

Partnership for the Assessment of Risks from Chemicals

P4.1.1.1_Y1_GenHBMSurvey - First interim progress report

WP 4



Partnership
FOR THE
Assessment
OF
Risks
FROM
Chemicals



Co-funded by
the European Union

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Introduction

As a follow-up to the Aligned Studies that have been organized under HBM4EU, PARC will also organize a human biomonitoring (HBM) survey with EU wide coverage by aligning and harmonizing national and/or regional HBM studies across Europe.

The objectives of the PARC Aligned Studies are:

- to obtain HBM data for priority substances which are comparable between EU countries/regions;
- to calculate European exposure values allowing comparison with international HBM programmes or with previous EU projects;
- to identify exposure determinants, sources and/or routes;
- to characterize exposure mixtures;
- to study exposure-effect associations;
- to compare HBM data with available health based HBM guidance values.

The PARC Aligned Studies address the general population and focusses on 3 age groups: children between 6-11 years of age, teenagers between 12-17 years of age and adults between 18-39 years of age.

During the first 1.5 years of PARC, the general criteria for the PARC Aligned Studies (also referred to as PARC General Survey) have been defined (MS10: [PARC general survey design.pdf](#)). HBM studies eligible to contribute to the PARC Aligned Studies have been identified and included in the project ([L1-landmark report](#)). Supporting materials such as best practice guidelines for sampling and questionnaires have been developed (AD4.1). Also, a guidance document on sampling strategies has been developed ([PARC protocol sampling strategy.pdf](#)). The selection of exposure biomarkers to be measured has been refined (see section 2 of this progress report). Two workshops (hybrid, with both in-person and virtual participation) were organized by the study coordinators. One in Brussels 10-11 May 2023 and one in Paris 12 October 2023 (back-to-back with the WP4 meeting). In Brussels the objectives and harmonization criteria for the PARC Aligned Studies were introduced and the participants presented the HBM studies from their country/region that will contribute to the PARC Aligned Studies. Both meetings provided a platform for partners to exchange their experiences related to setting up and performing an HBM campaign.

Overview of all countries and partners contributing to the PARC Aligned Studies

In total 24 countries are contributing to the PARC Aligned Studies. The PARC Aligned Studies target 3 age groups: children, teenagers, and adults. 16 countries will contribute with HBM in children, 12 countries will contribute with HBM in teenagers and 20 countries will contribute with HBM in adults. Discussions are ongoing concerning potential contribution from Slovakia and Ireland.

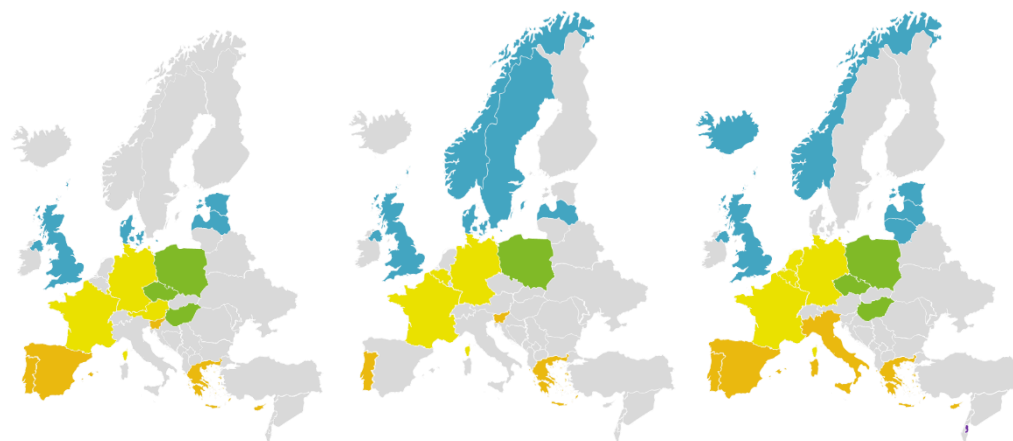


Figure 1: Map of countries contributing with HBM to the PARC Aligned Studies. From left to right, studies targeting children -> teenagers -> adults.

Table 1: Countries and partner institutes contributing to the PARC Aligned Studies in the different age groups.

EU region	Countries	Institute	Children	Teenagers	Adults
W	Austria	EAA	√		
W	Belgium	VITO; PIH; ISSeP		√	√
S	Cyprus	MOH-CY / SGL	√		√
E	Czech Republic	SZU-CZ (NIPH)	√		√
N	Denmark	RegionH	√	√	
N	Estonia	University Tartu / Health board	√		√
W	France	SpFrance	√	√	√
W	Germany	UBA	√	√	√
S	Greece	AUTH	√	√	√
E	Hungary	NCPHP	√		√
N	Iceland	UI			√
-	Israel	MOH-IL			√
S	Italy	ISS			√
N	Latvia	RSU	√	√	√
N	Lithuania	LSMU			√
W	Luxembourg	LNS	√		√
N	Norway	NIPH		√	√
W	Netherlands	RIVM			√
E	Poland	NIOM; WULS	√	√	√
S	Portugal	INSA	√	√	√
S	Slovenia	JSI; NIJZ	√	√	
S	Spain	ISCIII; EASP; EHU/UPV	√		√
N	Sweden	ULUND; KI; UmU		√	
N	UK	UKHSE	√	√	√
	24		16	12	20

Exposure biomarkers selected for the PARC Aligned Studies

All contributing studies must deliver data that is part of the Minimum compulsory set, they are encouraged to measure also the markers in the complete set and discovery scope.

Exposure biomarkers		Child.	Teen.	Adults	PARC selection
Bisphenols					
Bisphenol A total	BPA total	√	√	√	Min. compulsory set
Bisphenol S total	BPS total	√	√	√	Min. compulsory set
Bisphenol F total	BPF total	√	√	√	Min. compulsory set
Bisphenol E total	BPE total	√	√	√	Discovery scope
Bisphenol AP total	BPAP total	√	√	√	Discovery scope
Bisphenol AF total	BPAF total	√	√	√	Discovery scope
Bisphenol Z total	BPZ total	√	√	√	Discovery scope
Bisphenol B total	BPB total	√	√	√	Discovery scope
Bisphenol P total	BPP total	√	√	√	Discovery scope
Phthalates					
Mono-benzyl phthalate	MBzP	√	√	√	Min. compulsory set
Mono-isobutyl phthalate	MiBP	√	√	√	Min. compulsory set
Mono-n-butyl phthalate	MnBP	√	√	√	Min. compulsory set
Mono(2-ethylhexyl) phthalate	MEHP	√	√	√	Min. compulsory set
Mono(2-ethyl-5-hydroxy-hexyl) phthalate	5OH-MEHP	√	√	√	Min. compulsory set
Mono(2-ethyl-5-oxo-hexyl) phthalate	5oxo-MEHP	√	√	√	Min. compulsory set
Mono(2-ethyl-5-carboxy- pentyl) phthalate	5cx-MEPP	√	√	√	Min. compulsory set
7-Carboxy-(mono-methyl- heptyl) phthalate - isomers!	cx-MiNP - isomers!	√	√	√	Min. compulsory set
Mono-ethyl phthalate	MEP	√	√	√	Min. compulsory set
7-OH-(Mono-methyl-octyl) phthalate - isomers!	OH-MiNP - isomers!	√	√	√	Complete set
Mono-n-pentyl phthalate	MnPeP	√	√	√	Discovery scope
Mono-n-octyl phthalate	MnOP, MOP	√	√	√	Discovery scope
Mono-cyclo-hexyl phthalate	MCHP	√	√	√	Discovery scope
6-OH-Mono-propyl-heptyl phthalate - isomers!	OH-MiDP - isomers!	√	√	√	Discovery scope

Mono-carboxy-isodecyl phthalate - isomers!	cx-MiDP - isomers!	√	√	√	Discovery scope
DINCH and alternative Phthalate substitutes					
Cyclohexane-1,2-dicarboxylate-mono-(7-hydroxy-4-methyl)octyl ester	OH-MINCH - isomers!	√	√	√	Min. compulsory set
Cyclohexane-1,2-dicarboxylate-mono-(7-carboxylate-4-methyl)heptyl ester	cx-MINCH - isomers!	√	√	√	Min. compulsory set
Cyclohexane-1,2-dicarboxylate-mono-(7-oxo-4-methyl)octyl ester	oxo-MINCH - isomers!	√	√	√	Min. compulsory set
Mono(2-ethyl-5-carboxypentyl) terephthalate	5-cx-MEPTP	√	√	√	Complete set
Mono(2-ethyl-5-hydroxyhexyl) terephthalate	5OH-MEHTP	√	√	√	Complete set
Mono-2-ethyl-5-hydroxyhexyl adipate	5OH-MEHA	√	√	√	Discovery scope
Mono-5-carboxy-2-ethylpentyl adipate	5cx-MEPA	√	√	√	Discovery scope
PFAS					
Perfluorononanoic acid	PFNA		√	√	Min. compulsory set
Perfluorodecanoic acid	PFDA		√	√	Min. compulsory set
Perfluorobutane sulfonic acid	PFBS		√	√	Min. compulsory set
Perfluorohexane sulfonic acid	PFHxS		√	√	Min. compulsory set
Perfluoroheptane sulfonic acid	PFHpS		√	√	Min. compulsory set
Perfluorooctanoic acid	PFOA		√	√	Min. compulsory set
Perfluorooctane sulfonic acid	PFOS		√	√	Min. compulsory set
4:2 Fluorotelomer sulfonic acid	4:2 FTSA		√	√	Discovery scope
6:2 Fluorotelomer sulfonic acid	6:2 FTSA		√	√	Discovery scope
8:2 Fluorotelomer sulfonic acid	8:2 FTSA		√	√	Discovery scope
9CL-PF3ONS	9CL-PF3ONS		√	√	Discovery scope
Perfluorohexanoic acid	PFHxA		√	√	Discovery scope
Perfluoroheptanoic acid	PFHpA		√	√	Discovery scope
Perfluorododecanoic acid	PFDoDA		√	√	Discovery scope
Perfluoroundecanoic acid	PFUnDA		√	√	Discovery scope
Perfluoropentanoic acid	PFPeA		√	√	Discovery scope
Perfluorobutanoic acid	PFBA		√	√	Discovery scope
Perfluorononanesulfonic acid	PFNS		√	√	Discovery scope
N-ethyl-perfluorooctane sulfonamidoacetate	EtFOSAA		√	√	Discovery scope
N-methyl-perfluorooctane sulfonamidoacetate	MeFOSAA		√	√	Discovery scope
Ammonium 4,8-dioxa-3H-perfluorononanoate	Adona		√	√	Discovery scope
GenX	GenX		√	√	Discovery scope
Pesticides - organophosphates					

3,5,6-Trichloro-2-pyridinol	TCPy	√	√	√	Min. compulsory set
Pesticides - Pyrethroids					
Cis-(2,2-dibromovinyl)-2,2-dimethylcyclopropanecarboxylic acid	cis-DBCA (mix cis-isomers)	√	√	√	Min. compulsory set
Cis-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane-1-carboxylic acid	cis-DCCA (mix cis-isomers)	√	√	√	Min. compulsory set
Trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane-1-carboxylic acid	trans-DCCA (mix trans-isomers)	√	√	√	Min. compulsory set
3-Phenoxybenzoic acid	3-PBA	√	√	√	Min. compulsory set
4-Fluoro-3-phenoxybenzoic acid	4-F-3-PBA	√	√	√	Min. compulsory set
Cis-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropanecarboxylic acid	ClF3CA	√	√	√	Complete set
Pesticides - Neonicotinoids					
Acetamiprid-N-desmethyl		√		√	Min. compulsory set
Acetamiprid		√		√	Min. compulsory set
Imidacloprid		√		√	Min. compulsory set
Imidacloprid olefin		√		√	Discovery scope
5-hydroxyimidacloprid		√		√	Discovery scope
Pesticides - Glyphosate/AMPA					
Glyphosate	Glyphosate			√	Min. compulsory set
Aminomethylyphosphonic acid	AMPA			√	Min. compulsory set
Metals in blood					
Mercury (total)	Hg			√	Min. compulsory set
Lead	Pb			√	Min. compulsory set
Cadmium	Cd			√	Min. compulsory set
Chromium (total)	Cr			√	Complete set
Manganese	Mn			√	Complete set
Cobalt	Co			√	Complete set
Selenium ¹	Se			√	Complete set

¹ Selenium measurement in blood- serum

Status of the studies

In Table 2, a full list of the contributing studies is provided together with a short description of the status of each study as of February 2024. Annex 1 presents an overview of when following milestones are achieved per study.

- Ethical dossier submitted
- Ethical dossier approved
- Recruitment started
- Sample collection & interviews started
- Sample collection & interviews concluded
- Chemical analysis started
- Chemical analysis completed

To date, 13/32 studies have submitted their ethical dossier to the competent national bioethics board, 9/32 studies have obtained approval, 5/32 studies have started the recruitment of participants, 4/32 have started sample collection and interviews, 0 have finalized the sample collection and interviews, 0 have started chemical analysis.

Annex 2 presents an overview of the participants enrolled in the studies. To date (31/12/2023), 150 participants have been enrolled (0 children, 0 teenagers, 150 adults).

Table 2: List of all the contributing studies and status of the studies by 29 February 2024.

Austria
<p>Study name: PARC Children’s survey Austria Study Acronym: PARC-CSA Responsible Institute: EAA Country: Austria Age range (original study): 6-11 years Age range in PARC (if different): children 6-11 years Complete study sample size: 200 Sample size contribution under PARC (if different): 200 Short status description: The study was submitted to the ethics committee in Dec 2023 and is currently under revision. First step of recruitment has started (contacting federal education directorates, school directorates, etc.). Start of sampling is planned for Q2/2024.</p>
Belgium
<p>Study name: Flemish Environment and Health Survey-5 Study Acronym: FLEHS-5 Responsible Institute: VITO / PIH Country: Belgium (Flanders) Age range (original study): teenagers 14-16 years. Age range in PARC (if different): the same, teenagers 14-16 years. Complete study sample size: 300 Sample size contribution under PARC (if different): 300 Short status description: The study is in its preparatory phase, all materials are being prepared protocols, questionnaires, ethical dossier. The ethical dossier will be submitted at the end of March, anticipated start of participant recruitment June.</p>

Study name: BioMonitoring Humain Wallon – PARC

Study Acronym: BMH-Wal-PARC

Responsible Institute: ISSeP

Country: Belgium (Wallonia)

Age range (original study): adults 18 –39 years

Age range in PARC (if different): same, adults 18 –39 years

Complete study sample size: 300

Sample size contribution under PARC (if different): 300

Short status description: The study is currently being prepared (questionnaires, protocol, ethics committee, etc.). The ethical file will be finalized and submitted by summer 2024 at the latest, to start recruitment in autumn-winter 2024.

Cyprus

Study name: EnVironmental hEalth foR policY suppOrt aNd desease prEvention in Cyprus

Study Acronym: everyone_CY

Responsible Institute: MOH-CY / SGL

Country: Cyprus

Age range (original study): children & adults (parents)

Age range in PARC (if different): As in PARC, children 6-11y and adults 18-39y.

Because the aim of study design is to recruit families (i.e. a child with his/her parents), it is anticipated that some parents may be older than 39y (i.e. in the 40-70y age group). It is therefore expected that some adults-only of the 18-39y (i.e. no child) will be recruited, to complete the PARC target sample size for this age group.

Complete study sample size: 150 children and ≥150 adults.

(It was agreed that small countries can aim to recruit half as many participants as the large countries, in accordance to what was implemented in the DEMOCOPHES pilot study).

Sample size contribution under PARC (if different):

Short status description: The study is in its preparatory phase.

Czech Republic

Study name: Czech National HBM programme / Children's exposure

Study Acronym: CZ-HBM/CE

Responsible Institute: SZU-CZ (NIPH)

Country: Czech Republic

Age range (original study): 6 – 11 years

Age range in PARC (if different): children 6-11 years

Complete study sample size: 200

Sample size contribution under PARC (if different): 200

Short status description: Ethical dossier for the study approved on November 1st, 2023. The recruitment started in January 2024; sample collection & interviews started in January 2024. The end of sampling is planned for December 2024. Then chemical analyses will begin.

Study name: Czech National HBM programme / Adult exposure

Study Acronym: CZ-HBM/AE

Responsible Institute: SZU-CZ (NIPH)

Country: Czech Republic
Age range (original study): adults
Age range in PARC (if different): adults 18 – 39 years
Complete study sample size: 200
Sample size contribution under PARC (if different): 200
Short status description: The study is currently being prepared (questionnaires, protocols, ethics committee, etc.). The start of recruitment is planned for I.Q 2025.

Denmark

Study name: Copenhagen Puberty Study
Study Acronym: COPUS
Responsible Institute: RegionH
Country: Denmark
Age range (original study): children and adolescents aged 5-20 years of age
Age range in PARC (if different): 6- 11 years (children) and 12-17 years (teenagers)
Complete study sample size: ~3000 individuals
Sample size contribution under PARC (if different): 2 x 150 individuals
Short status description: Data collection in COPUS is ongoing (currently n=633 children enrolled) and in parallel the study protocol for PARC is being aligned with the COPUS study protocol. We plan to apply for ethical permission by summer 2024 at the latest. Recruitment of PARC participants will be possible after approval.

Estonia

Study name: Conducting biomonitoring among the population exposed to the oil shale sector (workers and residents), second stage - biomonitoring
Study Acronym: SOHOS
Responsible Institute: Ministry of Social Affairs / University Tartu / Health board
Country: Estonia
Age range (original study): tbc
Age range in PARC (if different): 6 – 11 years
Complete study sample size: 500
Sample size contribution under PARC (if different): 150
Short status description: The study is currently under preparation for procurement (questionnaires, protocols, ethics committee, etc.). The start of recruitment is planned for IV.Q 2024.

Study name: Conducting biomonitoring among the population exposed to the oil shale sector (workers and residents), second stage - biomonitoring
Study Acronym: SOHOS
Responsible Institute: Ministry of Social Affairs / University Tartu / Health board
Country: Estonia
Age range (original study): adults
Age range in PARC (if different): tbc
Complete study sample size: 500
Sample size contribution under PARC (if different): 150
Short status description: The study is currently under preparation for procurement (questionnaires, protocols, ethics committee, etc.). The start of recruitment is planned for IV.Q 2024.

France

Study name: Albane

Study Acronym: ALBANE

Responsible Institute: SpFrance

Country: France

Age range (original study): children (3-11 years), teenagers (12-17 years), adults (18-79 years)

Age range in PARC (if different): children (6-11 years), teenagers (12-17 years), adults (18-39 years)

Complete study sample size: 1000 Children + Teenagers, 1000 Adults

Sample size contribution under PARC (if different): 300 children, 300 teenagers, 300 adults

Short status description: Albane is a cross-sectional survey that will start in April-May 2025 (Recruitment) for a 2 year fieldwork period, a pilot study will run between Sept-24 and Dec-24. The ethical dossier has been approved in September 2023. Administrative authorization (RGPD) will be obtained in July 2024.

Germany

Study name: new HBM study Germany (children)

Study Acronym: /

Responsible Institute: UBA

Country: Germany

Age range (original study): children (6-11) years

Age range in PARC (if different): children (6-11) years

Complete study sample size: 300

Sample size contribution under PARC (if different): 300

Short status description: not started, submission of ethical dossier planned for 2024, start of sample collection planned for Q2 2025

Study name: new HBM study Germany (teenagers)

Study Acronym: /

Responsible Institute: UBA

Country: Germany

Age range (original study): teenagers 12-17 years

Age range in PARC (if different): teenagers 12-17 years

Complete study sample size: 300

Sample size contribution under PARC (if different): 300

Short status description: not started, submission of ethical dossier planned for 2024, start of sample collection planned for Q2 2025

Study name: German Environmental Survey VI

Study Acronym: GerES VI

Responsible Institute: UBA

Country: Germany

Age range (original study): adults 18-79 years

Age range in PARC (if different): adults 18-39 years

Complete study sample size: 1500

Sample size contribution under PARC (if different): 300

Short status description: recruitment, sample collection & interviews and chemical analyses started; sample collection & interviews will be finished July 2024, chemical analyses will be finished end of 2026/beginning of 2027.

Greece

Study name: Exposome and Health Survey in PARC

Study Acronym: HERACLES

Responsible Institute: AUTH

Country: Greece

Age range (original study): Children (6-11)

Age range in PARC (if different): Children 6-11

Complete study sample size: We are expecting to have a total number of 300 children

Sample size contribution under PARC (if different): 300 children

Short status description: The study is in its preparatory phase, all materials has been prepared and translated to the national Greek language (protocols, questionnaires, consent forms etc). Also, all the documents for the ethical committee have been prepared and we are in the last review before submitting. The ethical dossier will be submitted in March, anticipated start of participant recruitment in June or in September.

Study name: Exposome and Health Survey in PARC

Study Acronym: HERACLES

Responsible Institute: AUTH

Country: Greece

Age range (original study): Teenagers (12-17)

Age range in PARC (if different): Teenagers (12-17)

Complete study sample size: We are expecting to have a total number of 300 teenagers

Sample size contribution under PARC (if different): 300 teenagers

Short status description: The study is in its preparatory phase, all materials has been prepared and translated to the national Greek language (protocols, questionnaires, consent forms etc). Also, all the documents for the ethical committee have been prepared and we are in the last review before submitting. The ethical dossier will be submitted in March, anticipated start of participant recruitment in June or in September.

Study name: Exposome and Health Survey in PARC

Study Acronym: HERACLES

Responsible Institute: AUTH

Country: Greece

Age range (original study): Adults (18-70)

Age range in PARC (if different): Adults 18-39. We are going also to recruit adults 40-70 as we are recruiting families (parents and kids).

Complete study sample size: We are expecting to have a total number of ~500 participants in the end.

Sample size contribution under PARC (if different): 300 Adults (18-39)

Short status description: The study is in its preparatory phase, all materials has been prepared and translated to the national Greek language (protocols, questionnaires, consent forms etc). Also, all the documents for the ethical committee have been prepared and we are in the last review before submitting. The

ethical dossier will be submitted in March, anticipated start of participant recruitment in June or in September.

Hungary

Study name: Human Biomonitoring Programme for Hungary I.

Study Acronym: HBM-HU I.

Responsible Institute: NCPHP

Country: Hungary

Age range (original study): children (6-11 years)

Age range in PARC (if different): -

Complete study sample size: 300

Sample size contribution under PARC (if different): -

Short status description: The preparation of the study has been started and the ethical dossier has been submitted for approval on 12th February 2024. The Medical Research Council approved the study on 7th March 2024. We expect to start the recruitment of the participants at the end of March and to start the sample collection and interviews in April 2024.

Study name: Human Biomonitoring Programme for Hungary I.

Study Acronym: HBM-HU I.

Responsible Institute: NCPHP

Country: Hungary

Age range (original study): adults (18-39 years)

Age range in PARC (if different): -

Complete study sample size: 150

Sample size contribution under PARC (if different): -

Short status description: The preparation of the study has not been started yet. We are planning to start the preparation in the second half of 2024.

Iceland

Study name: HBM2-IS

Study Acronym: HBM2-IS

Responsible Institute: UI

Country: Iceland

Age range (original study): 18- to 39-year-old

Age range in PARC (if different): 18- to 39-year-old

Complete study sample size: n=200

Sample size contribution under PARC (if different): n=200

Short status description: The study is being prepared (questionnaires, protocol, ethics committee, etc.). Application for ethical permission will be submitted in June 2024 as this cannot be done before all details and preparation on recruitment procedures have been agreed on and finalized. Recruitment will start in late autumn 2024 and continue until early 2025.

Israel

Study name: Israel Biomonitoring Study Cycle II

Study Acronym: IBS II

Responsible Institute: MOH-IL

Country: Israel
Age range (original study): 20-59 years
Age range in PARC (if different): 20-39 years
Complete study sample size: 150
Sample size contribution under PARC (if different): 150
Short status description: We submitted ethical approval dossier in December 2023 and received request for further information from the committee. We submitted further information in February 2024 and expect an answer in March 2024.
We have translated all material (questionnaire, consent forms and participant leaflet) to one national language (Hebrew) and are in process of translating to an additional national language (Arabic). We expect to begin recruitment in summer 2024.

Italy

Study name: ITalian National Exposure to environmental contaminants and REference values
Study Acronym: ITINERE
Responsible Institute: ISS
Country: Italy
Age range (original study): adults 18 –39 years
Age range in PARC (if different): 18 –39 years
Complete study sample size: 300
Sample size contribution under PARC (if different): 300
Short status description: The preparation of the study has been started. The ethical dossier has been submitted to our DPO to obtain the approval for submission to the Ethical Committee. We contacted local sanitary units to organize recruitment and sampling. We expect to start the recruitment of participants in October 2024.

Latvia

Study name: General Human Biomonitoring Survey in Latvia
Study Acronym: Gen_HBM_Survey_LV
Responsible Institute: RSU
Country: Latvia
Age range (original study): children (6-11), teenagers (12-17), adults (18-39)
Age range in PARC (if different): -
Complete study sample size: children (200), teenagers (200), adults (300).
Sample size contribution under PARC (if different): -
Short status description: The study is in preparation phase; it is planned to apply for the Ethical Committee at the start of April. Sample collection is planned to start in autumn.

Lithuania

Study name: National health and lifestyle examination survey
Study Acronym: NHALES-LT
Responsible Institute: LSMU
Country: Lithuania
Age range (original study): adults
Age range in PARC (if different): adults 18-39 years
Complete study sample size: 300

<p>Sample size contribution under PARC (if different): 300</p> <p>Short status description: The study is in preparatory phase: (1) the documents to get approval of the ethical committee have been prepared and will be submitted in March; (2) the questionnaire is currently being translated to Lithuanian; (3) recruitment of study group will start in Q3 of 2024; (4) all other materials (protocols and etc.) will be prepared in Q4 of 2024.</p>
<p>Luxembourg</p>
<p>Study name: General BM Survey in Luxembourg Study Acronym: HBMLux Survey Responsible Institute: LNS Country: Luxembourg Age range (original study): children (6-11 years), adults (parents) (18-39 years) Age range in PARC (if different): - Complete study sample size: 300 children and 300 adults Sample size contribution under PARC (if different): 150 children, 150 adults Short status description: Under the ethical approval process.</p>
<p>Norway</p>
<p>Study name: Norwegian Environmental Biobank III Study Acronym: NEB III Responsible Institute: NIPH Country: Norway Age range (original study): teenagers, adults Age range in PARC (if different): 14-17 years and 18-22 years Complete study sample size: 600 triads of mothers, fathers and their children which are 14-22y. Sample size contribution under PARC (if different): 200 teenagers, 200 adults Short status description: recruitment of participants started the 5th of February and is planned to be finalized by the end of 2024.</p>
<p>The Netherlands</p>
<p>Study name: Study Acronym: Responsible Institute: RIVM Country: The Netherlands Age range (original study): adults Age range in PARC (if different): 18-39 years Complete study sample size: still unknown. 1000 is targeted Sample size contribution under PARC (if different): 300 Short status description: the study is still in preparation. Ethical approval still needs to be obtained. Start of recruitment is planned for Q3 2024</p>
<p>Poland</p>
<p>Study name: Children's General Biomonitoring Survey in Poland Study Acronym: BIOSPOL-CH Responsible Institute: WULS Country: Poland Age range (original study): children (6 – 11 y) Age range in PARC (if different): The same as in PARC</p>

Complete study sample size: 300 children

Sample size contribution under PARC (if different): The same as in PARC (300 children)

Short status description: The study is in preparatory phase: (a) the documents to get approval of the ethical committee have been prepared and consent of the bioethics committee is approved; (b) the questionnaire are translated to Polish language ; (c) we plan to recruit of study group in Q2 - Q3 of 2024

Study name: Polish Aligned Environmental Study

Study Acronym: POLAES_PARC

Responsible Institute: NIOM

Country: Poland

Age range (original study): teenagers (12-17y), adults (18-39y)

Age range in PARC (if different): The same as in PARC: teenagers (12-17y), adults (18-39y)

Complete study sample size: 300 teenagers, 300 adults

Sample size contribution under PARC (if different): The same as in PARC

Short status description: Consent of the bioethics committee is approved, all documents for insurance of experiments are prepared and approved, the questionnaires are translated into Polish language, we plan to start recruit the participants in the middle of the 2024 (June-July)

Portugal

Study name: Exposure of the Portuguese Population to Environmental Chemicals

Study Acronym: ExpoQuim-Kids

Responsible Institute: INSA

Country: Portugal

Age range (original study): children (6-11 years old)

Age range in PARC (if different):

Complete study sample size: 300 participants

Sample size contribution under PARC (if different):

Short status description: The study is in its preparatory phase and the protocol is currently under development, as well as the study documents including the information for the participants, informed consent form, questionnaires and ethical dossier. The ethical dossier will be submitted at the end of June. The planning of the fieldwork will be performed in the second semester of 2024 and fieldwork is planned to start in January 2025.

Study name: Exposure of the Portuguese Population to Environmental Chemicals

Study Acronym: ExpoQuim-Teen

Responsible Institute: INSA

Country: Portugal

Age range (original study): teenagers (12-17 years old)

Age range in PARC (if different):

Complete study sample size: 300 participants

Sample size contribution under PARC (if different):

Short status description: The study is in its preparatory phase and the protocol is currently under development, as well as the study documents including the information for the participants, informed consent form, questionnaires and ethical dossier. The ethical dossier will be submitted at the end of June. The planning of the fieldwork will be performed in the second semester of 2024 and fieldwork is planned to start in January 2025.

Study name: Exposure of the Portuguese Population to Environmental Chemicals

Study Acronym: ExpoQuim2

Responsible Institute: INSA

Country: Portugal

Age range (original study): adults (18-39 years old)

Age range in PARC (if different):

Complete study sample size: 300 participants

Sample size contribution under PARC (if different):

Short status description: The study is in its preparatory phase and the protocol is currently under development, as well as the study documents including the information for the participants, informed consent form, questionnaires and ethical dossier. The ethical dossier will be submitted at the end of June. The planning of the fieldwork will be performed in the second semester of 2024 and fieldwork is planned to start in January 2025.

Slovenia

Study name: National HBM II campaign

Study Acronym: SLO HBM II

Responsible Institute: JSI / NIJZ

Country: Slovenia

Age range (original study): children (6-9 years), teenagers (12-15 years)

Age range in PARC (if different): the same as in original study

Complete study sample size: 300 children, 300 teenagers

Sample size contribution under PARC (if different): 150 children, 150 teenagers

Short status description: Approval from ethical committee was in place already in 2019 (since this study is part of the existing national HBM), in 2023 an amendment to the original ethical consent was sent to the committee to inform them about extension of the study. In September 2023, the recruitment of study participants under PARC started. Sample collection and interviews started in January 2024 and are currently on-going. Sample collection and interviews are planned to be completed at the end of 2024.

Spain

Study name: Environmental Exposure in Children from Spain (tentative)

Study Acronym: Environmental Exposure in Children from Spain (tentative)

Responsible Institute: ISCIII

Country: Spain

Age range (original study): children (6-11)

Age range in PARC (if different): children (6-11)

Complete study sample size: 500

Sample size contribution under PARC (if different): 300

Short status description: National design is being finalised to align with PARC and national priorities. Documentation to be submitted to the Ethical Committee is currently being prepared and will be submitted once the final design is complete. The protocols for recruitment are also under elaboration.

Study name: Implementing a HBM module into VI Andalusian Health Survey*

Study Acronym: HBM in Andalusia

Responsible Institute: EASP

Country: Spain

Age range (original study): adults

Age range in PARC (if different):

Complete study sample size: 150

Sample size contribution under PARC (if different):

Short status description: Informed consent and information leaflet for participants have been translated and will be submitted for Ethical approval by March 2023. Questionnaires and other materials for data collection common to PARC have been translated. Protocols for participant selection from the Andalusian Health Survey according to General Survey criteria have been developed. Fieldwork protocols, which will include guidelines for participant invitation and monitoring of participation, collection and storage of biological samples, administration of questionnaires among other issues, are under elaboration.

Study name: Implementing a HBM module into VIII Basque Health Survey (PARC Euskadi)*

Study Acronym: PARC Euskadi

Responsible Institute: UPV/EHU

Country: Spain

Age range (original study): adults

Age range in PARC (if different):

Complete study sample size: 150

Sample size contribution under PARC (if different):

Short status description: Ethical approval has been granted and materials common to PARC have been translated. In February 2024, letters have already started to be sent to participants randomly selected from the Basque Government's health survey participant pool. The recruitment period is estimated to last 8 months. Preparation of the material and selection of the health centers for blood collection in September is planned to be carried out in May -June.

*For Spain adults samples from 2 regional studies are combined.

Sweden

Study name: Swedish Adolescent Study

Study Acronym: SAS

Responsible Institute: ULUND; KI; UmU

Country: Sweden

Age range (original study): teenagers 15-19

Age range in PARC (if different): 15-17 years

Complete study sample size 300

Sample size contribution under PARC (if different): 150

Short status description: Ethical application during 2024 – sampling during autumn 2025-spring 2026

UK

Study name: Implementing a HBM module into Health Survey for England

Study Acronym: HBM in HSfE

Responsible Institute: UKHSA

Country: UK

Age range (original study): children (6-11 years), teenagers (12-17 years), adults (18-49 years)

Age range in PARC (if different): 6-11 years, 12-17 years, 18-39 years

Complete study sample size: 450

Sample size contribution under PARC (if different):

Short status description: The preparation for a trial run of the actual fieldwork for the 2025 programme of work will commence next month if the Health Survey for England goes ahead. We have recently been informed that due to the cost of face-to-face interviews the 2025 programme may not go ahead. We are currently conducting an options appraisal to ascertain whether there is an alternative national health study that we could use if this does not go ahead.

Annex 1: Progress of studies per milestone

Country	Partner(s)	Study acronym	Ethical dossier submitted	Ethical dossier approved	Recruitment started	Sample collection & interviews started	Sample collection & interviews concluded	Chemical analysis started	Chemical analysis concluded	Data delivered in harmonized format to PEH
PARC Aligned Studies in CHILDREN (6-11 years)										
UK	PHE	HBM in HSfE	-	-	-	-	-	-	-	-
Denmark	RegionH	COPUS	-	-	-	-	-	-	-	-
Latvia	RSU	Gen_HBM_Survey_LV	-	-	-	-	-	-	-	-
Estonia	University Tartu / Health board	SOHOS	-	-	-	-	-	-	-	-
Poland	WULS	BIOSPOL-CH	16/08/2023	12/09/2023	-	-	-	-	-	-
Czech Republic	SZU-CZ (NIPH)	CZ-HBM	13/09/2023	1/11/2023	15/12/2023	10/01/2024	-	-	-	-
Hungary	NPHC	HBM-HU I.	12/02/2024	7/03/2024	-	-	-	-	-	-
Spain	ISCIH	Environmental Exposure in Children from Spain (tentative)	-	-	-	-	-	-	-	-
Portugal	INSA	ExpoQuim	-	-	-	-	-	-	-	-
Greece	AUTH	HERACLES	-	-	-	-	-	-	-	-
Slovenia	JSI / NIJZ	SLO HBM II	29/03/2019 30/11/2022	23/05/2019 ²	7/09/2023	16/01/2024	-	-	-	-
Cyprus	MOH-CY / SGL	everyone_CY	-	-	-	-	-	-	-	-
Germany	UBA	new HBM study Germany (children)	-	-	-	-	-	-	-	-
France	SpFrance	ALBANE	24/08/2023	18/09/2023	-	-	-	-	-	-
Austria	EAA	PARC-CSA	12/12/2023	-	-	-	-	-	-	-
Luxembourg	LNS	HBMLux Survey	18/01/2024	-	-	-	-	-	-	-

² Amendment to the original ethical dossier was submitted on 30/11/2022 to inform the Commission on the extension of the study. Additional approval is not required in such cases.

Country	Partner(s)	Study acronym	Ethical dossier submitted	Ethical dossier approved	Recruitment started	Sample collection & interviews started	Sample collection & interviews concluded	Chemical analysis started	Chemical analysis concluded	Data delivered in harmonized format to PEH
PARC Aligned Studies TEENAGERS (12-17 years)										
UK	PHE	HBM in HSfE	-	-	-	-	-	-	-	-
Denmark	RegionH	COPUS	-	-	-	-	-	-	-	-
Norway	NIPH	NEB III	24/10/2023	15/11/2023	5/02/2024	21/02/2024				
Latvia	RSU	Gen_HBM_Survey_LV	-	-	-	-	-	-	-	-
Sweden	ULUND/KI/UmU	SAS	-	-	-	-	-	-	-	-
Poland	NIOM	POLAES_PARC	8/02/2024	15/02/2024	-	-	-	-	-	-
Slovenia	JSI / NIJZ	SLO HBM II	29/03/2019 30/11/2022	23/05/2019 ³	7/09/2023	16/01/2024	-	-	-	-
Greece	AUTH	HERACLES	-	-	-	-	-	-	-	-
Portugal	INSA	ExpoQuim	-	-	-	-	-	-	-	-
Belgium	VITO / PIH	FLEHS 5	25/03/2024	-	-	-	-	-	-	-
Germany	UBA	new HBM study Germany (teenagers)	-	-	-	-	-	-	-	-
France	SpFrance	ALBANE	24/08/2023	18/09/2023	-	-	-	-	-	-

³ Amendment to the original ethical dossier was submitted on 30/11/2022 to inform the Commission on the extension of the study. Additional approval is not required in such cases.

Country	Partner(s)	Study acronym	Ethical dossier submitted	Ethical dossier approved	Recruitment started	Sample collection & interviews started	Sample collection & interviews concluded	Chemical analysis started	Chemical analysis concluded	Data delivered in harmonized format to PEH
PARC Aligned Studies ADULTS (18-39 years)										
UK	PHE	HBM in HSfE	-	-	-	-	-	-	-	-
Norway	NIPH	NEB III	24/10/2023	15/11/2023	5/02/2024	21/02/2024	-	-	-	-
Lithuania	LSMU	NHALES-LT	22/03/2024	-	-	-	-	-	-	-
Latvia	RSU	Gen_HBM_Survey_LV	-	-	-	-	-	-	-	-
Estonia	University Tartu / Health board	SOHOS	-	-	-	-	-	-	-	-
Iceland	UI	HBM2-IS	-	-	-	-	-	-	-	-
Czech Republic	SZU-CZ (NIPH)	CZ-HBM/AE	-	-	-	-	-	-	-	-
Hungary	NPHC	HBM-HU	-	-	-	-	-	-	-	-
Poland	NIOM	POLAES_PARC	8/02/2024	15/02/2024	-	-	-	-	-	-
Portugal	INSA	ExpoQuim	-	-	-	-	-	-	-	-
Spain	EHU/UPV	PARC Euskadi	5/09/2023	2/02/2024	9/02/2024	-	-	-	-	-
	EASP	HBM in AHS VI	-	-	-	-	-	-	-	-
Cyprus	MOH-CY / SGL	everyone_CY	-	-	-	-	-	-	-	-
Italy	ISS	ITINERE	-	-	-	-	-	-	-	-
Greece	AUTH	HERACLES	-	-	-	-	-	-	-	-
Belgium	ISSeP	BMH-Wal-PARC	-	-	-	-	-	-	-	-
Germany	UBA	GerES VI	28/02/2023	23/03/2023	22/05/2023	29/05/2023	-	24/07/2023	-	-
France	SpFrance	ALBANE	24/08/2023	-	-	-	-	-	-	-
Luxembourg	LNS	HBMLux Survey	18/01/2024	-	-	-	-	-	-	-
The Netherlands	RIVM		-	-	-	-	-	-	-	-
Israel	MOH-IL	IBS II	12/12/2023	-	-	-	-	-	-	-

Annex 2: Participants enrolled in the studies by 31/12/2023

			N of participants enrolled to date
Country	Partner(s)	Study acronym	31/12/2023
PARC Aligned Studies CHILDREN (6-11 years)			
UK	UKHSA	HBM in HSfE	0
Denmark	RegionH	COPUS	0
Latvia	RSU	Gen_HBM_Survey_LV	0
Estonia	University Tartu / Health board	SOHOS	0
Poland	WULS	BIOSPOL-CH	0
Czech Republic	SZU-CZ (NIPH)	CZ-HBM/CE	0
Hungary	NPHC	HBM-HU	0
Spain	ISCIII	Environmental Exposure in Children from Spain (tentative)	0
Portugal	INSA	ExpoQuim	0
Greece	AUTH	HERACLES	0
Slovenia	JSI / NIJZ	SLO HBM II	0
Cyprus	MOH-CY / SGL	everyone_CY	0
Germany	UBA	new HBM study Germany (children)	0
France	SpFrance	ALBANE	0
Austria	EAA	PARC-CSA	0
Luxembourg	LNS	HBMLux Survey	0
			0

			N of participants enrolled to date
Country	Partner(s)	Study acronym	31/12/2023
PARC Aligned Studies TEENAGERS (12-17 years)			
UK	UKHSA	HBM in HSfE	0
Denmark	RegionH	COPUS	0
Norway	NIPH	NEB III	0
Latvia	RSU	Gen_HBM_Survey_LV	0
Sweden	ULUND/KI/UmU	SAS	0
Poland	NIOM	POLAES-PARC	0
Slovenia	JSI / NIJZ	SLO HBM II	0
Greece	AUTH	HERACLES	0
Portugal	INSA	ExpoQuim	0
Belgium	VITO / PIH	FLEHS 5	0
Germany	UBA	new HBM study Germany (teenagers)	0
France	SpFrance	ALBANE	0
			0

			N of participants enrolled to date
Country	Partner(s)	Study acronym	31/12/2023
PARC Aligned Studies ADULTS (18-39 years)			
UK	PHE	HBM in HSfE	0
Norway	NIPH	NEB III	0
Lithuania	LSMU	NHALES-LT	0
Latvia	RSU	Gen_HBM_Survey_LV	0
Estonia	University Tartu / Health board	SOHOS	0
Iceland	UI	HBM2-IS	0
Czech Republic	SZU-CZ (NIPH)	CZ-HBM/AE	0
Hungary	NPHC	HBM-HU	0
Poland	NIOM	POLAES-PARC	0
Portugal	INSA	ExpoQuim	0
Spain	EHU/UPV	PARC-Euskadi	0
	EASP	HBM in AHS VI	0
Cyprus	MOH-CY / SGL	everyone_CY	0
Italy	ISS	ITINERE	0
Greece	AUTH	HERACLES	0
Belgium	ISSeP	BMH-Wal-PARC	0
Germany	UBA	GerES VI	150
France	SpFrance	ALBANE	0
Luxembourg	LNS	HBMLux Survey	0
The Netherlands	RIVM		0
Israel	MOH-IL	IBS II	0

150