INTRODUCTION

- Minors represent 20% of the population of Europe
- Their care should be one of the most important priorities
- Paediatricians often give drugs designed for adults to children in an ‘off-label’ prescription in 50% up to 90% of cases depending on disease and age
- Children often do not respond to medications in the same way as adults and can have different and more serious drug adverse reactions
- To address this societal need, we need to develop medications specifically designed and approved for children
- The European Paediatric Translational Research Infrastructure (EPTRI) Belgian Joint Research Unit (JRU) (Figure 1) will create a new research infrastructure entirely dedicated to translational paediatric research and aims to stimulate and accelerate innovative drug development processes for children

METHODS

The Belgian JRU partners will gather complementary scientific and technological competencies in the different EPTRI thematic research platforms:

- **Paediatric medicines discovery**: several preclinical models have been developed within this consortium: placental and umbilical cord and 3D organoid cell cultures from paediatric samples; juvenile animal models such as the rabbit BPD model, juvenile Göttingen minipig, juvenile conventional pig model and developmental zebrafish model
- **Paediatric biomarkers and biosamples**: identification, characterisation and validation of biomarkers used as prognostic tools, safety markers and diagnostic tools in paediatric diseases
- **Developmental pharmacology**: including PK bioavailability/bioequivalence studies, population PK/PD analysis and PK/PD modelling
- **Paediatric medicines formulations and medical devices**: including regulatory knowledge

The partners will ensure a strong liaison with other RIs and networks such as the BBMRI-ERIC for paediatric biobanking, the IMI conect4children network for paediatric clinical trials and the Belgian Paediatric Clinical Research Network (BPCRN)

GOALS

- We propose an integrated paediatric research system that links together EPTRI Belgium with landmark RIs, connect4children, the BPCRN and institutions that provide services to paediatric research
- This integrated system can provide: expertise, experienced facilities and practical support for pre-clinical and clinical paediatric research in Belgium and Europe. To share the understanding of patients’ needs and concerted efforts in paediatric research will further enhance the health of children
- The overarching goal of EPTRI Belgian JRU is to create a framework for basic and translational paediatric research to facilitate the development of new innovative medicines for children
- EPTRI Belgian JRU has the goal to move to a new approach characterized by medicines specifically designed to address the needs of children and to reduce the existing gap on medicines availability for babies, children and adolescents