

# Some of these biological signatures point towards the potential biological effects of OP pesticide and phthalate metabolites on the nervous system

## Childhood exposure to non-persistent endocrine disrupting chemicals and multi-omic profiles: a panel study

Lorenzo Fabri<sup>a, b, f</sup>, Ronan Garlantéz<sup>c</sup>, Karine Audouze<sup>d</sup>, Mariona Bustamante<sup>e, a, b, f</sup>, Ángel Carracedo<sup>g, h</sup>, Leda Chatzil<sup>i</sup>, Juan Ramón González<sup>a, j, f</sup>, Regina Gražulevičienė<sup>k</sup>, Barbara Heude<sup>l</sup>, Hector Keun<sup>m</sup>, Chung-Ho E Lau<sup>n, o</sup>, Eduard Sabidó<sup>e, b</sup>, Alexandros P Siskos<sup>m</sup>, Rémy Slama<sup>p</sup>, Cathrine Thomsen<sup>q</sup>, John Wright<sup>r</sup>, Wen Lun Yuan<sup>s</sup>, Maribel Casas<sup>a, b, f</sup>, Martine Vrijheid<sup>a, b, f</sup>, Léa Maitre<sup>a, b, f</sup>

<sup>a</sup> Barcelona Institute for Global Health (ISGlobal), Barcelona, Spain

<sup>b</sup> Universitat Pompeu Fabra (UPF), Barcelona, Spain

<sup>c</sup> Univ Rennes, CHU Rennes, Inserm, EHESP, Iset (Institut de recherche en santé environnement et travail), UMR\_S 1085, Rennes, France

<sup>d</sup> Université Paris Cité, T3S, INSERM UMR-S 1124, 45 rue des Saints Pères, Paris, France

<sup>e</sup> Center for Genomic Regulation (CRG), Barcelona Institute of Science and Technology (BIST), Barcelona, Spain

<sup>f</sup> CIBER Epidemiología y Salud Pública (CIBERESP), Madrid, Spain

<sup>g</sup> Medicine Genomics Group, Centro de Investigación Biomédica en Red Enfermedades Raras (CIBERER), University of Santiago de Compostela, CEGEN-PRB3, Santiago de Compostela, Spain

<sup>h</sup> Galician Foundation of Genomic Medicine, Instituto de Investigación Sanitaria de Santiago de Compostela (IDIS), Servicio Gallego de Salud (SERGAS), Santiago de Compostela, Spain

<sup>i</sup> Department of Preventive Medicine, Keck School of Medicine, University of Southern California, Los Angeles, USA

<sup>j</sup> Department of Mathematics, Universitat Autònoma de Barcelona, Bellaterra, Spain

<sup>k</sup> Department of Environmental Sciences, Vytautas Magnus University, Kaunas, Lithuania

<sup>l</sup> Université de Paris, Centre for Research in Epidemiology and Statistics (CRESS), Inserm, INRAE, Paris, France

<sup>m</sup> Cancer Metabolism & Systems Toxicology Group, Division of Cancer, Department of Surgery and Cancer & Division of Systems Medicine, Department of Metabolism, Digestion & Reproduction, Imperial College London, Hammersmith Hospital Campus, London, UK

<sup>n</sup> MRC Centre for Environment and Health, School of Public Health, Imperial College London, London, UK

<sup>o</sup> Division of Systems Medicine, Department of Metabolism, Digestion & Reproduction, Imperial College, South Kensington, London, UK

<sup>p</sup> Team of Environmental Epidemiology applied to Reproduction and Respiratory Health, Institute for Advanced Biosciences (IAB), Inserm, CNRS, Université Grenoble Alpes, Grenoble, France

<sup>q</sup> Department of Environmental Health, Norwegian Institute of Public Health, Oslo, Norway

<sup>r</sup> Bradford Institute for Health Research, Bradford Teaching Hospitals NHS Foundation Trust, Bradford, UK

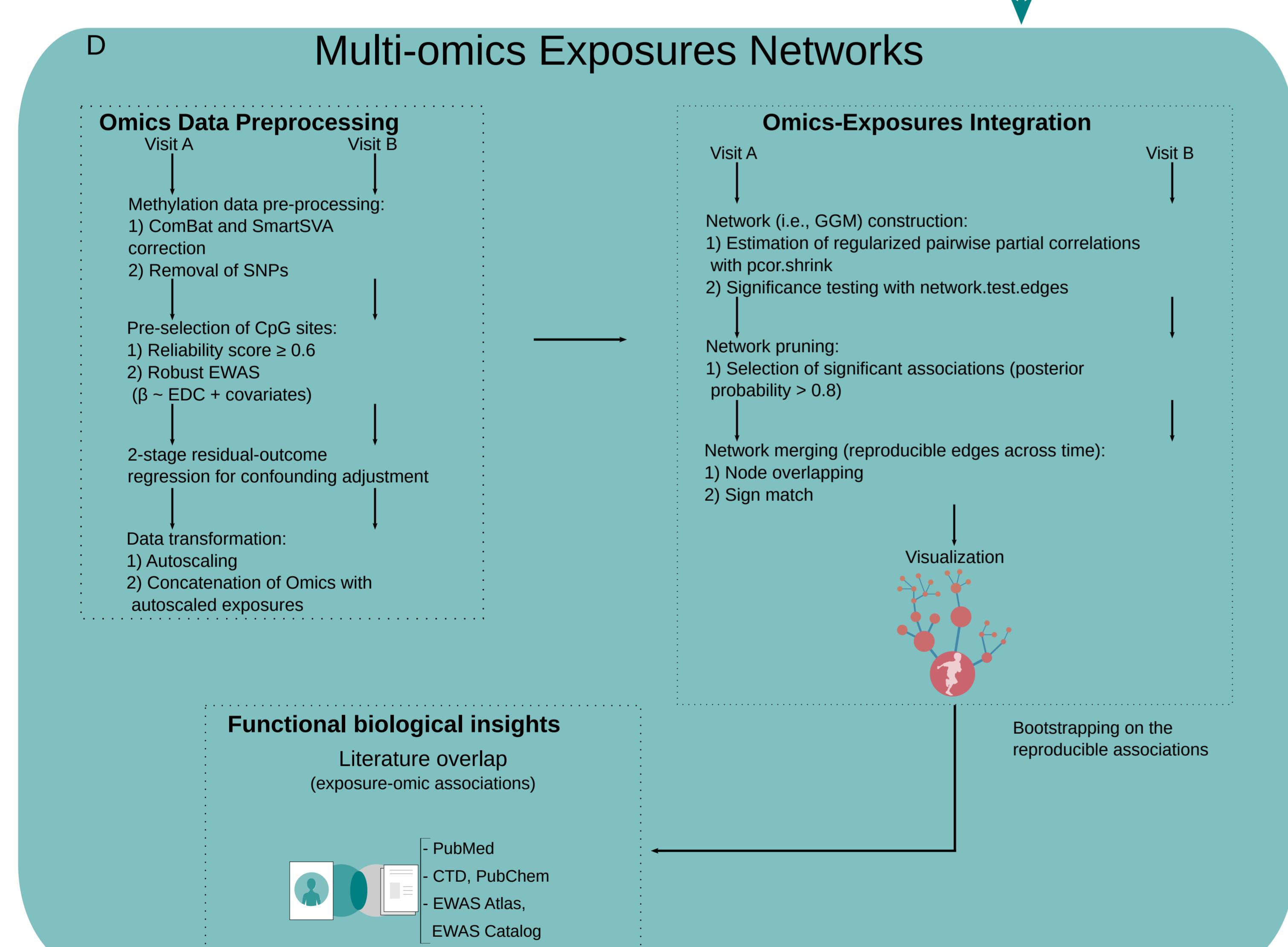
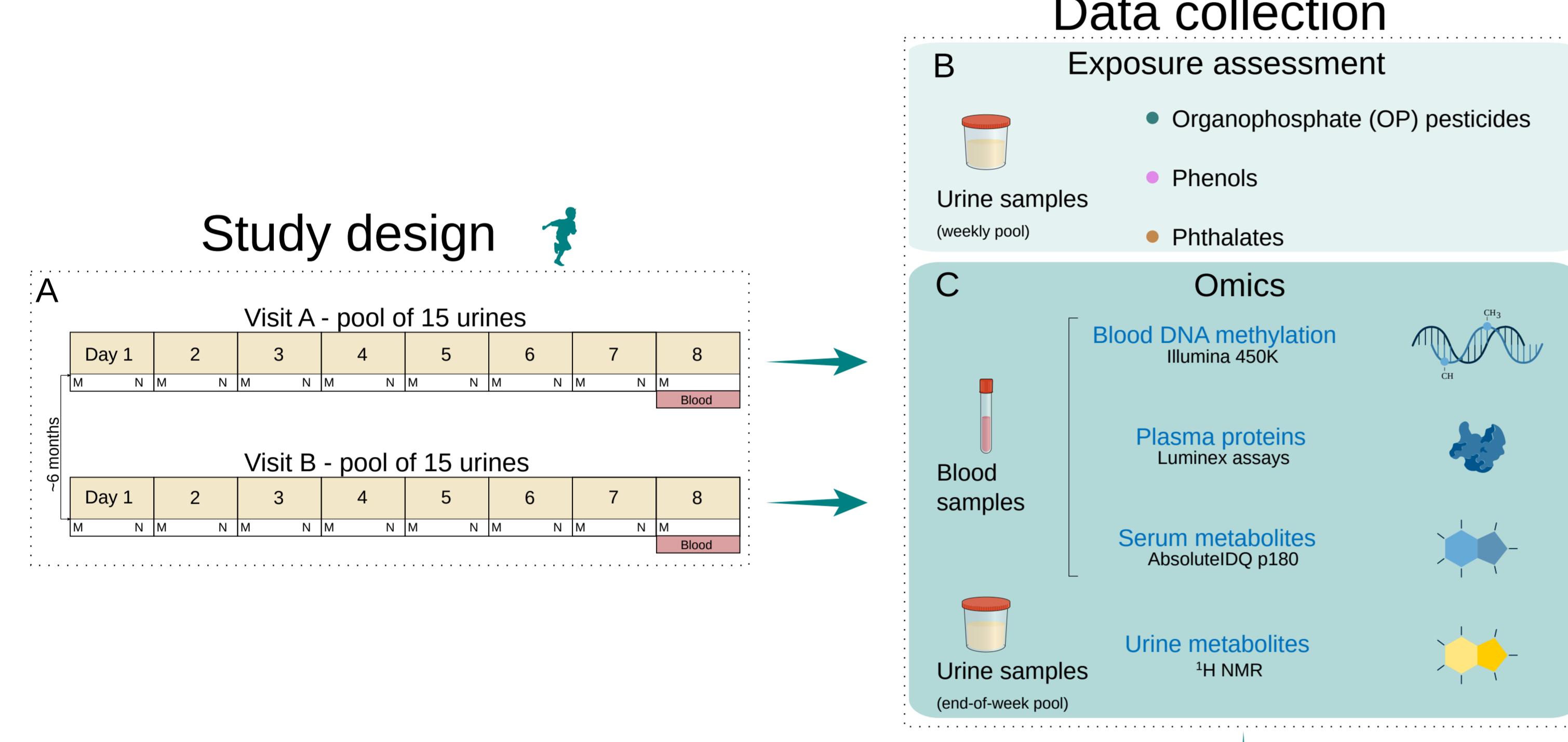
<sup>s</sup> Singapore Institute for Clinical Sciences (SICS), Agency for Science, Technology, and Research (A\*STAR), Singapore, Singapore

## Background & Objectives

- Individuals are exposed to multiple environmental pollutants with endocrine disrupting activity (endocrine disruptors, EDCs)
- Few studies have integrated multiple omic layers, especially in a child cohort
- We aimed to identify multi-omic signatures associated with childhood exposure to non-persistent EDCs using a network approach

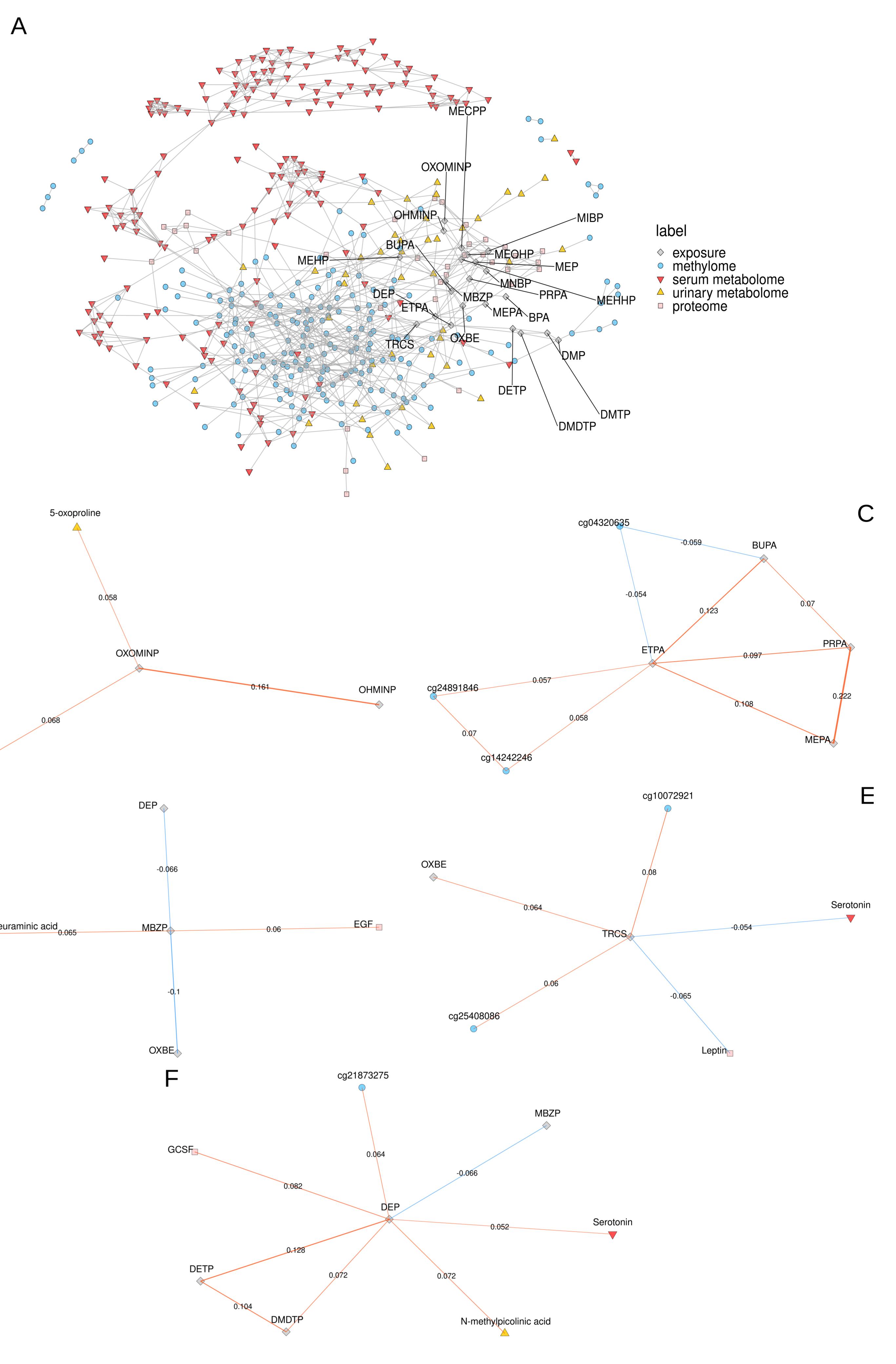
## Methods

- Data: HELIX (Human Early-Life Exposome) Child Panel Study



## Results

### Merged network: reproducible associations across visits



The process of network merging led to the exclusion of a significant number of edges, maintaining 950 edges compared to 4,083 and 4,908 in networks A and B, respectively

Chemical class	Compound	Omic layer	Omic feature	Median pcor	Biological interpretation
OP pesticides	DEP	Serum metabolome	Serotonin	0.052	Exposure to pesticides linked to changes in the serotonergic system [1-3]
Phenols	TRCS	Serum metabolome	Serotonin	-0.055	Association between personal care product ingredients and serotonin [4]
Phthalates	oh-MiNP	Serum metabolome	Kynurenone	-0.056	Mediating effect of quinolic acid on exposure to phthalates and neurological disorders [5]
Phenols	TRCS	Proteome	Leptin	-0.066	Effect of mixtures of phenols and parabens [6]

## Conclusions

- We employed an integrative method to investigate reproducible associations between non-persistent EDCs and multi-omic profiles in a child cohort
- Strengths: repeated pooled samples of urines; quantifiable measurements of the metabolome
- Limitations: relatively small sample size; residual confounding
- Some of these biological signatures point towards the potential biological effects of OP pesticides and phthalates on the nervous system

## References

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