

Ruben Van Paemel

MD · PhD

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

[✉ Ruben.VanPaemel@outlook.com](mailto:Ruben.VanPaemel@outlook.com) Ghent University Hospital, Belgium

ORCID 0000-0001-7324-3570 rvp.bio github.com/rmvpaeme

EXPERIENCE & EDUCATION

Oct 2024 – Present

Fellow in Pediatric Hematology & Oncology

Ghent University Hospital, Ghent, Belgium

- Diagnosis and treatment in hematology, oncology and stem cell transplantation
- Management of chemotherapy complications in a multidisciplinary team
- Enrolment of patients in phase I/II clinical trials (ICF, safety monitoring, adverse event reporting)

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)
- DNA and RNA sequencing library preparation; qPCR quantification; capillary electrophoresis QC
- Large-scale bioinformatics pipelines (Snakemake / HPC) in Bash, R, Python
- Development of open-source bioinformatics tools

June 2017 – 2024

Residency & Master in Specialist Medicine – Pediatrics

Ghent University & AZ Sint-Lucas, Ghent, Belgium

Rotations in general pediatrics, NICU, PICU, hematology and oncology (in- & outpatient). Developed two quality-improvement apps for the UZ Gent NICU.

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

PUBLICATIONS

2025

1. **Blood Collection Tube and RNA Purification Method Recommendations for Extracellular RNA Transcriptome Profiling**
The exRNAQC Consortium · ... · **Van Paemel R** · et al.
Nature Communications, 2025 · DOI: 10.1038/s41467-025-58607-7
2. **A Benchmark of DNA Methylation Deconvolution Methods for Tumoral Fraction Estimation Using DecoNFlow**
Giulii E · ... · **Van Paemel R** · et al.
bioRxiv (Preprint), 2025 · DOI: 10.1101/2025.11.27.688590

2024

3. **A Fast, Affordable and Minimally-Invasive Diagnostic Test for Cancer of Unknown Primary (CUP) Using DNA Methylation Profiling**
De Wilde J · **Van Paemel R** · De Koker A · et al.
Laboratory Investigation, 2024 · DOI: 10.1016/j.labinv.2024.102091

2023

4. **Case Series on Clinical Applications of Liquid Biopsy in Pediatric Solid Tumors**
Gelineau NU · ... · **Van Paemel R** · et al.
Frontiers in Oncology, 2023 · DOI: 10.3389/fonc.2023.1209150

2022

5. **Cell-free DNA as a Diagnostic and Prognostic Biomarker in Pediatric Rhabdomyosarcoma**
Lak NSM · van Zogchel LMJ · ... · **van Paemel R** · et al.
JCO Precision Oncology, 2022 · DOI: 10.1200/PO.22.00113
6. **Whole Genome Sequencing and Inheritance-based Variant Filtering as a Tool for Unraveling Missing Heritability in Pediatric Cancer**
Derpoorter C · **Van Paemel R** · et al.
Pediatric Hematology and Oncology, 2022 · DOI: 10.1080/08880018.2022.2101723

2021

7. **The Feasibility of Using Liquid Biopsies as a Complementary Assay for Copy Number Aberration Profiling in Routinely Collected Paediatric Cancer Patient Samples**
Van Paemel R · Vandeputte C · Raman L · et al.
European Journal of Cancer, 2021 · DOI: 10.1016/j.ejca.2021.09.022
8. **Multisystem Inflammatory Syndrome in Children Related to COVID-19: A Systematic Review**
Hoste L · **Van Paemel R** · Haerynck F
European Journal of Pediatrics, 2021 · DOI: 10.1007/s00431-021-03993-5

2020

9. **Genome-wide Study of the Effect of Blood Collection Tubes on the Cell-free DNA Methylome**
Van Paemel R · De Koker A · Caggiano C · et al.
Epigenetics, 2020 · DOI: 10.1080/15592294.2020.1827714
10. **When DNA Gets in the Way: A Cautionary Note for DNA Contamination in Extracellular RNA-seq Studies**
Verwilt J · Trypsteen W · **Van Paemel R** · et al.
PNAS, 2020 · DOI: 10.1073/pnas.2001675117
11. **Minimally Invasive Classification of Pediatric Solid Tumors Using Reduced Representation Bisulfite Sequencing of Cell-free DNA: A Proof-of-Principle Study**
Van Paemel R · De Koker A · Vandeputte C · et al.
Epigenetics, 2020 · DOI: 10.1080/15592294.2020.1790950

2019

12. **The Pitfalls and Promise of Liquid Biopsies for Diagnosing and Treating Solid Tumors in Children: A Review**
Van Paemel R · Vlug R · De Preter K · et al.
European Journal of Pediatrics, 2019 · DOI: 10.1007/s00431-019-03545-y
13. **Brain Metastasis and Renal Cell Carcinoma: Prognostic Scores Assessment in the Era of Targeted Therapies**
El Ali Z · ... · **Van Paemel R** · et al.
Anticancer Research, 2019 · DOI: 10.21873/anticancerres.13431
14. **A Versatile Method for Circulating Cell-free DNA Methylome Profiling by Reduced Representation Bisulfite Sequencing**
Van Paemel R · De Koker A · Vandeputte C · et al.
bioRxiv (Preprint), 2019

2017

15. **Confirmation of an ARID2 Defect in SWI/SNF-related Intellectual Disability**
Van Paemel R · De Bruyne P · van der Straaten S · et al.
American Journal of Medical Genetics Part A, 2017 · DOI: 10.1002/ajmg.a.38407

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 |

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 |

SOFTWARE & TOOLS

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| clinAnnotR | Harmonise treatment and lab values of multiple cases on one figure · R
github.com/rmvpaeeme/clinAnnotR |
| EU Pediatric Trial Monitor | Interactive EU clinical trial dashboard · R/Shiny
github.com/rmvpaeeme/shiny_trials |
| fenton-shiny | Fenton growth curve visualiser — deployed at UZ Gent NICU · R/Shiny
github.com/rmvpaeeme/fenton-shiny |
| bilicurve-shiny | Bilirubin nomogram app — deployed at UZ Gent NICU · R/Shiny |

Stolling

Interactive overview of the clotting cascade · HTML/JS
rmvpaeme.github.io/stolling

AWARDS & CERTIFICATES

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