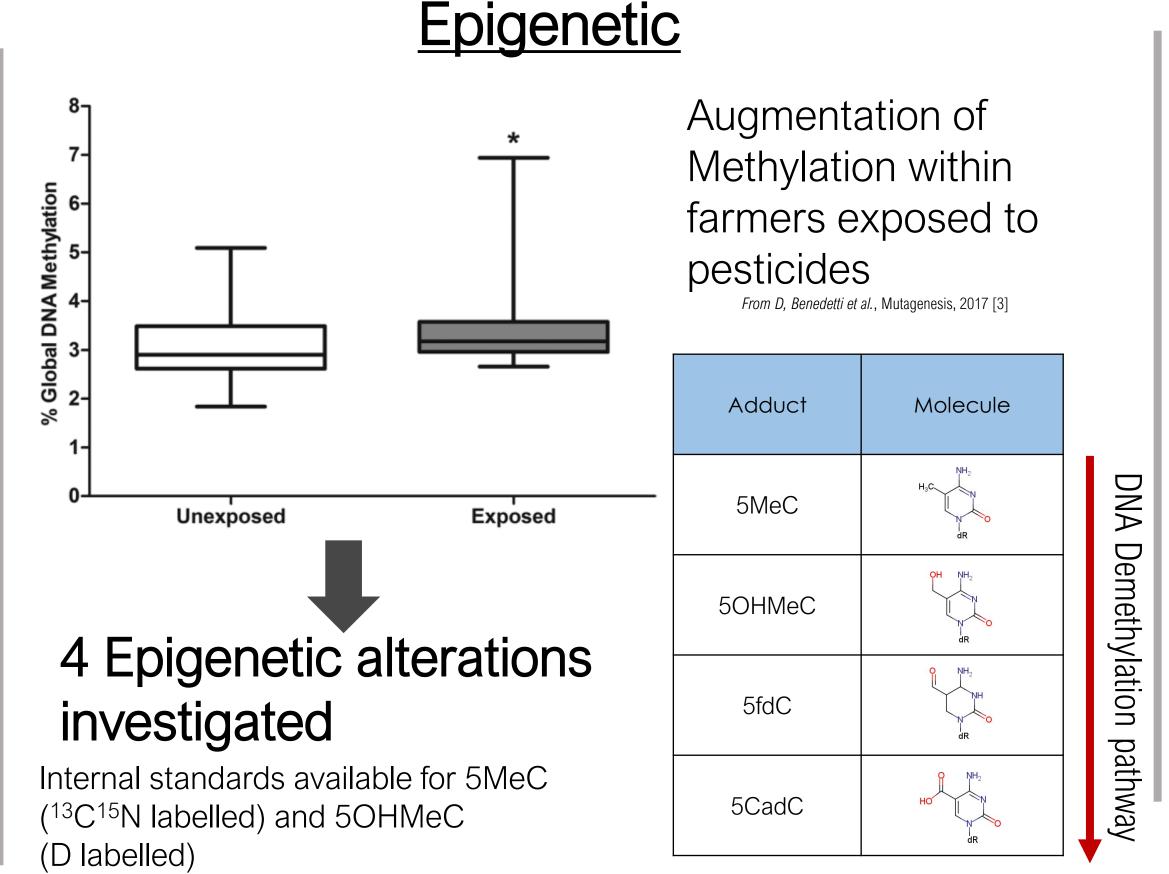




### Plausible mechanism of cancerogenicity

### 2 cancerogenicity possible mechanisms studied through analysis of epigenetic and genotoxic alteration





Development of a HPLC-HRMS/MS method for the simultaneous analysis of 16 nucleosides in human blood



Numerous sample preparation steps

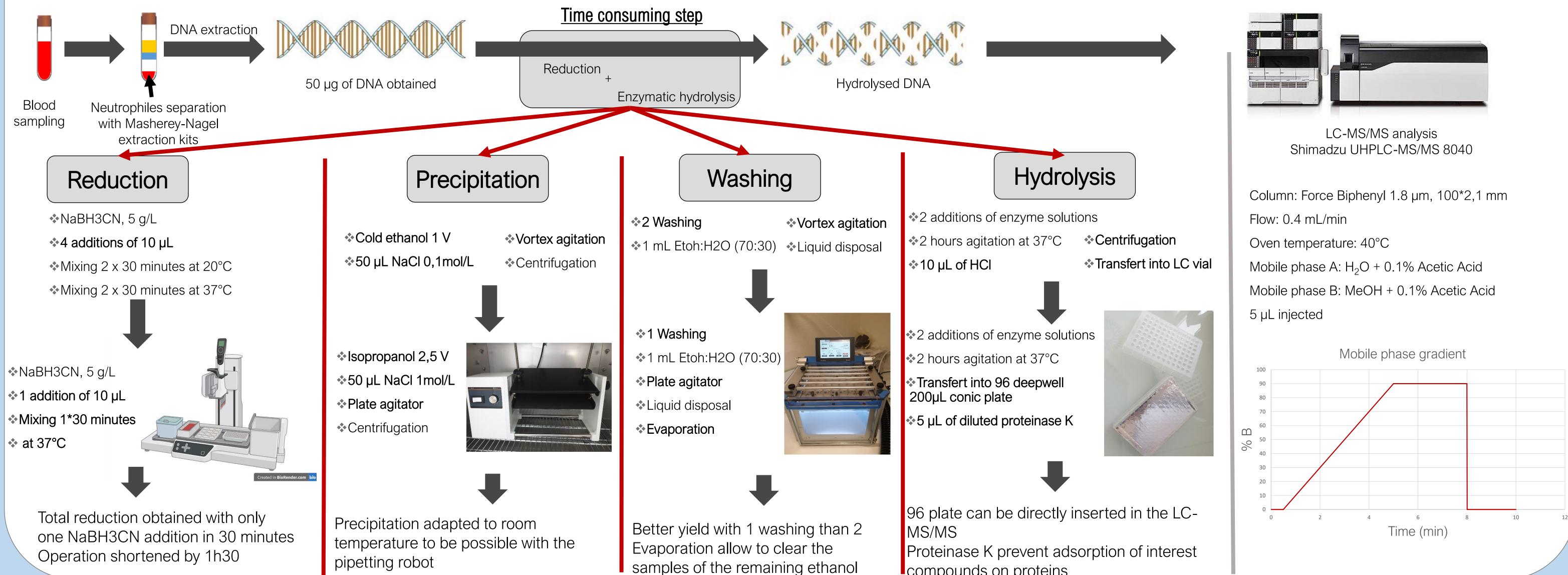


High throughput for the preparation of a high number of samples

## Analytical method

All solution additions are made with an Integra Assist+ pipetting robot

For each 96 well plate, 8 calibration points, 2 blanks, and 10 quality check are prepared, according to ICH M10 recommendation Sample preparation Analytical parameters



## Conclusion and current progression

- Optimisation for the preparation of 380 samples / week
- Analysis of the **795 agricultural workers** from the biobank
- Association of **DNA adduct profiles** with **occupational exposure** to pesticides
- Already more than 600 samples extracted
- First analysis currently ongoing











soybean farmers exposed to complex mixture of pesticides. Mutagenesis. 2018 Feb 24;33(1):87–95.

oxidative stress in farmers exposed to pesticides. Ecotoxicology and Environmental Safety. 2018 Feb;148:177–83.

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compounds on proteins



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