## Acknowledgement

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under the Marie Skłodowska – Curie grant agreement No 691203.


## Contact


**Scientific Coordinator:**
Prof. George C. Kagadis
University of Patras, GR
gkagad@gmail.com

**Dissemination Manager:**
Dr. Panagiotis Papadimitroulas
BET Solutions, GR
panpap@betsolutions.gr

**Project Manager:**
Dr. Fotis Papathanasopoulos
University of Patras, GR
fpap@upatras.gr


**Project website:**
http://error.upatras.gr

THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION
HORIZON 2020

European Commission

pEdiatRic dosimetRy platfORm

# ERROR

## a pEdiatRic dosimetRy personalized platfORm based on computational anthropomorphic phantoms


Marie Skłodowska-Curie Actions Research and Innovation Staff
RISE-Call: H2020-MSCA-RISE-2015
Project No.: 691203

## Objectives

**ERROR**'s objective is the development of a new software tool, which will offer to the clinician the possibility to assess imaging and therapeutic protocols predicting the absorbed dose per organ. This tool will be implemented and evaluated for pediatric applications, since this is a rather sensitive target group.


## The Consortium

The **ERROR** project brings together a multidisciplinary consortium of specialists in different areas of medical physics, biomedical engineering, physicians, and computer engineers, who will join forces in order to design, implement, and clinically assess novel software tools. Two new SMEs will provide their expertise, and will exploit the project's outcome.

| Project Partners | Role in Project |
|---|---|
| University of Patras (***UPAT – GR***) | Project Coordination – Database – MC Simulations – Clinical Assessment |
| Université de Bretagne Occidentale (***UBO – FR***) | MC Simulations – Clinical Assessment – GPU Programming |
| Guy's and St Thomas NHS Foundation Trust (***GSTFT – GB***) | Clinical Data – Clinical Assessment Procedures |
| BET Solutions (***BET – GR***) | Dissemination – MC Simulations – Software Development |
| LIBRA MLI Ltd. (***LIBRA – GB***) | Machine Learning – Software Development |

## Methodology & Workflow

Based on clinical data, and on the available literature we aim to quantify personalized dosimetry on the most critical organs in children (2-15 years old), and create a universal tool for the total calculation of the absorbed dose per organ, according to the:

- Specified radiopharmaceutical biodistributions
- Injected activity
- X-ray model irradiation
- Brachytherapy source model and irradiation type
- Anatomical characteristics (age, weight, height, gender)

The creation of the dosimetric software will be based on:

- Accurate physical processes modeling
- Realistic MC simulations incorporating biokinetics
- High resolution anthropomorphic computational models
- Powerful computational resources (grids, GPU, HPC)

7 Working Packages are connected towards this effort.