

Katharina Anna Domnanich

National Superconducting Cyclotron Laboratory, Department of Chemistry

Michigan State University, East Lansing, Michigan

E-mail: domnanic@frib.msu.edu

Phone: (517) 904 7504

Link: [GoogleScholar](#)

RESEARCH INTERESTS

- Production of radionuclides and development of radiogenerator systems for diverse scientific applications
- Ion exchange, extraction chromatography, solvent extraction, membrane-supported separations
- Automation of fluidic systems for radiochemical applications
- Radiopharmaceutical science

CURRENT POSITION

Assistant Professor

08/2022 – present

Department of Chemistry and Facility for Rare Isotope Beams

Michigan State University, East Lansing, Michigan

EDUCATION

PhD in Chemistry

01/2014 – 12/2017

University of Bern, Bern, Switzerland

Thesis title: *Studies towards ⁴³Sc, ⁴⁴Sc and ⁴⁷Sc – a novel matched pair for theragnostic applications*

MSc in Chemistry

10/2009 – 10/2012

University of Vienna, Vienna, Austria

Thesis title: *Impact of Alternaria toxins on CYP1A1- and GST-expression in human tumor cells*

BSc in Medicinal Chemistry and Pharmaceutical Sciences

10/2008 – 06/2009

Dublin Institute of Technology, School of Chemical and Pharmaceutical Sciences, Dublin, Ireland

Thesis title: *Investigation of the ozone formation potential of different fuels*

Secondary School of Chemical Technology

09/2003 – 06/2008

Analytical Chemistry – Environmental Technology, Vienna, Austria

Final year project: *Analysis of primers in view of further forensic applications*
(orig. title: *Analyse von Zündhütchen in Hinblick auf forensische Anwendungen*)

RESEARCH EXPERIENCE

Research Associate

Facility for Rare Isotope Beams, Department of Chemistry

09/2018 – 07/2022

Michigan State University, East Lansing, Michigan

Advisor: Prof. Dr. Gregory Severin

Graduate Research Assistant

University of Bern, Department of Chemistry and Biochemistry, Bern, Switzerland **01/2014 – 12/2017**

Paul Scherrer Institute, Laboratory of Radiochemistry, Villigen PSI, Switzerland

Advisors: Prof. Dr. Andreas Türler, Dr. Nicholas van der Meulen

University of Vienna, Faculty for Chemistry, Vienna, Austria **02/2011 – 08/2011**
Advisors: Prof. Dr. Doris Marko, Dr. Gudrun Pahlke

Research Internship

Paul Scherrer Institute **09 – 12/2013**
Laboratory of Radiochemistry, Villigen PSI, Switzerland
Advisors: Prof. Dr. Andreas Türler, Dr. Nicholas van der Meulen

Paul Scherrer Institute **11/2012 – 07/2013**
Department of Radiation Safety, Villigen PSI, Switzerland
Advisor: Dr. Jost Eikenberg

Sanochemia Pharmazeutica GmbH, Neufeld a. d. Leitha, Austria **07/2009**
Murexin GmbH, Wiener Neustadt, Austria **07/2004, 2005, 2006, 2008**

Research Assistant

Dublin Institute of Technology **04 – 05/2009**
School of Chemical and Pharmaceutical Sciences, Dublin, Ireland
Advisor: Prof. Dr. Jack Treacy

Secondary School of Chemical Technology, Vienna, Austria **07 – 08/2007**
Seibersdorf Laboratories, Chemical Analytics, Seibersdorf, Austria
Advisor: Dr. Karl Maly

TEACHING EXPERIENCE

Teaching Assistant

University of Bern **Spring 2014 – 2017**
Department of Chemistry and Biochemistry, Bern, Switzerland
Laboratory course in *General chemistry for biologists and chemists* (orig. title: *Allgemeine Chemie für Biologen und Minor Chemie*)

University of Vienna **Spring 2011, 2012**
Faculty for Chemistry, Vienna, Austria
Laboratory course in *Food chemistry for chemists* (orig. title: *Lebensmittelchemisches Praktikum für Chemiker*)

ADDITIONAL PROFESSIONAL EXPERIENCE

Voluntary Work in Conservation **02 – 04/2018**
Go Eco, San Jose, Costa Rica

Visitor Guide **12/2015 – 12/2017**
Paul Scherrer Institute, Villigen PSI, Switzerland

Sales Assistant **12/2009 – 12/2011**
CTS Eventim Austria GmbH, Vienna, Austria

GRANTS AND AWARDS

- Doctoral Thesis Award from the German Chemical Society** 2019
German Chemical Society, Nuclear Chemistry, Dresden, Germany
- EANM Springer Award – Best Paper Award** 2018
Best paper EJNMMI Radiopharmacy and Chemistry, Düsseldorf, Germany
- Nuclear Energy and Safety – Best Oral Presentation Award** 2017
Nuclear Energy and Safety PhD Day, Villigen PSI, Switzerland
- NRC9 –Best Oral Presentation Award** 2016
9th International Conference on Nuclear and Radiochemistry, Helsinki, Finland

PEER-REVIEWED PUBLICATIONS

Bence, J.A., Satija S., **Domnanich K.A.**, Despotopoulos J.D., Abel E.P., Clause H.K., Essenmacher S., Kalman M., Kleinfeldt C., Kmak K.N., Parsons-Davis T., Vyas C.K., Walker W., Scielzo N.D., Severin G.W., Shusterman J.A. (2022). *Solid-phase isotope harvesting of ⁸⁸Zr from a radioactive ion beam facility*. Appl. Radiat., 189, 110414. [link](#)

Domnanich K.A., Severin G.W. (2022). *A Model for Radiolysis in a Flowing-Water Target during High-Intensity Proton Irradiation*. ACS Omega, 7, 29, 25860–25873. [link](#)

Clause H.K., **Domnanich K.A.**, Kleinfeldt C., Kalman M., Walker W., Vyas C., Abel E.P., Severin G.W. (2022). *Harvesting krypton isotopes from the off-gas of an irradiated water target to generate ⁷⁶Br and ⁷⁷Br*. Sci. Rep., 12:1433. [link](#)

Domnanich K.A., Vyas C.K., Abel E.P., Kalman C., Walker W., Severin G.W. (2020). *Harvesting ⁶²Zn from an aqueous cocktail at the NSCL*. New J. Chem., 44, 20861–20870. [link](#)

E. P. Abel, **Domnanich K.**, Clause H.K., Kalman C., Walker W., Shusterman J.A., Greene J., Gott M., Severin G. (2020). *Production, Collection, and Purification of ⁴⁷Ca for the Generation of ⁴⁷Sc through Isotope Harvesting at the National Superconducting Cyclotron Laboratory*. ACS Omega, 5, 27864–27872. [link](#)

Abel E.P., **Domnanich K.A.**, Kalman C., Walker W., Engle J.W., Barnhart T.E., Severin G. (2020). *Durability test of a flowing-water target for isotope harvesting*. Nucl. Instruments Methods Phys. Res. B, 478, 34-45. [link](#)

Domnanich K.A., Abel E.P., Clause H.K., Kalman C., Walker W., Severin G.W. (2020). *An isotope harvesting beam blocker for the National Superconducting Cyclotron Laboratory*. Nucl. Instruments Methods Phys. Res. A, 959, 163526. [link](#)

Siwowska K., Guzik P. **Domnanich K.A.**, Monné Rodriguez J.M., Bernhardt P., Ponsard B., Hasler R., Borgna F., Schibli R., Köster U., van der Meulen N.P., Müller C. (2019). *Therapeutic Potential of ⁴⁷Sc in Comparison to ¹⁷⁷Lu and ⁹⁰Y: Preclinical Investigations*. Pharmaceutics, 11, 424. [link](#)

Müller C., **Domnanich K.A.**, Umbricht C.A., van der Meulen N.P. (2018). *Scandium and Terbium radionuclides for radiotheragnostics: current state of development towards clinical application*. Br J Radiol 91, 1091. [link](#)

Domnanich K.A., Eichler R., Müller C., Jordi S., Yakusheva V., Braccini S., Behe M., Schibli R., Türlér A., van der Meulen N.P. (2017). *Production and separation of ⁴³Sc for radiopharmaceutical purposes*. EJNMMI Radiopharm. Chem. 2, 14. [link](#)

Domnanich K.A., Müller C., Benešová M., Dressler R., Haller S., Köster U., Ponsard B., Schibli R., Türlér A., van der Meulen N.P. (2017). *⁴⁷Sc as useful β -emitter for the radiotheragnostic paradigm: a comparative study of feasible production routes.* EJNMMI Radiopharm. Chem. 2, 5. [link](#)

Domnanich K.A., Müller C., Farkas R., Schmid R.M., Ponsard B., Schibli R., Türlér A., van der Meulen N.P. (2016). *⁴⁴Sc for labeling of DOTA- and NODAGA-functionalized peptides: preclinical in vitro and in vivo investigations.* EJNMMI Radiopharm. Chem. 1, 8. [link](#)

Pahlke G., Tiessen C., **Domnanich K.**, Kahle N., Groh I.A., Schreck I., Weiss C., Marko D. (2016). *Impact of Alternaria toxins on CYP1A1 expression in different human tumor cells and relevance for genotoxicity* Toxicol. Lett. 240, 93-104. [link](#)

Van der Meulen N.P., Bunka M., **Domnanich K.A.**, Müller C., Haller S., Vermeulen C., Türlér A., Schibli R. (2015). *Cyclotron production of ⁴⁴Sc: From bench to bedside.* Nuc Med Biol. 42, 745-751. [link](#)

Tiessen C., Fehr M., Schwarz C., Bächler S., **Domnanich K.**, Böttler U., Pahlke G., Marko D. (2013). *Modulation of the cellular redox status by the Alternaria toxins alternariol and alternariol monomethyl ether.* Toxicol. Lett. 216, 23-30. [link](#)