Curriculum vitae

PERSONAL INFORMATION

1.1 Personal data

Magnus Karlsson
Date of birth: 7th of June 1974. Nationality: Swedish. Family: Married and four children.
Researcher ID: P-6556-2014, ORCID: https://orcid.org/0000-0001-6098-138X. URL for web site: https://www.slu.se/en/cv/magnus-karlsson

1.2 Current employment

Researcher, from 2011-08-01. Department of Forest Mycology and Plant Pathology, Swedish University of Agricultural Sciences (SLU). From 2018-07-01 also affiliated with the Centre for Biological Control, SLU, at 50%.

1.3 Previous employments

- Assistant Professor (Forskarassistent), 2009-02-01 to 2011-07-31. Department of Forest Mycology and Plant Pathology, SLU.
- Post-doc (Forskare), 2006-04-18 to 2009-01-31. Department of Forest Mycology and Plant Pathology, SLU.
- Post-doc (Forskare), 2005-06-01 to 2006-04-13. Department of Evolution, Genomics and Systematics, section of Evolutionary Biology, Uppsala University.
- PhD-student (Doktorand), 2000-01-01 to 2005-04-30. Department of Forest Mycology and Pathology, SLU.
- Research assistant (Forskningsassistent), 1999-11-01 to 1999-12-31. Department of Forest Mycology and Pathology, SLU.

Parental leave approx. 12 months during PhD studies (2000-2005). Parental leave approx. 12 months since completion of PhD program (2005-2018).

EDUCATION

2.1 University degrees

- Degree of Doctor of Philosophy in Biology, 2005, SLU.
- Degree of Master of Science (One Year) in Biology, 1999, Uppsala University.

2.2 Appointment as Senior lecturer (Docent)

2011, SLU.

SCIENTIFIC QUALIFICATIONS

3.1 Funding from research councils

- FORMAS, Wild resources for climate resilience and pest control in strawberry. Co-applicant, 2019-2021, 3000 kSEK.
- FORMAS, Small-RNA based strategies to control fungal plant pathogens- an unexplored mechanism in biocontrol interactions. Co-applicant, 2019-2021, 2998 kSEK.
- FORMAS, Population genomics of the fungus *Clonostachys rosea* for improved biological control of fusariose in wheat. Main applicant, 2016-2018, 3000 kSEK.
- FORMAS, Biological control of plant pathogenic nematodes in organic crop production by the nematode-parasitizing fungus *Clonostachys rosea*. Co-applicant, 2015-2018, 1610 kSEK.
- FORMAS, Consortia of biological control organisms formulated for improving plant health – a novel technology for sustainable crop protection. Co-applicant, 2013-2015, 4993 kSEK.

- FORMAS, Exploitation of DNA reporter technology and gene knock outs in filamentous fungi for studying the role of secreted enzymes in biocontrol interactions. Co-applicant, 2010-2011, 900 kSEK.

3.2 Funding from research foundations

- The Carl Trygger Foundation for Scientific Research, Small-RNAs in mycoparasitic interactions. Co-applicant, 2020-2022, 822 kSEK.
- The Swedish Farmers' Foundation for Agricultural Research, Breeding for root rot resistance in pea. Main applicant, 2014-2016, 1250 kSEK.
- The Carl Trygger Foundation for Scientific Research, Genome-analysis of the fungus *Clonostachys rosea* for increased knowledge on biological control of fungal diseases on agricultural crops. Main applicant, 2012-2013, 569 kSEK.
- The C.F. Lundström Foundation, Transcriptome analysis of a new, emerging *Phytophthora* pathogen on pea, using massive parallel sequencing. Main applicant, 2010, 80 kSEK.
- The Carl Trygger Foundation for Scientific Research, Functional differentiation of fungal chitinases. Main applicant, 2009-2010, 222 kSEK.
- The Royal Swedish Academy of Sciences, Functional differentiation of fungal chitinases. Main applicant, 2009, 83 kSEK.
- The Royal Swedish Academy of Sciences, Peroxisomal functioning in fungal pathogenesis. Main applicant, 2007, 30 kSEK.

3.3 Funding from additional sources

- SLU Grogrund, Plant breeding for optimised interactions between crops and microorganisms to enhance disease management and production with reduced agrochemical use. Co-applicant, 2020-2025, 10500 kSEK.
- SLU Grogrund, Resistance breeding for healthy crops. Main applicant, 2019-2023, 32000 kSEK.
- Danish Environmental Protection Agency, Microbial biocontrol agents in IPM strategies - reducing pesticide use in wheat and lowering the risk of fungicide resistance. Co-applicant, 2017-2020, 4043 kSEK.
- Plant Protection Platform, SLU, Biological control of plant pathogenic nematodes by the fungus *Clonostachys rosea*. Main applicant, 2016-2018, 1800 kSEK.
- The Department of Forest Mycology and Pathology, SLU, granted me funds to cover the salary for a PhD student for 4 years (approx. 2400 kSEK). Title: Functional differentiation of fungal chitinases. 2009-2012.

3.4 Assessment of research applications

Assessment of a research grant proposal for the TWF research fund, Austria, 2018.
Assessment of a research grant proposal for the Austrian Science Fund, Austria, 2016.
Assessment of a research grant proposal for the National Science Foundation, USA, 2013.

3.5 National and international prizes

Awarded for best student presentation at the 7th International Mycological Congress, Oslo, Norway, 2002.

3.6 Editorial/advisory board in international journals

Review editor for Frontiers in Fungal Biology, section Fungi-Plant Interactions (2020-).
Review editor for Frontiers in Microbiology, section Fungi and their interactions (2019-2020).

Editor of the IOBC/wprs Bulletin vol. 115 (2016), Biological control of fungal and bacterial plant pathogens.

3.7 Commission as opponent

- Opponent at the PhD defence of Delfia Isabel Marcenaro Rodriguez, Department of Agricultural Science, University of Helsinki, Finland, 2018. Title: Seedborne fungi and viruses in bean crops (*Phaseolus vulgaris* L.) in Nicaragua and Tanzania.
- Opponent at the PhD defence of Xiaoxue Tong, Department of Chemistry and Bioscience, Aalborg University, Denmark, 2015. Title: Exploration of lipases and esterases from thermophilic fungi.

3.8 Commissions as PhD evaluation committee member

- Thi Ahn Tuyet Bui, Department of Chemistry and Molecular Biology, University of Gothenburg, 2020.
- Dmytro Kryvokhyzha, Department of Ecology and Genetics, Uppsala University, 2018.
- Konstantia Gkarmiris, Department of Forest Mycology and Plant Pathology, SLU, 2018.
- Zaenab A. Fahad, Department of Forest Mycology and Plant Pathology, SLU, 2017.
- Qinsong Liu, Department of Plant Biology, SLU, 2016.
- Malin Abrahamsson, Department of Plant Biology, SLU, 2016.
- Tianqing Zhu, Department of Plant Biology, SLU, 2015.
- Shashidar Asari, Department of Plant Biology, SLU, 2015.
- Adnan Niazi, Department of Animal Breeding and Genetics, SLU, 2014.
- Daniel Uddenberg, Department of Plant Biology and Forest Genetics, SLU, 2013.
- Karl-Magnus Andersson, Department of Biology, Lund University, 2013.
- Anna Johansson, Department of Plant Biology and Forest Genetics, SLU, 2013.
- Jorge Ulises Blandón-Díaz, Department of Forest Mycology and Pathology, SLU, 2011.

3.9 Commissions as expert

- Assessment of PhD thesis. Isabel Vicente Munoz, Department of Agriculture, Food and Environment, University of Pisa, Italy, 2020.
- Assessment of the scientific competence in regard to an application to South Africa's National Research Foundation, 2019.
- Assessment of the scientific competence in regard to an application for Docent appointment, Faculty of Agriculture and Forestry, University of Helsinki, Finland, 2015.
- External evaluator of 50% and 80% PhD-student follow-up evaluations: Anne Njoroge, Hanneke Peele, Tom Martin, Louise Andersson.

3.10 Referee for international peer-reviewed journals

Referee assignments for 50 different scientific journals, on multiple occasions.

3.11 Patents

Submitted: BCA control of STB (2017) Biological control of septoria tritici blotch.

PEDAGOGIC QUALIFICATIONS

4.1 Teaching on basic, advanced and postgraduate levels

Basic level:

- Course responsibility for Molecular Ecology and Evolution (15 ECTS), 2014.
- Teaching on the course Molecular Ecology and Evolution (15 ECTS), 2012-2018.

- Teaching on the course Molecular Evolution (15 ECTS), 2009-2011.
- Laboratory practical supervisor on the courses The World of Organisms, Fungal Ecology, and Forest Microbiology, SLU, during my PhD studies (2000-2005).

Advanced level:

- Teaching on the course Plant Pathology (15 ECTS), 2009-2020.
- Teaching on the course Ecology and management of diseases and pest of forest trees (15 ECTS), 2009-2011, 2016-2018.
- Teaching on the course Plant-Microbe Interactions (15 ECTS), 2016.
- Teaching on the course Mycology, part of the Veterinary infection biology, parasitology and mycology course (15 ECTS), 2012-2018.

Postgraduate level:

- Teaching on the course Forest Pathology in the 21st century, SLU, 3 ECTS, 2019.
- Teaching on the course NOVA PhD Course on Plant Pathology, "Biotrophy - from recognition to ecology", Aarhus University, 4 ECTS, 2018.
- Course responsibility for NOVA PhD Course on Plant Pathology, "Biological control: Microbial interactions for improved plant health", SLU, 4 ECTS, 2017.
- Teaching on the course Molecular Infection Biology, SLU, 3 ECTS, 2017.
- Course responsibility for PhD course Evolution – effects on genes, individuals and populations, SLU, 4 ECTS, 2015.
- Teaching on the course NOVA PhD Course on Plant Pathology, "Genomic and transcriptomic sequences - a revolution in Plant Pathology?", University of Copenhagen, 5 ECTS, 2014.
- Teaching on the course DIAROD, Training School on Molecular Detection and Population Genetics of Dothistroma Needle Blight Pathogens, COST Action FP1102. SLU, 2014.
- Teaching on the course Phylogenetic Analysis, SLU, 6 ECTS, 2010, 2013.
- Teaching on the course NOVA PhD Course on Plant Pathology, "Innate immunity of plants", University of Helsinki, 5 ECTS, 2012.
- Course responsibility for the course Methodological approaches to studying genes encoding secreted proteins in fungal host interactions, SLU, 1.5 ECTS, 2011.
- Teaching on the course NordForsk: Preparing samples for fungal community sequencing, SLU, 2011.
- Course responsibility for Seminar series in Organism Biology, SLU, 2 ECTS, 2010-2011.
- Teaching on the course Novel technologies for management of the beneficial and harmful microbes in the root system, AB-RMS course, University of Copenhagen, 2008.
- Course responsibility for PCR methods, 1 ECTS, SLU, 2007.
- Course responsibility for Fungal Genomics and Annotation, 1.5 ECTS, SLU, 2007.

4.2 Supervision of B.Sc. and M.Sc. work

Supervised 12 B.Sc./M.Sc. students.

4.3 Supervision of Ph.D. work

- Mudassir Iqbal, admission 2016, dissertation 2019, Biological control of plant pathogenic nematodes in organic crop production by the nematode-parasitizing fungus *Clonostachys rosea*. Main supervisor: Magnus Karlsson. Co-supervisors: Dan Funck Jensen, Mukesh Dubey, Maria Viketoft.

- Islam A. Abd El-Daim, admission 2011, dissertation 2015, Use of rhizobacteria for the alleviation of plant stress. Main supervisor: Salme Timmusk. Co-supervisors: Magnus Karlsson, Elna Stenström.
- Sara Hosseini (Hadji Mollahossein), admission 2011, dissertation 2015, Host-pathogen interactions in root infecting oomycete species. Main supervisor: Magnus Karlsson. Co-supervisors: Dan Funck Jensen, Malin Elfstrand, Fredrik Heyman.
- Georgios Tzelepis, admission 2010, dissertation 2014, Functional differentiation of glycoside hydrolases family 18 in filamentous ascomycetes. Main supervisor: Magnus Karlsson. Co-supervisors: Dan Funck Jensen, Jan Stenlid, Petter Melin.
- Chatchai Kosawang, admission 2009, dissertation 2013, Three way interactions between *Fusarium* species, their plant hosts and biocontrol organisms. Main supervisor: David B. Collinge. Co-supervisors: Magnus Karlsson, Dan Funck Jensen.
- Rebecka Strandberg, admission 2007, dissertation 2012, On the evolution of reproductive systems in *Neurospora*. Main supervisor: Hanna Johannesson. Co-supervisors: Magnus Karlsson, Hans Ellegren.
- Kristiina Nygren, admission 2005, dissertation 2011, Evolutionary consequences of reproductive strategies: Testing theory on sex and reproductive gene evolution in the fungal model *Neurospora*. Main supervisor: Hanna Johannesson. Co-supervisors: Magnus Karlsson, Hans Ellegren.

4.4 Supervision of Licentiate work

- Anthony C. Mgbeahurike, admission 2007, dissertation 2009, A study of the traits associated with the biocontrol activity of *Phlebiopsis gigantea*. Main supervisor: Frederick O. Asiegbu. Co-supervisor: Magnus Karlsson.

4.5 Supervision of current Ph.D. work

- Carol Kälin, admission 2020, ongoing, Breeding of pea for increased disease-resistance against root rot. Main supervisor: Magnus Karlsson. Co-supervisors: Mukesh Dubey, Agnese Brantestam, Malin Elfstrand, Salim Bourras.
- Yvonne Bösch, admission 2018, ongoing, Ecology of fungal denitrifiers in agricultural soil. Main supervisor: Sara Hallin. Co-supervisors: Magnus Karlsson, Christopher Jones, Roger Finlay.
- Kajsa Himmelstrand, admission 2008, ongoing, Evolution of the mitochondria of the *Heterobasidon annosum* species complex and associations to virulence. Main supervisor: Jan Stenlid. Co-supervisors: Magnus Karlsson, Åke Olson, Mikael Brandström Durling.

4.6 Supervision of post-docs

Edoardo Piombo, Martin Broberg, Lea Atanasova, Kristiina Nygren, Nicklas Samils, Fredrik Heyman, Mukesh Dubey.

4.7 University level pedagogic education

Lunch Colloquium for Research Supervisors, 2013, 2017-2020, SLU. Case method: What's in it for us?, 2015, SLU. Seminar in Student Supervision, 2013, SLU. Course in grading and assessment, 2013, SLU. SLU Future Academic Leaders, 2012, SLU. Pedagogic course for Associate Professors, 2008, SLU. Project leading, 2004, SLU. Leadership, organization and working life, 2004, SLU. Basic pedagogic course, 2000, SLU.

4.8 Pedagogic development activities

Developing a new 3-year bachelor program in Biotechnology for Sustainability, 2019, Swedish University of Agricultural Sciences.

ADDITIONAL QUALIFICATIONS

5.1 Active participation in international conferences

Summary: Keynote speaker at 3 occasions, invited speaker at 11 conferences, oral presentations at 30 conferences. Organizer committee member for 2 conferences, scientific committee member for 3 conferences, session organizer/chair on 5 occasions.

5.2 Participation in university boards or committees

- Substitute in the Faculty of Natural Resources and Agricultural Sciences election committee 2015-2018, 2018-2021, SLU.
- Board member of the Organismbiology research school, 2017-2021, SLU.
- Member of the Forest Mycology and Plant Pathology departmental board, 2002-2005, 2007-2010.

5.3 External contacts and external work

Participation in Subject committee for Weeds and Plant Protection meetings.

5.4 Cooperation/interaction with industry stakeholders

Lantmännen, Ecogen, BeeVT, Findus Sverige AB, Chr. Hansen A/S, Lantmännen BioAgri AB, Novozymes A/S, Bayer CropScience AG.

5.5 Popular science

- Inauguration of the BioCenter at SLU (2011). Popular science presentation for invited stakeholders from industry, authorities and politicians.
- Fungal diseases in Swedish forest nurseries (2007). Popular science presentation at a two-day forestry meeting for foresters, companies and public in Lithuania.
- Pathogenicity factors in the conifer root rot pathogen (2005). Popular science presentation in the local radio (Radio Uppland).
- Pathogenicity factors in the conifer root rot pathogen (2005). Popular science presentation on a root rot research information meeting, with representatives from Swedish forest companies, biocontrol agent producers and the Swedish National Board of Forestry.