The Pro001 data product

Original number of samples	950
Number of samples (per 06.10.2023)	947
Number of unique participants	947
Biological sample type	Plasma
Participant type(s)	MoBa mothers
Collection timepoint	Gestational week ~17
Selection criteria	Subfecundity
Metabolite type(s)	Hormone, metabolic and inflammatory biomarkers
Original reference article	Whitworth et al. 2012
Analytical method(s)	Olympus AU400e Clinical Chemistry Analyzer; Immunoassay
Related MoBaBIO product(s)	Mab003
FHI Project number(s)	PDB646

The project that generated these data

Perfluorinated alkyl levels in plasma in relation to time-to-pregnancy

Project lead: Merethe Eggesbø

The purpose of this study was to test the hypothesis that higher blood levels of PFOS and PFOA are associated with a longer time-to-pregnancy in a nested case-control study of women in the Norwegian Mother and Child Cohort (MoBa) study.

Study population

The original Pro001 proteomics data source is based on plasma samples from **950 mothers** and comprises a case-control study design. Cases consist of 400 mothers whose time-to-pregnancy exceeded 12 months (thus defined as subfecund), and whose pregnancy was planned, while controls were comprised of 550 randomly selected MoBa mothers who reported a time to pregnancy of any duration. MoBa mothers were eligible for inclusion based on the availability of plasma samples collected in the second trimester (ca. 17-18 weeks gestation) and if their child was live-born. The sample was further restricted to only include women who enrolled in the MoBa study between 2003-2004.

Available metabolic measures (variable names in bold)

Albumin (**ALB**)
Apolipoprotein B (**ApoB**)
C-reactive protein (**CRP**)
Cholesterol (**CHOL**)
Low-density lipoprotein cholesterol (**LDL**)
High-density lipoprotein cholesterol (**HDL**)
Thyroid stimulating hormone (**TSH_1**, **TSH_2**: duplicate measurements)
Triglycerides (**TRIG**)
Uric Acid (**UA**)

Definition of cases and controls in the dataset

The variable *CaseControlGrp* that is provided with the Pro001 dataset defines cases by "Case" and controls by "Control".

Biological sampling and processing

Non-fasting blood samples were collected from mothers at 17-18 weeks' gestation into ethylenediaminetetraacetic acid (EDTA) tubes, centrifuged within 30 minutes, and temporarily placed in a refrigerator at 4 °C. They were shipped from the collecting hospital overnight to MoBa's biobank at the Norwegian Institute of Public Health (NIPH). The samples

most often arrived at the biobank within 1–2 days of blood donation, where EDTA plasma were aliquoted onto polypropylene microtiter plates (96-well format, 300 µL per well), sealed with the use of heat-sealing foil sheets, and placed in long-term storage at −80 °C.

For more information on biological sampling, processing and storage, please refer to the original reference articles for NIPH's biobank by Rønningen *et al*. 2006 and Paltiel *et al*. 2014.

Analytical methodology

Albumin, triglycerides, total cholesterol, apolipoprotein B, c-reactive protein, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol and uric acid were determined in plasma specimens with an **Olympus AU400e Clinical Chemistry Analyzer** (Olympus America Inc., Irvin, TX, USA).

Thyroid stimulating hormone measurements were performed on the same plasma specimens using an **immunoassay** (MILLIPLEX map kit, Millipore Corporation, Billerica, MA, USA) on the **LiquiChip 200 Workstation** (Qiagen Inc., Germantown, MD)

Measurement units:

Albumin: **g/dL**
Apolipoprotein B: **mg/dL**
Cholesterol, Low-density lipoprotein cholesterol, High-density lipoprotein cholesterol, Triglycerides: **mg/dL**
TSH: **µIU/mL**
CRP: **mg/L**
Uric acid: **mg/dL**

Limit of quantification (LOQ):

TSH: **0.01 µIU/mL**
CRP: **0.05 mg/L**
Cholesterol: **25 mg/dL**
HDL cholesterol: **2.5 mg/dL**
LDL cholesterol: **7.0 mg/dL**
Triglycerides: **10 mg/dL**

*LOQs for Albumin, Apolipoprotein B and uric acid are not currently available

Published articles using Pro001

This section also includes articles related to study design, sampling, and data collection.

- Wang Y, Cupul-Uicab LA, Rogan WJ, et al. Recreational Exercise Before and During Pregnancy in Relation to Plasma C-Reactive Protein Concentrations in Pregnant Women. J Phys Act Health. 2015 Jun;12(6):770-5.

- Ding J, Zhou H, Liu Y, Cai J, Longnecker MP. Estimating effect of environmental contaminants on women's subfecundity for the MoBa study data with an outcome-dependent sampling scheme. Biostatistics. 2014 Oct;15(4):636-50.
- Starling AP, Engel SM, Whitworth KW, et al. Perfluoroalkyl substances and lipid concentrations in plasma during pregnancy among women in the Norwegian Mother and Child Cohort Study. Environ Int. 2014 Jan;62:104-12.
- Wang Y, Starling AP, Haug LS, et al. Association between perfluoroalkyl substances and thyroid stimulating hormone among pregnant women: a cross-sectional study. Environ Health. 2013 Sep 8;12(1):76. doi: 10.1186/1476-069X-12-76.
- Cupul-Uicab LA, Skjaerven R, Haug K, et al. Exposure to tobacco smoke in utero and subsequent plasma lipids, ApoB, and CRP among adult women in the MoBa cohort. Environ Health Perspect. 2012 Nov;120(11):1532-7.

Restrictions for use

None currently known.

Acknowledgements recommended for use

We recommend that any use of these data in analyses that are presented in peer-review publications acknowledges the original article describing sampling and data collection:

Whitworth KW, Haug LS, Baird DD, et al. Perfluorinated compounds and subfecundity in pregnant women. Epidemiology. 2012 Mar;23(2):257-63.

Disclaimer

The data in Pro001 that are available for use are provided by MoBa on an *as is* basis as they were received from the generating laboratory and have not been curated or quality controlled prior to release. FHI does not provide any guarantees related to data quality and assurance of the original dataset. We reserve the right to periodically remove samples from the dataset belonging to participants who have retracted their consent to participate in this cohort study, and may alter the contents of the associated documentation accordingly.