

# Ruben Van Paemel, MD/PhD

Pediatrician with experience in pediatric oncology, hematology and precision medicine, with a PhD in cancer genomics, liquid biopsy biomarkers, big data analysis and artificial intelligence.

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📍 [Ghent University Hospital, Belgium](#)

🌐 [rvp.bio](http://rvp.bio)

🔗 [github.com/rmvpaeme](https://github.com/rmvpaeme)

👤 [LinkedIn](#)

📄 [Google Scholar](#) · h-index 12 · 1,066 citations

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## EXPERIENCE & EDUCATION

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Oct 2024 – Present

### Fellow in Pediatric Hematology & Oncology

Ghent University Hospital, Ghent, Belgium

- Diagnosis and treatment of patients on the hematology, oncology and stem cell transplantation ward
- Communicating diagnosis, treatment and prognosis to patients and caregivers
- Management of complications of chemotherapy, CAR-T therapy, bone marrow transplantation, cancer and surgery in a multidisciplinary team
- Leading the medical and paramedical team during on-call weeks
- Enrolment of patients in phase I/II clinical trials (ICF, safety monitoring, adverse event reporting)

June 2017 – 2024

### Residency & Master in Specialist Medicine – Pediatrics

Ghent University & AZ Sint-Lucas, Ghent, Belgium

7-year specialist training programme covering general pediatrics, neonatology (NICU), pediatric intensive care (PICU), and pediatric hematology & oncology (in- and outpatient). Gained proficiency in general pediatrics, neonatal resuscitation, critical care management, coordination of oncology follow-up.

- Developed and deployed two clinical decision-support apps in the UZ Gent NICU: bilicurve (bilirubin nomogram) and Fenton growth curves (premature infant growth monitoring)

2020 – 2021

### Student Supervision

Ghent University

- *"Computational deconvolution of the methylation signal of heterogeneous mixtures: A benchmarking study"* — Master of Bioinformatics, 2021
- *"Deconvolution of Cell-free DNA methylation in Pediatric Cancer"* — Master of Bioinformatics, 2021
- *"Methylation Calling and Tumor Classification from cfDNA of Pediatric and Adult Cancer types"* — Design Project Bioinformatics, 2020
- Jury member: *"Liquid biopsy analysis in neuroblastoma patients"* — Master of Biomedical Sciences, 2020

2017 – 2020

### **PhD Courses & Training**

Various institutions

- Statistical Rethinking: A Bayesian Course with Examples in R and Stan — Richard McElreath, 2020
- Computational Systems Biology in Cancer — Institut Curie, France, 2018
- Advanced Academic English Writing Course — Doctoral Schools, Ghent University, 2018
- Introduction to Deep Learning and Machine Learning — Ghent University & Jülich Supercomputing Center, 2017
- Digital Droplet PCR Course — Doctoral Schools, Ghent University, 2017

Sept 2017 – 2021

### **PhD Fellowship — Research Foundation Flanders (FWO)**

Ghent University, Ghent, Belgium

*Thesis: "Expanding The Diagnostic Toolbox in Pediatric Oncology: Exploration of the Value of the Cell-Free DNA Methylome."*

Promotor: Prof. dr. B. De Wilde · Co-promotor: Prof. dr. K. De Preter

- Patient recruitment, IRB approval, sample processing (plasma prep, DNA isolation, SOP development)
- Sequencing library preparation: WGS, WES, bulk RNA-seq; qPCR quantification; capillary electrophoresis QC
- Large-scale bioinformatics pipelines (Snakemake / HPC) in Bash, R, Python; variant calling and copy number variant (CNV) analysis
- Hands-on linear regression modelling with frequentist and Bayesian statistics
- Development of open-source bioinformatics tools

June 2013 – 2017

### **Master in Medicine — *Summa cum laude***

Ghent University

*Thesis: "Identification of genetic aberrations predisposing to familial Burkitt lymphoma using whole genome sequencing."* Promotor: Prof. Dr. G. Laureys

June 2010 – 2013

### **Bachelor in Medicine — *Magna cum laude***

Ghent University

## **SELECTED PUBLICATIONS**

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### **Minimally Invasive Classification of Pediatric Solid Tumors Using Reduced Representation Bisulfite Sequencing of Cell-free DNA: A Proof-of-Principle Study**

*Epigenetics*, 2020 · DOI: 10.1080/15592294.2020.1790950

This was the first manuscript from my PhD research. As a physician by training, I had not acquired the skills needed to tackle this project through clinical education alone. Through a combination of self-directed learning, formal courses, and mentorship from colleagues, I developed both laboratory skills (blood and plasma processing, DNA isolation, DNA sequencing) and computational skills (programming, statistics, and building a machine learning classifier using publicly available datasets). This manuscript is the culmination of all these acquired skills.

## Blood Collection Tube and RNA Purification Method Recommendations for Extracellular RNA Transcriptome Profiling

The exRNAQC Consortium · *Nature Communications*, 2025 · DOI: 10.1038/s41467-025-58607-7

During my PhD, I contributed to a large-scale quality study spanning nearly a decade (first conceptualized in 2016, published in 2025). My role was twofold: as a physician, I was responsible for selecting, recruiting, obtaining informed consent from, and collecting blood from dozens of healthy volunteers. As a researcher, I processed blood samples through to RNA and performed data analysis and conceptualization of quality control parameters within a multidisciplinary team of bioinformaticians. Under the supervision of Prof. Jo Vandesompele, we published this study under the "exRNAQC Consortium" with authors listed alphabetically, to clearly reflect the collaborative nature of the work.

## Multisystem Inflammatory Syndrome in Children Related to COVID-19: A Systematic Review

Hoste L\* · **Van Paemel R\*** · Haerynck F (\* shared first authorship) · *European Journal of Pediatrics*, 2021 · DOI: 10.1007/s00431-021-03993-5

My PhD ran from 2017 to 2021, with a substantial portion coinciding with the COVID-19 pandemic and lockdown. The lockdown also created new opportunities: shortly after the onset of the pandemic, a novel syndrome was observed in children — multisystem inflammatory syndrome in children (MIS-C). With the trajectory and implications of MIS-C still unclear, my co-authors and I rapidly conceptualized and submitted this systematic review, with the first draft ready for submission within four weeks. This is currently my most-cited manuscript. It demonstrates my ability to work effectively in multidisciplinary teams and reflects the transferable skills I acquired alongside domain-specific research during my doctorate.

## EU Pediatric Trial Monitor

[rubenvp.shinyapps.io/shiny\\_trials](http://rubenvp.shinyapps.io/shiny_trials)

I am currently involved in a project to develop an interactive dashboard for clinical trials in children, linking the right patient to the most applicable study.

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Full publication list (15 papers, h-index 12, 1,066 citations) available at [rvp.bio](http://rvp.bio) and Google Scholar.

## PRESENTATIONS

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2026	Lymphadenopathy work-up Master of Specialist Medicine – Pediatrics
2025	Unmasking Familial Hemophagocytic Lymphohistiocytosis type 3: Chronic Disseminated Rubella Infection Following MMR Vaccination ( <i>Travel grant</i> ) eBMT Inborn Error Working Party
2025	Acute management of sickle cell anemia National Meeting - Pediatrics
2020	Liquid Biopsies: ready for prospective evaluation SIOPEN Meeting · September 2020
2019	Non-invasive classification of pediatric tumor types using reduced representation bisulfite sequencing of cell-free DNA: a proof-of-principle study EACR-ESMO Joint Conference on Liquid Biopsies · Bergamo, Italy
2019	Precision Oncology Masterclass Master of Biomedical Sciences · Ghent University · November 2019

## ACADEMIC POSTERS

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2026	Mycobacterium abscessus as a Complication of Immunosuppression after Allogeneic Stem Cell Transplantation for Congenital Neutropenia eBMT · Madrid, Spain
2025	Ten Years of CAR-T Cell Therapy: Real-world Experience from the Belgian Cohort INSPIRED · Chicago, USA
2025	Fatal HLH as a Complication of Secondary Histiocytic Sarcoma Treated with Trametinib and Chemotherapy CCLS · Budapest, Hungary
2019	Minimally-Invasive Classification of Pediatric Solid Tumors Using Reduced Representation Bisulfite Sequencing of Cell-free DNA: A Proof-of-Principle Study SIOF 2019 · Lyon, France

## SOFTWARE & TOOLS

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clinAnnotR	Harmonise treatment and lab values of multiple cases on one figure · R <a href="https://github.com/rmvpaeeme/clinAnnotR">github.com/rmvpaeeme/clinAnnotR</a>
EU Pediatric Trial Monitor	Interactive EU clinical trial dashboard · R/Shiny <a href="https://github.com/rmvpaeeme/shiny_trials">github.com/rmvpaeeme/shiny_trials</a>
fenton-shiny	Fenton growth curve visualiser — deployed at UZ Gent NICU · R/Shiny <a href="https://github.com/rmvpaeeme/fenton-shiny">github.com/rmvpaeeme/fenton-shiny</a>
bilicurve-shiny	Bilirubin nomogram app — deployed at UZ Gent NICU · R/Shiny
Stolling	Interactive overview of the clotting cascade · HTML/JS <a href="https://rmvpaeeme.github.io/stolling">rmvpaeeme.github.io/stolling</a>

## AWARDS & CERTIFICATES

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### Awards

**Award for Oral Presentation** — Oncopoint, 2019

**Award for Flash Presentation** — Institut Curie, Paris, 2018

**Best Poster by Young Investigator** — BeSHG, 2018

**Award for Storm Session Presentation** — Oncopoint, 2018

### Certificates

Electrocardiography

Newborn Life Support (NLS) Provider

European Pediatric Advanced Life Support (EPALS) Provider

European Board of Paediatricians (EPB)-Certified

**GCP ICH E6(R3) Certified**