

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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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

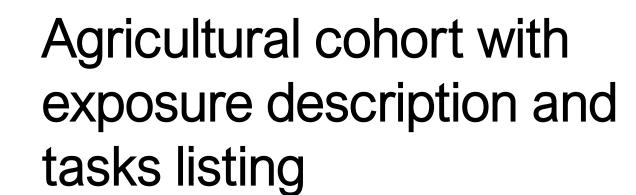
Molecular epidemiology approach

Investigation on biobanks samples

Important statistical power needed

Pesticides exposure effects?

Other determinants?



EPIBIO97 Biobank

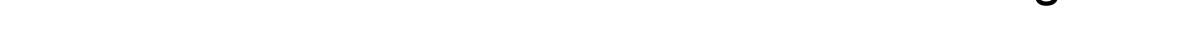
Biobank made with

- *** 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





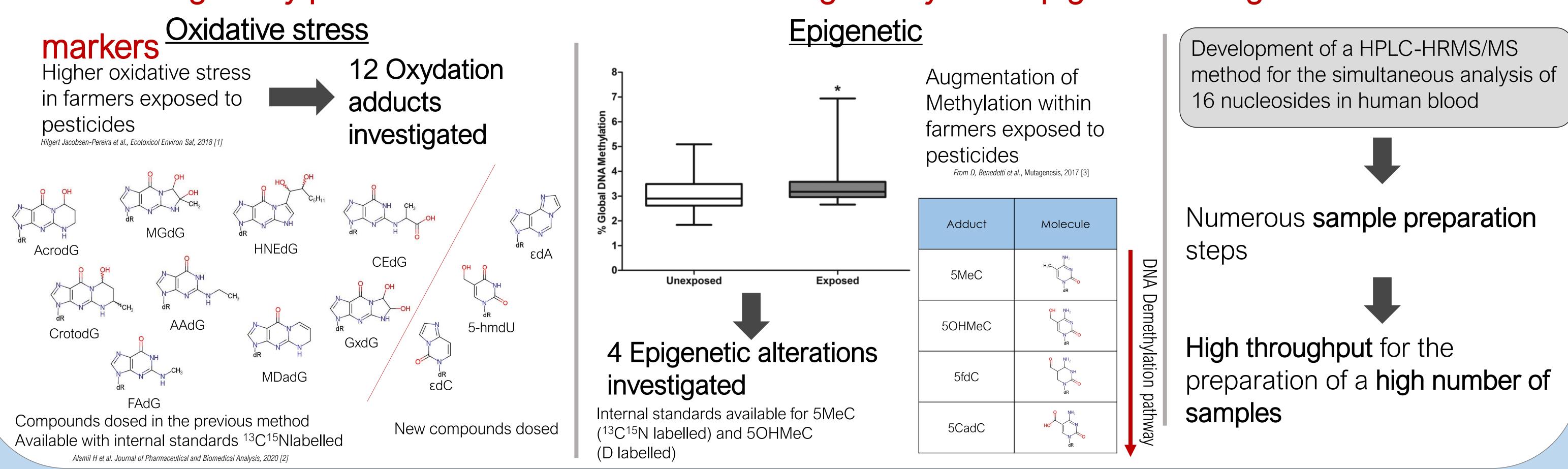


Bovine breeding

epidemiological questionnaire

Plausible mechanism of cancerogenicity

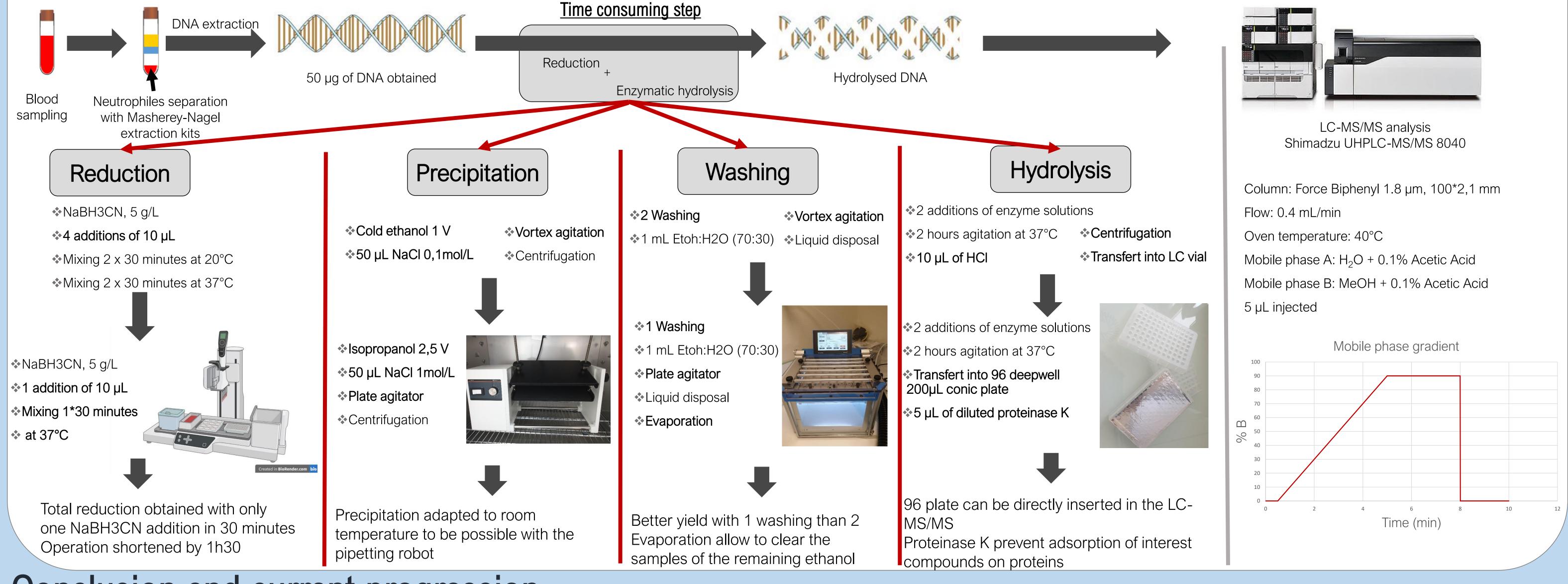
2 cancerogenicity possible mechanisms studied through analysis of epigenetic and genotoxic alteration



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

1. Hilgert Jacobsen-Pereira C, dos Santos CR, Troina Maraslis F, Pimentel L, Feijó AJL, Iomara Silva C, et al. Markers of genotoxicity and oxidative stress in farmers exposed to pesticides. Ecotoxicology and Environmental Safety. 2018 Feb;148:177–83.

2.Alamil H, Lechevrel M, Lagadu S, Galanti L, Dagher Z, Delépée R. A validated UHPLC-MS/MS method for simultaneous quantification of 9 exocyclic DNA adducts induced by 8 aldehydes. Journal of Pharmaceutical and Biomedical Analysis. 2020 Feb;179:113007

3.Benedetti D, Lopes Alderete B, de Souza CT, Ferraz Dias J, Niekraszewicz L, Cappetta M, et al. DNA damage and epigenetic alteration in soybean farmers exposed to complex mixture of pesticides. Mutagenesis. 2018 Feb 24;33(1):87–95.







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