



airnb

HEI
HEALTH
EFFECTS
INSTITUTE



European
Research
Council



Barcelona
Life
Study
Cohort





Barcelona
Life
Study
Cohort





Barcelona
Life
Study
Cohort



Principal investigators

Jordi Sunyer MD, PhD

Payam Dadvand MD, PhD

Lola Gómez Roig MD, PhD

Elisa Llurba Olive MD, PhD



Barcelona
Life
Study
Cohort



Is a prospective cohort study of pregnant women, their offspring and partners in an urban population.

Main objective is to establish a urban pregnancy-birth cohort.

1200 pregnancy
women.



AIR-NB

Pre-natal exposure to urban AIR pollution and pre- and post-Natal Brain development.

- To **evaluate brain imaging**: pre-natal brain structure, neo-natal brain structure, connectivity and function, and post-natal motor, and cognitive development.
- To **measure pre- and post-natal total personal exposure**, and inhaled dose of air pollutants and other urban exposures during specific time-windows.
- To detect **external particles in placenta and to assess placental function**.
- To prospectively test the **relationship between various pre-natal window(s) of exposure to air pollution and pre- and post-natal brain development** and the mediating role of the placenta.



Barcelona
Life
Study
Cohort



FRONTIER

Traffic-related air pollution and birth weight: the roles of noise, placental function, green space, physical activity, and socioeconomic status.

- Assessing **maternal exposure to air pollution and noise** and characterizing canopies and greenness surrounding participants' homes.
- Objectively characterizing **maternal stress, physical activity, and placental function.**
- Evaluating the **association between maternal exposure** to air pollution and **fetal growth** while separating the effect of noise and identifying relevant window(s) of exposure during pregnancy, modifiers, mediators, and mitigators of this association.



Barcelona
Life
Study
Cohort



INCLUSION CRITERIAS

- 1) Age >18
- 2) Capacity to read and understand informed consent
- 3) Unique pregnancy
- 4) Pregnant women living in Barcelona, Cornella and Esplugues
- 5) Healthy pregnant women
- 6) Gestational age <15.6 W

EXCLUSION CRITERIAS

- 1) Severe maternal comorbidity and/or Obstetric pathology
- 2) Genetic or severe morphological fetal malformation
- 3) Multiple pregnancy

¿QUÉ EXPOSICIONES MEDIMOS?



EXPOSICIÓN
PERSONAL

Contaminación del aire



- NO₂
- PM_{2.5}
- Carbono negro
- Partículas ultrafinas



Actividad física



Calidad del sueño



Luz



Rutas habituales



EXPOSICIÓN
RESIDENCIAL



Contaminación del aire

- NO₂
- PM_{2.5}



Ruido

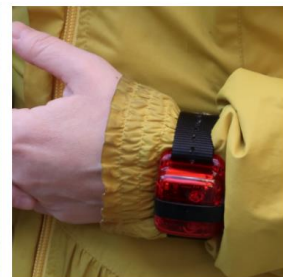
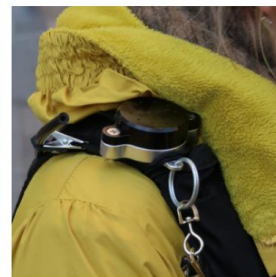
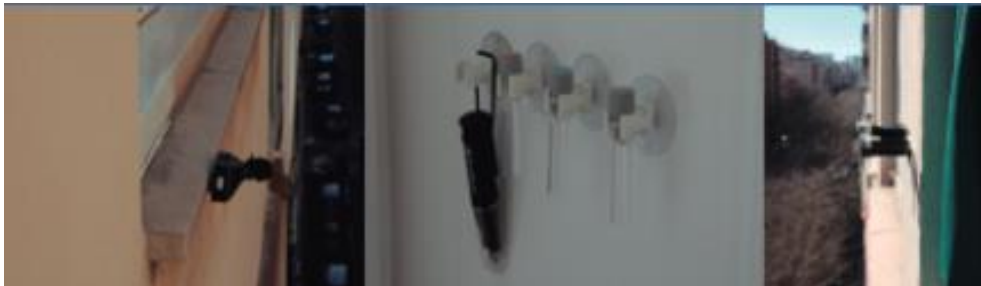


Temperatura y humedad





Barcelona
Life
Study
Cohort



Pre-natal follow-up



15.6s

<ul style="list-style-type: none">• CI mare• Qüestionari• Mostres biològiques	<ul style="list-style-type: none">• Mesures soroll• Mesures ambientals + (motxilla 48h)• Mostres orina• Qüestionari
---	--



20s

- Qüestionari online

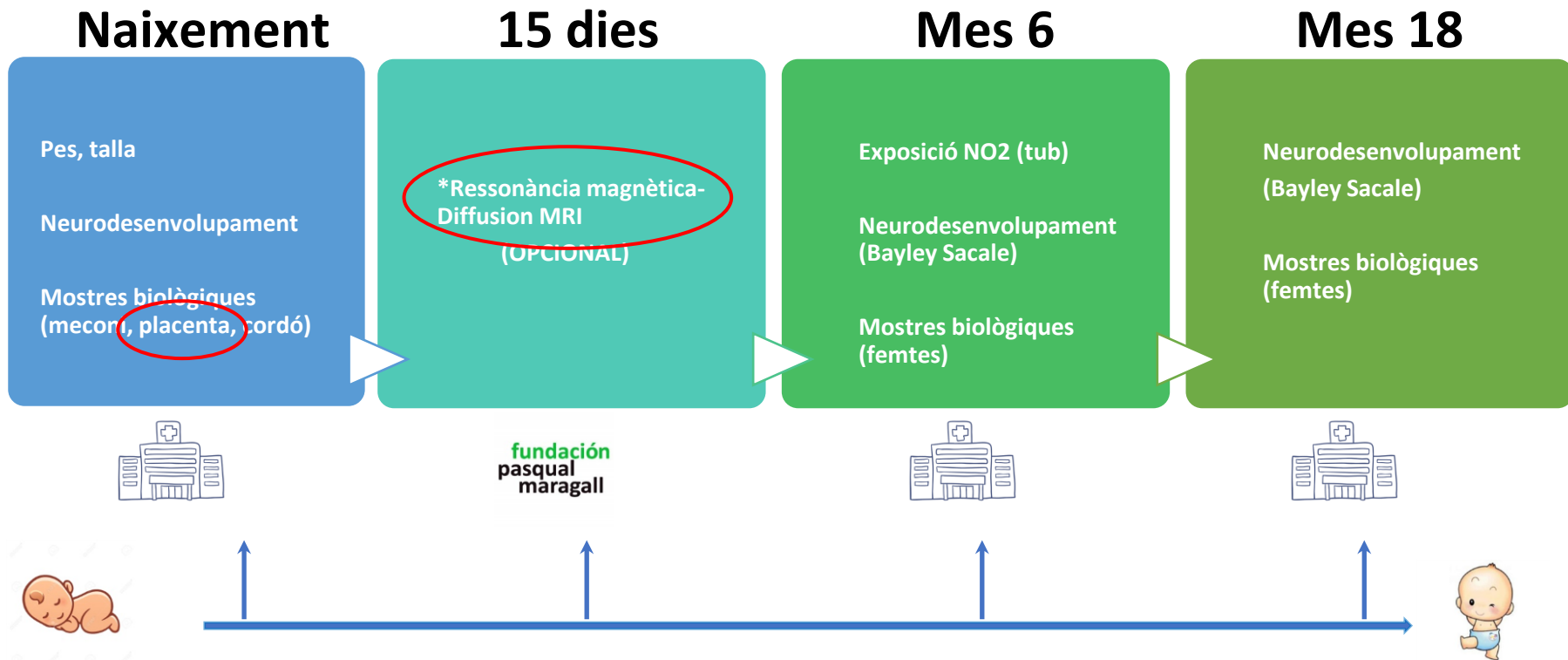


32s

<ul style="list-style-type: none">• Revisió mèdica• Test de memòria• Qüestionari• Ecografia	<ul style="list-style-type: none">• Mesures soroll (submostra)• Mesures ambientals + (motxilla 48h)• Mostres orina• Qüestionari
---	--



Children's post-natal follow-up





Barcelona
Life
Study
Cohort



Currently,

255 patients included: 143 Sant Pau hospital, 80 Sant Joan de Deù hospital, and 32 Maternitat

116 patients have completed prenatal follow up

31 patients have given birth



Barcelona
Life
Study
Cohort

