

# Georgy Berezhnoy

## Personal Data

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Status/Function: PhD Candidate; Doctoral researcher  
Scientific focus: NMR, Metabolomics, Biochemistry,  
neurodegeneration, COVID-19  
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## Education and qualifications

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2019 – present      **PhD studentship**  
Werner Siemens Imaging Center,  
University of Tübingen, Germany.

2014 – 2019      **Diploma Studentship in  
General and Applied Chemistry**  
Higher Chemical College of the Russian  
Academy of Sciences,  
Mendeleev University, Moscow, Russia.

## Work Experience

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Since 2019      **PhD researcher**  
Institute of Preclinical Imaging & Radiopharmacy, University Hospital Tübingen, Germany.

2018 – 2019      **Diploma Researcher**  
Center for Magnetic Resonance (CERM), Department of Chemistry, University of  
Florence, Italy.

2017 – 2018      **Senior Laboratory Researcher**  
N.S. Kurnakov Institute of General Chemistry and Inorganic Chemistry of the  
Russian Academy of Sciences, Moscow, Russia.

2015 – 2017      **Student Researcher**  
A.N. Frumkin Institute of Physical Chemistry and Electrochemistry of the Russian  
Academy of Sciences, Moscow, Russia.

## Publications (ORCID - 0000-0003-0260-3203):

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**Berezhnoy G.**, Laske C., & Trautwein C. (2023). **Metabolomic profiling of CSF and blood serum elucidates general and sex-specific patterns for mild cognitive impairment and Alzheimer's disease patients.** *Front. Aging Neurosci.*, *15*, 1219718, doi: [10.3389/fnagi.2023.1219718](https://doi.org/10.3389/fnagi.2023.1219718)

**Berezhnoy G.**, Bissinger R., Liu A., Cannet C., Schäfer H., Kienzle K., Bitzer M., Häberle H., Göpel S., Trautwein C., Singh Y. (2023). **Maintained imbalance of triglycerides, apolipoproteins, energy metabolites and cytokines in long-term COVID-19 syndrome patients.** *Front. Immunol.*, *14*, 1144224, doi: [10.3389/fimmu.2023.1144224](https://doi.org/10.3389/fimmu.2023.1144224)

Sala S., Nitschke P., Masuda R., Gray N., Lawler N., Wood J.M., **Berezhnoy G.**, Bolaños A., Boughton B.A., Lonati C., Rössler T., Singh Y., Wilson I.D., Lodge S., Morillon A.-C., Loo R.L., Hall D., Whiley L., Evans G.B., Grove T.L., Almo S.C., Harris

L.D., Holmes E., Merle U., Trautwein C., Nicholson J.K., Wist J. (2023). **SARS-CoV-2 Infection Biomarkers Reveal an Extended RSAD2 Dependant Metabolic Pathway**. *medRxiv* [This article is a preprint and has not been peer-reviewed](#), doi: 10.1101/2023.05.08.23289637

Bae G., **Berezhnoy G.**, Koch A., Cannet C., Schäfer H., Kommos S., Brucker S., Beziere N., Trautwein C. (2023). **Stratification of ovarian cancer borderline from high-grade serous carcinoma patients by quantitative serum NMR spectroscopy of metabolites, lipoproteins, and inflammatory markers**. *Front. Mol. Biosci.*, 10, 1158330, doi: 10.3389/fmolb.2023.1158330

Patzwaldt K., **Berezhnoy G.**, Ionescu T., Schramm L., Wang Y., Owczorz M., Calderón E., Poli S., Higuera L.M.S., Gonzalez-Menendez I., Maier F.C., Seyfried D., Ehrlichmann W., Quintanilla-Martinez L., Herfert K., Pichler B., Trautwein C., Castaneda-Vega S. (2023). **Repurposing the mucolytic agent ambroxol for treatment of sub-acute and chronic ischaemic stroke**. *Brain Communications*, 5(2), fcad099, doi: 10.1093/braincomms/fcad099

Poxleitner M., Hoffmann S.H.L., **Berezhnoy G.**, Ionescu T., Gonzalez-Menendez I., Maier F.C., Seyfried D., Ehrlichmann W., Quintanilla-Martinez L., Schmid A.M., Reischl G., Trautwein C., Maurer A., Pichler B.J., Herfert K., Beziere N. (2023). **Western diet increases brain metabolism and adaptive immune responses in a mouse model of amyloidosis**. *bioRxiv* [This article is a preprint and has not been peer-reviewed](#), doi: 10.1101/2023.02.15.528645

Kazenwadel J., **Berezhnoy G.**, Cannet C., Schäfer H., Geisler T., Rohlfing A.-K., Gawaz M., Merle U., Trautwein C. (2022). **Stratification of hypertensive COVID-19 patients by quantitative NMR spectroscopy of serum metabolites, lipoproteins and inflammation markers**. *medRxiv* [This article is a preprint and has not been peer-reviewed](#), doi: 10.1101/2022.12.20.22283729

Rössler T., **Berezhnoy G.**, Singh Y., Cannet C., Reinsperger T., Schäfer H., Spraul M., Kneilling M., Merle U., & Trautwein C. (2022). **Quantitative Serum NMR Spectroscopy Stratifies COVID-19 Patients and Sheds Light on Interfaces of Host Metabolism and the Immune Response with Cytokines and Clinical Parameters**. *Metabolites*, 12(12), 1277, doi: 10.3390/metabo12121277

Yang Q., Bae G., Nadiradze G., Castagna A., **Berezhnoy G.**, Zizmare L., Kulkarni A., Singh Y., Weinreich F.J., Kommos S., Reymond M.A., & Trautwein C. (2022). **Acidic ascites inhibits ovarian cancer cell proliferation and correlates with the metabolomic, lipidomic and inflammatory phenotype of human patients**. *Journal of Translational Medicine* volume, 20, 581, doi: 10.1186/s12967-022-03763-3

**Berezhnoy G.**, Laske C., & Trautwein C. (2022). **Quantitative NMR-Based Lipoprotein Analysis Identifies Elevated HDL-4 and Triglycerides in the Serum of Alzheimer's Disease Patients**. *Int. J. Mol. Sci.*, 23(20), 12472, doi: 10.3390/ijms232012472

Singh Y., Trautwein C., Fendel R., Krickeberg N., **Berezhnoy G.**, Bissinger R., Ossowski S., Salker M.S., Casadei N., Riess O., DeCOI (2021). **SARS-CoV-2 infection paralyzes cytotoxic and metabolic functions of the immune cells**. *Heliyon*, 7(6), e07147, doi: 10.1016/j.heliyon.2021.e07147

Martynov A.G., Polovkova M.A., **Berezhnoy G.S.**, Sinelshchikova A.A., Khrustalev V.N., Birin K.P., Kirakosyan G.A., Gorbunova Yu.G., & Tsivadze A.Yu. (2021). **Heteroleptic Crown-Substituted Tris(phthalocyaninates) as Dynamic Supramolecular Scaffolds with Switchable Rotational States and Tunable Magnetic Properties**. *Inorg. Chem.*, 60, 12, 9110-9121, doi: 10.1021/acs.inorgchem.1c01100

Martynov A.G., Polovkova M.A., **Berezhnoy G.S.**, Sinelshchikova A.A., Dolgushin F.M., Birin K.P., Kirakosyan G.A., Gorbunova Yu.G., & Tsivadze A.Yu. (2020). **Cation-Induced Dimerization of Heteroleptic Crown-Substituted Trisphthalocyaninates as Revealed by X-ray Diffraction and NMR Spectroscopy**. *Inorg. Chem.*, 59, 13, 9424-9433, doi: 10.1021/acs.inorgchem.0c01346

Martynov A.G., **Berezhnoy G.S.**, Safonova E.A., Polovkova M.A., Gorbunova Yu G., & Tsivadze A.Yu (2019). **Aromatic Nucleophilic Substitution as a Side Process in the Synthesis of Alkoxy- and Crown-Substituted (Na)phthalocyanines**. *Macroheterocycles*, 12 (1), 75-81, doi: 10.6060/mhc181225m

Sinelshchikova A., Dolgushin F., **Berezhnoy G.**, Martynov A., Gorbunova Y., & Tsivadze A. (2018).

**Supramolecular dimer of sandwich triple-decker phthalocyaninates studied by single-crystal X-ray diffraction analysis.** Acta Cryst., A74, e378, doi: 10.1107/S2053273318089520

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- 03/2023, **iFIT 1<sup>st</sup> International Conference**, Zell am See, Austria: Stratification of ovarian cancer borderline from highgrade serous carcinoma patients via blood serum NMR spectroscopy of metabolites, lipoproteins and inflammatory markers
- 03/2023, **Gordon Research Conference - Metabolomics and Human Health – Examining the Intersection Between Systemic and Cellular Metabolism and Lifestyle Factors to Understand Health and Disease**, Barga, Italy: Maintained imbalance of triglycerides, apolipoproteins, energy metabolites and cytokines in long-term COVID-19 syndrome (LTCS) patients
- 10/2022, **4th Munich Metabolomics Meeting**, Munich, Germany: Metabolomic profiling via quantitative NMR spectroscopy of serum and cerebrospinal fluid identified 2-aminobutyrate reduced in Parkinson's disease patients
- 09/2022, **2<sup>nd</sup> Nordic Metabolomics Conference 2022 (NMetC2022)**, Copenhagen, Denmark: Metabolomic profiling via quantitative NMR spectroscopy of serum and cerebrospinal fluid identified 2-aminobutyrate reduced in Parkinson's disease patients
- 06/2022, 18<sup>th</sup> Annual Conference of the Metabolomics Society **METABOLOMICS 2022**, Valencia, Spain: Quantitative NMR links CSF and serum perturbations of ketone bodies and branched-chain amino acids to Alzheimer's disease
- 09/2016, **XX Mendeleev Congress**, Yekaterinburg, Russia: Investigation of supramolecular chemistry of yttrium(III) crownphthalocyaninates by Diffusion ordered NMR spectroscopy