

CURRICULUM VITAE: ANNA JOHNNING

Full name	Anna Maria Saria Johnning (850326-4981)	
Phone	+46 (0)31 772 49 92 +46 (0)706 03 61 81	
E-mail	anna.johnning@chalmers.se	
Affiliations	Fraunhofer-Chalmers Centre Department of Systems and Data Analysis Chalmers University of Technology/University of Gothenburg Department of Mathematical Sciences Division of Applied Mathematics and Statistics CARE - Centre for Antibiotic Resistance Research University of Gothenburg	

ACADEMIC DEGREES

2010-2014	PhD in Medicine from University of Gothenburg.
Project title	<i>Fluoroquinolone resistance in the environment and the human gut - Analyses of bacterial DNA sequences to explore the underlying mechanisms</i> Supervised by Professor D. G. Joakim Larsson (Biomedicine, University of Gothenburg), Professor Erik Kristiansson (Mathematical Sciences, Chalmers University of Technology) & Professor Edward R. B. Moore (Biomedicine, University of Gothenburg)
2007-2009	MSc in Bioinformatics and Systems Biology from Chalmers University of Technology
Thesis title	<i>Analysis of variance for cancer diagnostics using qPCR markers</i> Supervised by Professor Marita Olsson (Mathematical sciences, Chalmers University of Technology) & Daniel Lindh (MultiD Analyses AB)
2004-2007	BSc in Bioengineering from Chalmers University of Technology
Thesis title	<i>Statistical analysis of errors in EST databases</i> Supervised by Professor Erik Kristiansson & Dr Alexandra Jauhiainen (Mathematical sciences, Chalmers University of Technology)

EMPLOYMENTS

2018-current	Researcher at the Department of Systems and Data Analysis, Fraunhofer-Chalmers Centre
2016-current	Researcher at the Department of Mathematical Sciences, Chalmers University of Technology/University of Gothenburg, in Erik Kristiansson's group.
2014-2016	Postdoctoral researcher at the Department of Mathematical Sciences, Chalmers University of Technology/University of Gothenburg, in Erik Kristiansson's group.
2014-2015	Bioinformatics specialist at 1928 diagnostics (30% position)
2010-2014	PhD student at the Institute of Biomedicine, the Sahlgrenska Academy, University of Gothenburg, in Joakim Larsson's group.
2009	R&D engineer at MultiD Analyses AB

PUBLICATIONS

Peer-reviewed

Karlsson, R., Thorsell, A., Gomila, M., Salvà-Serra, F., Jakobsson, H. E., Gonzales-Siles, L., Jaén-Luchoro, D., Skovbjerg, S., Fuchs, J., Karlsson, A., Boulund, F., Johnning, A., Kristiansson, E. & Moore, E. (2020). **Discovery of species-unique peptide biomarkers of bacterial pathogens by tandem mass spectrometry-based proteotyping.** *Molecular & Cellular Proteomics*.

Johnning, A., Karami, N., Tång-Hallbäck, E., Müller, V., Nyberg, L., Pereira, M. B., Stewart, C., Ambjörnsson, T., Westerlund, F., Adlerberth, I. & Kristiansson, E. (2108). **The resistomes of six carbapenem-resistant pathogens – a critical genotype-phenotype analysis.** *Microbial genomics*, 4.11.

Boulund, F., Karlsson, R., Gonzales-Siles, L., Johnning, A., Karami, N., Omar, A. B., Åhrén, C., Moore, E. R. B. & Kristiansson, E. (2017). **Typing and characterization of bacteria using bottom-up tandem mass spectrometry proteomics.** *Molecular & Cellular Proteomics*, 16(6): 1052-1063.

Johnning, A., Jakobsson, H. E., Boulund, F., Salvà-Serra, F., Moore, E. R. B., Åhrén, C., Karami, N. & Kristiansson, E. (2016). **Draft genome sequence of extended-spectrum- β -lactamase-producing *Escherichia coli* strain CCUG 62462, isolated from a urine sample.** *Genome Announcements*, 4(6), e01382-16.

Bengtsson-Palme, J., Boulund, F., Edström, R., Feizi, A., Johnning, A., Jonsson, V. A. Karlsson, F. H., Pal, C., Pereira, M. B., Rehammar, A., Sanchez, J., Sanli, K. & Thorell, K. (2016). **Strategies to improve usability and preserve accuracy in biological sequence databases.** *Proteomics*, 16(18), 2454-2460.

Johnning, A., Kristiansson, E., Fick, J., Weijdegård, B., & Larson, D. G. J. (2015). **Resistance mutations in *gyrA* and *parC* are common in *Escherichia* communities of both fluoroquinolone-polluted and uncontaminated aquatic environments.** *Frontiers in microbiology*, 6.

Johnning, A., Kristiansson, E., Angelin, M., Marathe, N., Shouche, Y. S., Johansson, A. & Larsson, D. G. J. (2015). **Quinolone resistance mutations in the microbiota of Swedish travellers to India.** *BMC Microbiology*, 15(1): 1.

Flach, C. F., Johnning, A., Nilsson, I., Smalla, K., Kristiansson, E. & Larsson, D. G. J. (2015) **Isolation of novel IncA/C and IncN fluoroquinolone resistance plasmids from an antibiotic-polluted lake.** *Journal of Antimicrobial Chemotherapy*, 70(10): 2709-2717.

Johnning, A., Moore, E. R. B., Svensson-Stadler, L., Shouche, Y. S., Larsson, D. G. J. & Kristiansson, E. (2013). **Acquired genetic mechanisms of a multiresistant bacterium isolated from a treatment plant receiving wastewater from antibiotic production.** *Applied and Environmental Microbiology*, 79(23), 7256-7263.

**Manuscripts in
preparation**

Boulund, F., Johnning, A., Pereira, M. B., Larsson, D. G. J. & Kristiansson, E. (2012). **A novel method to discover fluoroquinolone antibiotic resistance (qnr) genes in fragmented nucleotide sequences.** *BMC genomics*, 13(1), 695.

Müller, V.* Nyblom, M.* , Johnning, A.*, Wrande, M., Dvirnas, A., KK, S., Giske, C., Ambjörnsson, T., Sandegren, L., Kristiansson, E. & Westerlund, F. **Cultivation-Free Typing of Bacteria Using Optical DNA Mapping.** *Manuscript.* (*Authors contributed equally)

Berglund, F., Böhm, ME., Martinsson, A., Ebmeyer, S., Österlund, T., Johnning, A., Larsson, D. G. J. & Kristiansson, E. **Comprehensive screening of genomic and metagenomic data reveals a large diversity of tetracycline resistance genes.** *Manuscript.*

Berglund, F., Johnning, A., Larsson, D. G. J. & Kristiansson, E. **An updated phylogeny of the metallo-beta-lactamases.** *Manuscript.*

Boström, M., Kristiansson, E. & Johnning, A. **Automated identification of antibiotic resistance mutations in bacterial genomes.** *Manuscript.*

Sjöling, Å., Ebmeyer, S., Johnning, A., von Mentzer, A., & Kristiansson, E. **Explorative analysis of the resistomes of 362 globally sampled ETEC isolates.** *Manuscript.*

TEACHING

2020-current	Co-supervision of PhD student David Lund Chalmers University of Technology
2020-current	Co-supervision of PhD student Juan Inda Diaz University of Gothenburg
2020	Co-supervision of master student Beatrice Skyman 30 hp, Chalmers University of Technology Thesis title <i>Prediction of antibiotic resistant bacteria using deep neural networks</i>
2019-2002	Co-supervision of master student David Lund 60 hp, Chalmers University of Technology Thesis title <i>Identification of macrolide resistance genes in genomic and metagenomic data</i>
2019	Co-supervision of master student Hampus Lane 30 hp, Chalmers University of Technology Thesis title <i>Predicting Antibiotic Resistance Phenotypes using Neural Networks</i>
2018-2019	DNA som en tidsspegel: från Neandertalare till framtida klimatförändringar 3 hp, undergraduate level. University of Gothenburg. <i>Guest lecturer</i>
2018-2019	Co-supervision of PhD student Fanny Berglund Chalmers University of Technology Thesis title <i>Identification of novel antibiotic resistance genes through large-scale data analysis</i>
2017-2018	Introduction to bioinformatics 7.5 hp, advanced level. Chalmers University of Technology <i>Lecturer and course administrator responsible for 60 students</i>
2016-2017	Supervision of master student Martin Boström 30 hp, Chalmers University of Technology Thesis title <i>Automated identification of antibiotic resistance mutations in bacterial genomes – Creation of the ARM-find pipeline</i>
2016	Statistics and probability 3 hp, undergraduate level. Chalmers University of Technology <i>Lecturer, examiner, and course administrator responsible for 99 students</i>
2015-2016	Supervision of master student Stefan Ebmeyer 60 hp, Chalmers University of Technology Thesis title <i>Explorative analysis of the resistome of 362 globally collected ETEC isolates</i>
2015	Mathematical statistics 7.5 hp, undergraduate level, Chalmers University of Technology <i>Teaching assistant responsible for exercise sessions</i>

2014-2016	Mathematical statistics and discrete mathematics 7.5 hp, undergraduate level, Chalmers University of Technology <i>Teaching assistant responsible for exercise sessions, grading of reports and exams</i>
2011	Large Scale Genomic Techniques, Analysis, and Modelling 7.5 hp, advanced level, Chalmers University of Technology <i>Lectured on qPCR</i>
2010	Co-supervision of master student Fredrik Boulund 30 hp, Chalmers University of Technology Thesis title <i>Exploring antibiotic resistance genes in the human intestinal microbiome – Development of a framework for large scale annotation of next-generation sequencing data</i>
2010	Co-supervision of summer student Fredrik Boulund 15 hp, Chalmers University of Technology Project title <i>A computational pipeline for identification of novel qnr fluoroquinolone resistance genes in large metagenomic databases</i>
2010	Large Scale Genomic Techniques, Analysis, and Modelling 7.5 hp, Chalmers University of Technology <i>Lectured on qPCR and supervised a computer lab in microarray data analysis</i>
Examples of course evaluations	<i>"Hon var den här kursens stora behållning och kan vara den enskilt största anledningen till att iaf jag klarade tentan.", "Anna är den bästa övningsledaren jag haft under in tid på Chalmers.", "Anna Johnning är en mycket duktig lärare.", "En så pass pedagogisk person är sällsynt på högskola - åtminstone inom matematik."</i>

PRESENTATIONS

- 2016** **Microbiology Spring Meeting, Helsingborg.** 15-minute talk
Talk title *The genomes of carbapenem-resistant pathogens of five different species isolated at a Swedish hospital*
- 2016** **26th ECCMID 2015, Amsterdam.** Poster presentation
Poster title *Prediction of antibiotic resistance phenotypes using the genomes of carbapenem-resistant pathogens of five different species isolated at a Swedish hospital*
- 2015** **14th Swedish Bioinformatics Workshop 2015, Stockholm.** 30-minute talk
Talk title *Predicting antibiotic resistance phenotypes of five carbapenem-resistant isolates using whole genome sequencing*
Awarded Best Presentation at the workshop
- 2015** **6th Congress of European Microbiologists by FEMS, Maastricht.** Poster pr.
Poster title *The genomes of carbapenem-resistant pathogens of five different species isolated at a Swedish hospital*
- 2015** **25th ECCMID 2015, Copenhagen.** Poster presentation
Poster title *The genomes of carbapenem-resistant pathogens of five different species isolated at a Swedish hospital*
- 2014** **13th Swedish Bioinformatics Workshop 2014, Gothenburg.** Poster pr.
Poster title *Predicting antibiotic resistance profile in five carbapenem-resistant isolates using whole genome sequencing*
- 2013** **Sustainability 2013, Gothenburg.** 6-minute talk followed by panel debate
Talk title *Antibiotikaproduktionens miljöpåverkan – en onödig källa till resistens?*
- 2012** **4th Annual Next Generation Sequencing Congress, London.** Poster pr.
Poster title *The Genome of an Extensively Drug-Resistant Bacterium*
- 2011** **11th Swedish Bioinformatics Workshop, Lund.** 20-minute talk
Talk title *The genome of an extensively drug-resistance bacterium*
- 2011** **Veterinary Congress, Uppsala.** 30-minute talk
Talk title *Antibiotikaproduktionens miljöpåverkan – en onödig källa till resistens?*
- 2011** **4th Congress of European Microbiologists by FEMS, Geneva.** Poster highlight
Poster title *The genome of an extensively drug-resistant bacterium isolated from a wastewater treatment plant receiving effluent from antibiotic manufacturing*
- 2011** **Adlerbert Research Foundation seminar, Gothenburg.** 30-minute talk
Talk title *Antibiotika i miljön – En orsak till resistens?*
- 2011** **SETAC Europe 21st Annual Meeting, Milan.** Poster presentation
Poster title *The genome of an extensively drug-resistant bacterium isolated from a wastewater treatment plant receiving effluent from antibiotic manufacturing*

2011	11th SocBiN Conference, Helsinki. 15-minute talk & poster presentation
Talk title	<i>The genome of an extensively drug-resistant bacterium isolated from a wastewater treatment plant receiving effluent from antibiotic manufacturing</i>
2011	Microbiology Spring Meeting, Uppsala. 15-minute talk
Talk title	<i>The genome of an extensively drug-resistant bacterium isolated from a wastewater treatment plant receiving effluent from antibiotic manufacturing</i>
2010	Deep Sequencing Techniques: Bioscience Applications, Statistical and Computational Practices and Challenges, Gothenburg. 20-minute talk
Talk title	<i>The genome of an extensively drug-resistant bacterium</i>
2010	35th FEBS Congress: Molecules of Life, Gothenburg. Poster presentation
Poster title	<i>Whole genome sequencing of a multi-resistant bacterium isolated from a wastewater treatment plant receiving effluent from antibiotic drug manufacturing</i>
2010	10th Swedish bioinformatics workshop, Gothenburg. Poster presentation
Poster title	<i>Whole genome sequencing of a multi-resistant bacterium isolated from a wastewater treatment plant receiving effluent from antibiotic drug manufacturing</i>

GRANTS AND AWARDS

2020	Centre for Antibiotic Resistance Research (CARE), 596 276 kr
2010-2013, 2015, 2018	Adlerbert Research Foundation, total of 232 500 kr
2015	Awarded Best Presentation at the Swedish Bioinformatics Workshop
2012	Knut och Alice Wallenbergs stiftelse, 9 000 kr
2012	Wilhelm och Martina Lundgrens vetenskapsfond, 8 000 kr
2011	Resebidrag ur donationsmedel för ograduerade forskare vid Sahlgrenska akademien, 8 000 kr
2010	Hvitfeldtska resestipendium, 18 000 kr