

Early life nutrition and the Microbiome

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APC Research Themes

RESEARCH THEMES

ONE

Microbes
to
Molecules

TWO

Diet & Microbes
at the
Extremes of Life

THREE

Brain- Gut
Axis

FOUR

Host-Microbe
Dialogue

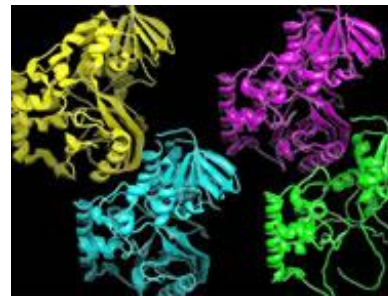
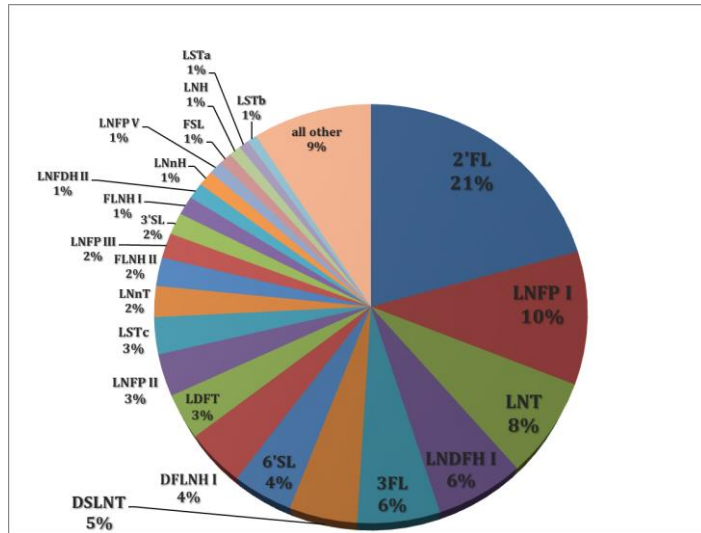
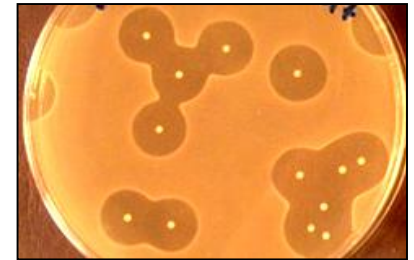
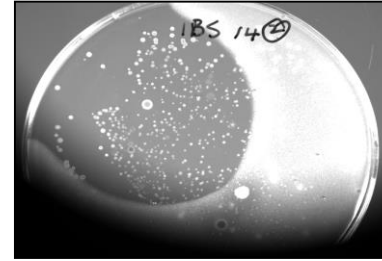


© crossing boundaries



Theme 1. Microbes to Molecules

- Identify and characterise the mode of action of **selected probiotics**
- Develop **prebiotics** with high selectivity for bifidobacteria



Theme 2. Extremes of Life

- Determine mechanistic links between diet, microbiota and health status
- Manipulate microbiota composition and function in selected populations; **infancy** & elderly
- Identify new microbiota-related **biomarkers** predictive of health status
- Develop new food ingredients for **infants** and elderly





- Define the composition and functional performance of the baseline microbiota in developing infants (0-2yrs)
- C-section v Natural delivery v Pre-term
- Breast-fed v Formula fed
- Ultimate aim: Programme the early infant gut microbiota in a manner closer to mother's milk

- Appropriate weight gain
- Absence of gestational diabetes
- Vaginal delivery
- Full-term and healthy infant birth weight
- Reduced hospital stay
- Initiation and continuation of breastfeeding
- Influence cognitive development, asthma, diabetes, gut- illnesses (reflux) & obesity

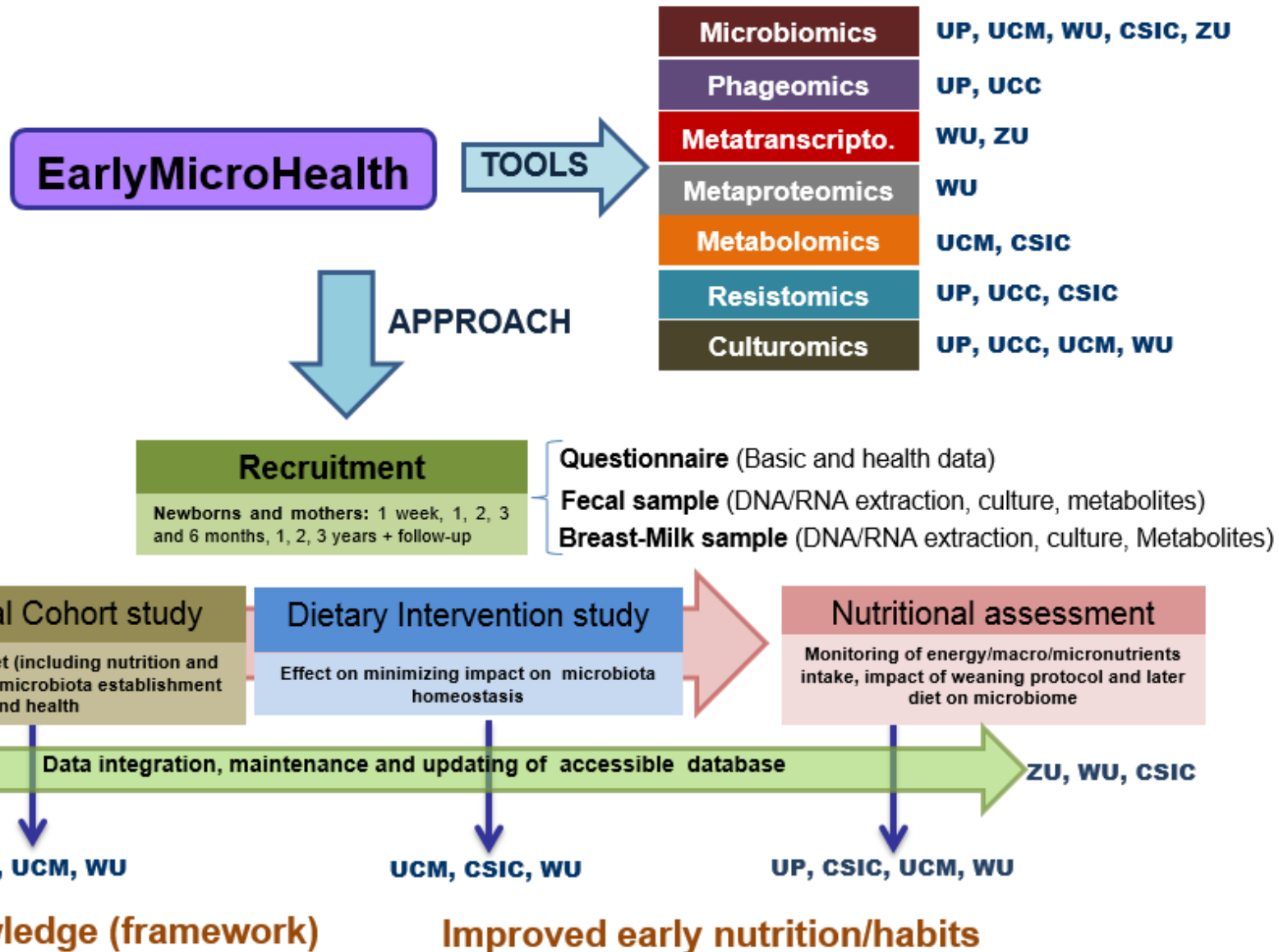
Many questions remaining, e.g.

- What exactly is a healthy infant microbiota?
 - Genus, species, strain-specific
 - Based on fecal samples
- Mother-to-infant microbiota transfer?
 - Placenta, birth canal, breast milk, skin, siblings
- Mode of action?
 - NEC, ectopic diseases (short/long term)
- Effect of (timing of) weaning (or when to stop breast feeding)?
- What is best nutrition for weaning?

Opportunities & Challenges

- Dietary guidelines & education for mothers
- Develop evidence-based infant nutrition to support early life development and healthy ageing
- Innovative products targeting expectant mothers
- Contribute to sustainable healthcare systems
- Unravelling the role of the microbiome in early life development (mode of action)
- End-user engagement & acceptance
- Breast milk samples/biobank
- Regulation & policy (data & new products)

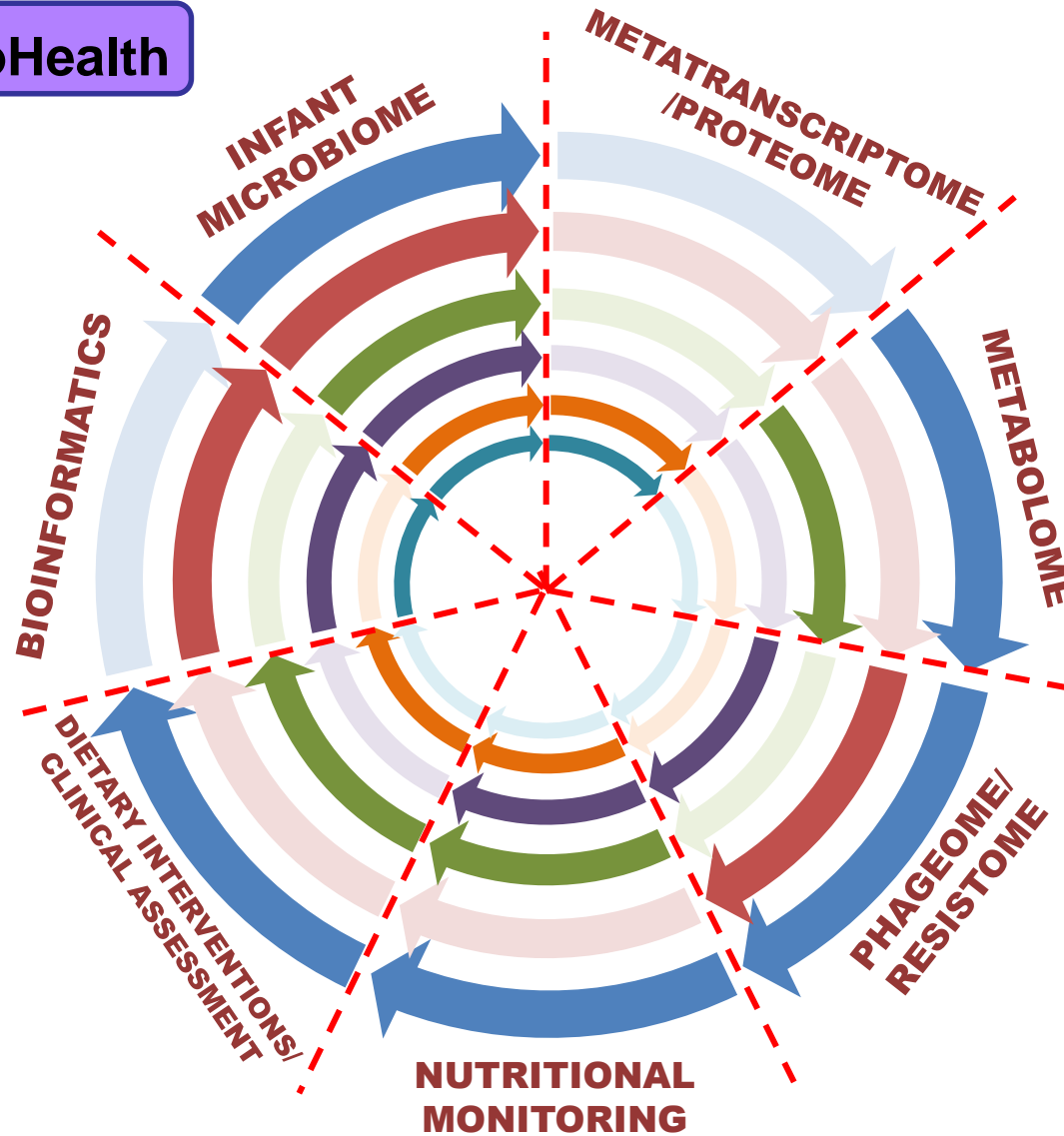
JPI: Healthy Diet for a Healthy Life



Joint Programming Initiative: Healthy Diet for Healthy Lives

EarlyMicroHealth

EXPERTISE-SYNERGIES

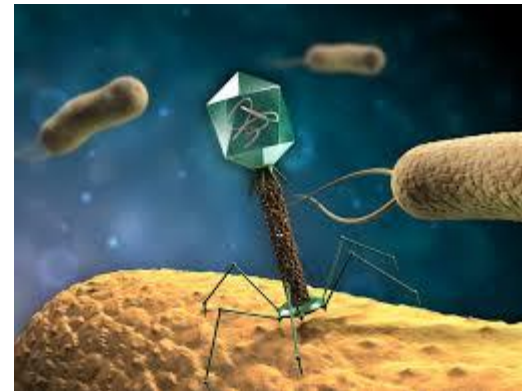


PARTICIPANT

1. CSIC
2. UCC
3. UCM
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- Analyse impact of phages on infant microbiota

BILL & MELINDA
GATES *foundation*



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