

# Rosa Grigoryan, PhD

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Analytical chemist with 14 years of expertise in ISO 17025 certified QC and leading academic research laboratories. Proficient in handling state-of-the-art analytical instruments, such as (MS/MS) MC-ICP-MS, SF-ICP-MS, CRC-ICP-MS.

## EDUCATION

**12.01.2016-05.28.2021**

**PhD in analytical chemistry** –  
Faculty of Science Ghent  
University, Belgium

**09.01.2010-05.23.2012**

**MA in chemical technologies** -  
State Engineering University of  
Armenia (*Diploma with honors*)

**09.01.2006-05.18.2010**

**BA in chemical technology of  
organic materials** - State  
Engineering University of Armenia,  
(*Diploma with honors*)

## PROFESSIONAL SKILLS

**Instrumentation:** UV-VIS, HPLC,  
UPLC, GC, GC/MS, SF-ICP-MS,  
ICP-OES, (MS/MS) MC-ICP-MS,  
AAS, KF titrator.

## PROFESSIONAL EXPERIENCE

**Research and Dev. Engineer**

July 2024 – current

**Pratt School of Engineering and Nicholas School of the Environment, Duke University, Durham, NC, USA.**

**Postdoctoral scholar research associate**

July 2022 – June 2023

**Division of Geological and Planetary Sciences, Caltech, Pasadena, CA, USA.**

- Determination of elemental concentration (CRC-ICP-MS) and high precision isotopic analysis (MC-ICP-MS) of essential minerals in biomedical applications (bone disorders, neurological disorders, cancer, etc.).
- Analytical method transfer, development, validation.
- (MC) ICP-MS maintenance and troubleshooting.
- Supervision / training of undergraduate and graduate students.
- Act as laboratory safety coordinator.

**Postdoctoral researcher**

June 2021- May 2022

**Doctoral researcher**

Dec. 2016 - May 2021

**Department of Chemistry, Ghent University, Belgium.**

- Analytical method development, validation and optimization including sample preparation, chromatographic separation and high precision isotopic analysis of Ca, Cu, Fe, Mg and Zn in biological samples (MC-ICP-MS).
- Multielement determination of major-to-ultra trace elements in various matrices (SF-ICP-MS, ICP-OES).
- Characterization of primary isotopic and biological reference standards.
- Sample preparation in class-10, 1000 metal-free clean-laboratory.
- Supervision of PhD / Master's students, training of postdoctoral researchers.
- Statistical analysis of data using SPSS.
- Writing scientific papers for peer-review journals.

**Senior scientist**

Sep. 2010 - Nov. 2016

**Quality assurance manager**

Apr. 2014 - Nov. 2016

**Scientific Center of Drug and Medical Technology Expertise, Ministry of Health, Yerevan, Armenia.**

- Analytical method development, validation and routine testing of pharmaceutical products.
- OQ/PQ for HPLC, GC, dissolution, disintegration, friability apparatus.
- Experience with ICH Q2(R1), pharmacopoeia (USP, BP, EU, Int, JP, RSP), FDA guidance.
- Implementation of a quality management system (ISO/IEC 17025).
- Conduction of internal audits, providing solutions for CAPAs. Preparing, revising, reviewing SOPs.

**Technical assistant**

Aug. 2015

**World Health Organization (WHO) Prequalification of Medicines Program, Switzerland.**

- On-site inspection according to Good Practices for National Pharmaceutical Control Laboratories and relevant parts of WHO Good Manufacturing Practices (GMP).
- Writing inspection report.

## PROFESSIONAL TRAININGS

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- Bootcamp - Introduction to Programming for the Biological Sciences Caltech, CA, 2023
- Basic parametric and non-parametric statistics, Ghent University Ghent, Belgium, 2019
- Lean Six Sigma Yellow belt, TUM School of Management Edx, 2018
- International summer school of analytical science, metrology and accreditation, TrainMic Druskininkai, Lithuania, 2017
- LC-MS method validation, University of Tartu MOOC, 2017
- Estimation of Measurement Uncertainty in Chemical Analysis, University of Tartu MOOC, 2016
- Internal Audit according to ISO 19011. Audit of QS ISO/IEC 17025, Hai Consult Yerevan, Armenia, 2015
- Quality by Design: A risk-based approach, NIPER Chandigarh, India, 2014
- Analytical skills development course on GC and GC/MS, VERIFIN, OPCW Helsinki, Finland, 2014
- Potency Assay Training, Pfizer Madrid, Spain, 2013
- IQ / OQ / PQ, maintenance of HPLC / UHPLC PLATINblue, ChromGate software training, Knauer Berlin, Germany, 2013

## AWARDS AND SCHOLARSHIPS

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- AGBU international scholarship for graduate studies (2016-2018).
- D. Mendeleev scholarship by Eurasian Research Institute (2009-2010).
- Full academic scholarship from SEUA (2007-2012).
- FLEX - merit-based scholarship program funded by the U.S. Department of State (2005-2006).

## LANGUAGES

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- English – fluent
- Dutch – B1 level
- Russian – working proficiency
- Armenian – native

## SCIENTIFIC PUBLICATIONS

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*In preparation:* Magnitude and timescales of Ca isotope variability in human urine: Implications for bone mass balance monitoring. François L.H. Tissot, Dylan Cleveland, [Rosa Grigoryan](#), Michael A. Kipp, Roxana T. Shafiee, Rithika Chunduri, Emily Miaou. 2024.

Kaj V. Sullivan, Yasmina Assantuh, [Rosa Grigoryan](#), Marta Costas-Rodríguez, Eduardo Bolea-Fernandez, Bruno Lapauw, Steven Van Laecke, Frank Vanhaecke. Serum Mg isotopic composition reveals that Mg dyshomeostasis remains in type 1 diabetes despite the resolution of hypomagnesemia: A Preliminary Research. IJMS. 2023. IF 2022 : 5.6

*In preparation:* Leila Mingabudinova, Kim C. Dumbgen, [Rosa Grigoryan](#), Frank Vanhaecke, Ivan Infante, Zeger Hens. Weak Binding of Zinc Oleate to ZnSe Nanocrystals. 2022.

*In preparation:* Habtu Shumoy, Frank Vanhaecke, Geert Haesaert, Molly Muleya, Rosa Grigoryan, Katleen Raes. Reassessing the External Iron Isotopic Label Method and Factors that Determine its Accuracy. 2022.

Klaas Yperman, Anna C Papageorgiou, Romain Merceron, Steven De Munck, Yehudi Bloch, Dominique Eeckhout, Qihang Jiang, Pieter Tack, [Rosa Grigoryan](#), Thomas Evangelidis, Jelle Van Leene, Laszlo Vincze, Peter Vandenabeele, Frank Vanhaecke, Martin Potocký, Geert De Jaeger, Savvas N Savvides, Konstantinos Tripsianes, Roman Pleskot, Daniel Van Damme. Distinct EH domains of the endocytic TPLATE complex confer lipid and protein binding. Nat Commun. 2021 May 24; 12(1) : 3050. IF 2020 : 14.919.

[Rosa Grigoryan](#), Marta Costas-Rodríguez, Elien Van Wonterghem, Roosmarijn E. Vandenbroucke and Frank Vanhaecke. Effect of endotoxemia induced by intraperitoneal injection of lipopolysaccharide (LPS) on the Mg isotopic composition of biofluids and tissues in mice. Front. Med. 8 (2021), 1-11, IF 2020 : 5.091.

[Rosa Grigoryan](#), Marta Costas-Rodríguez, Patrick Santens, Frank Vanhaecke. Multi-collector ICP-mass spectrometry with 1013 Ω Faraday cup amplifiers for ultra-sensitive Mg isotopic analysis of cerebrospinal fluid micro-samples. Analytical chemistry. Anal. Chem. 92 (2020), 215975–15981, IF 2019 : 6.785.

[Rosa Grigoryan](#), Marta Costas-Rodríguez, Roosmarijn E. Vandenbroucke, Frank Vanhaecke. High-precision isotopic analysis of Mg and Ca in biological samples using multi-collector ICP-mass spectrometry after their sequential chromatographic isolation – application to the characterization of the body distribution of Mg and Ca isotopes in mice. Analytica Chimica Acta. 1130 (2020) 137-145. Q1, IF 2019 : 5.977.

Claudia González de Vega, Stepan M. Chernozhkin, Rosa Grigoryan, Marta Costas-Rodríguez, Frank Vanhaecke. Characterization of the new isotopic reference materials IRMM-524A and ERM-AE143 for Fe and Mg isotopic analysis of geological and biological samples. *Journal of Atomic Absorption Spectroscopy*, 35 (2020) 2517-2529. Q1, IF 2019 : 3.498.

Rosa Grigoryan, Marta Costas Rodríguez, Steven Van Laecke, Marijn Speeckaert, Bruno Lapauw, Frank Vanhaecke. Multi-collector ICP-mass spectrometry reveals changes in the serum Mg isotopic composition in diabetes type I patients. *Journal of Atomic Absorption Spectroscopy*, 34 (2019) 1514-1521. Q1, IF 2019 : 3.498.

Levon A. Melikyan, Simak S. Martirosyan, Rosa S. Grigoryan, Hakob V. Topchyan and Tigran K. Davtyan, Development and validation of HPLC method for the determination of metronidazole benzoate and related impurities in bulk and pharmaceutical formulations. *International Journal of Pharmaceutical Sciences and Research*. 4 (2013) 2594- 2599. Q3. IF 2013 : 0.235.

Levon A. Melikyan, Rosa S. Grigoryan, Tigran K. Davtyan. Development and validation of RP-HPLC method for simultaneous determination of guaifenesin impurities in multi drug combinations. *Global Journal of Medical research: B Pharma, Drug Discovery, Toxicology and Medicine*. 14 (2014) 27-34.

S.G. Grigoryan, S.S. Avtandilyan, R.S. Grigoryan, H.G. Balayan. Sol-gel method for preparing porous silica xerogels and modified ceramic monoliths by use of organosols. *Chemical Journal of Armenia*, 64 (2011) 16-26.

S.G. Grigoryan, L.E. Tkachenko, R.S. Grigoryan, H.G. Balayan. Silica xerogels and ceramic monoliths modification by polymers. *Chemical Journal of Armenia*, 64 (2011) 197-207. R.S. Grigoryan. Method development and validation for salicylic acid determination in herbal ointments. *Proceedings of Engineering Academy of Armenia*. 12 (2015) 385-390.