

Roland Kölliker

Curriculum vitae – March 2017

Date of birth: July 8, 1968
Citizen of: Zürich and Thalwil, Switzerland
Business address: Agroscope, CH-8046 Zürich,
Tel. +41 58 468 7345, Fax +41 58 468 7201, roland.koelliker@agroscope.admin.ch
Home address: Erlenweg 6, CH-8604 Hegnau, Tel. +41 44 945 0293

CURRENT APPOINTMENT

2000 - Senior Scientist and Deputy Group Leader, Molecular Ecology, Agroscope, Zurich, Switzerland

EDUCATION AND PROFESSIONAL CAREER

2013 - 2015 Diploma of Advanced Studies in Applied Statistics, Seminar for Statistics, ETH Zürich
2006 - Lecturer at ETH Zürich (Plant Genetics, Plant Breeding, Molecular Plant Breeding, Experimental Design and Applied Statistics in Agroecosystem Science)
1998 - 2000 Post Doctoral Scientist, Plant Biotechnology Centre, Agriculture Victoria, Melbourne, Victoria, Australia
1994 - 1998 Ph.D. (Thesis title: "Genetic variability in *Festuca pratensis* Huds.: effect of management in permanent grassland and comparison of cultivars to other species") at the Institute of Plant Sciences (ETH Zürich), supervised by Prof. Dr. J. Nösberger
1988 - 1994 Diploma studies in agriculture (major in crop science) at ETH Zürich (Dipl. Ing. Agr. ETH); Diploma thesis in plant pathology performed at the Kearney Agricultural Centre of the University of California, Davis, USA

SCIENTIFIC SUMMARY

Research area Molecular genetics and genomics of grassland species with emphasis on molecular breeding of forage grasses and legumes
Main interest Analysis of genetic diversity, plant-pathogen interactions, development of molecular genetic tools for plant breeding and plant ecology
Techniques Various genotyping technologies including genotyping by sequencing, high resolution melting; genome sequencing, strong background in applied statistics, experimental design
Publications 55 peer-reviewed articles, 20 book chapters, 17 other publications, > 100 contributions to scientific conferences.
Total citations (Google Scholar profile, January 2017): 2123 (924 since 2012), h-index 29, i10-index 45

PROFESSIONAL SERVICES

2017 - 2020 Member of the management committee of COST Action CA16107 ("EuroXanth: Integrating science on Xanthomonadaceae for integrated plant disease management in Europe")
2016 - Section editor BMC Genetics
2016 - General Secretary of the Swiss Society of Agronomy

2016	Member of the local and scientific organizing committee of the 20 th Eucarpia General Congress, Zurich, Switzerland
2013 -	Handling editor Grassland Science
2011 -	Board member of the Eucarpia Forage Crops and Amenity Grasses Section
2011 - 2016	Associate editor BMC Genetics
2002 - 2010	Board member of the Swiss Society for Agronomy (President 2008-2010)
2001	Member of the local organizing committee of the 2 nd International Symposium on Molecular Breeding of forage and turf, Lorne, VIC, Australia
2000 -	Review assignments for various journals including Theoretical and Applied Genetics, Systematic and Applied Microbiology, Plant Genetic Resources, Plant Breeding, New Phytologist, Molecular Ecology Resources, Molecular Breeding, Journal of Phytopathology, Genome, Euphytica, Crop Science, BMC Plant Biology and PLOSOne

MEMBER OF SCIENTIFIC ORGANISATIONS

2006 -	CSSA - Crop Science Society of America
2002 -	GPZ - Deutsche Gesellschaft für Pflanzenzüchtung
2000 -	Eucarpia - European Association for Research on Plant Breeding
1994 -	SGPW-SSA Swiss Society of Agronomy

PROJECTS AND FUNDING

2017 - 2020	"EUCLEG - Breeding forage and grain legumes to increase EU's and China's protein self-sufficiency, EU H2020-SFS-2016-2 (€ 645'997)
2016 - 2020	"Genomic methods to detect genetic diversity in grassland", Swiss Federal Office for Agriculture (CHF 343'000)
2014 - 2018	"Composition and putative function of the microbiome of forage grasses" Agroscope Research Programme "Microbial Biodiversity" (CHF 207'000)
2012 - 2016	"Bacterial wilt in ryegrass: targeted characterisation of virulence factors and resistance genes", SNF No. 31003A_13858 (CHF 438'000)
2012 - 2015	"LegumePlus ^{plus} - Optimising plant polyphenols in legumes for ruminant nutrition plus health plus environmental sustainability", EU FP7-PEOPLE-2011-ITN (leader wp4, € 240'000)
2009 - 2012	"BioBio - Indicators for biodiversity", EU FP 7 Project 2271611 (task group leader; € 150'000)
2007 - 2010	"Genetic and morphophysiological characterization of the <i>Xanthomonas translucens</i> pv. <i>graminis</i> - <i>Lolium multiflorum</i> interaction", SNF No. 3100A0-112582 (CHF 296'000)
2005	JSPS Invitation Fellowship Program for Research in Japan (Short-Term), Japan Society for the Promotion of Science (CHF 15'000)
2004 - 2008	"Molecular and phenotypic diversity of Swiss <i>Festuca pratensis</i> Huds. and <i>Lolium multiflorum</i> Lam. ecotype populations from contrasting permanent grassland habitats", Swiss Federal Office for Agriculture (CHF 130'000)
2002 - 2006	"Molecular characterization of resistance to bacterial wilt in Italian ryegrass (<i>Lolium multiflorum</i> Lam.)", SNF No. 3100-065417 (CHF 197'000)
2001 - 2006	"Genetic characterisation of Mattenkee landraces and cultivars", Swiss Federal Office for Agriculture (CHF 130'000)
1998	Fellowship for prospective researchers for the project "Development of simple sequence repeat (SSR) loci for marker assisted breeding in white clover", SNF (CHF 150'000)

TEACHING AND SUPERVISION

- 2015 - Lecturer Msc course Experimental Design and Applied Statistics in Agroecosystem Science, ETH Zürich
- 2008 - Lecturer Msc course Molecular Plant Breeding (Plant Breeding), ETH Zürich
- 2006 - Lecturer BSc course Pflanzenzüchtung I (Pflanzen-genetik), ETH Zürich
- 2002 - Supervision of 10 PhD students (3 ongoing), 11 Bsc and Msc students (1 ongoing)

SELECTED LECTURES

- 2016 "Improving performance and tannin content of the forage legume sainfoin (*Onobrychis viciifolia*)". Talk at the 20th Eucarpia General Congress, Aug 29 – Sep 1, Zurich, Switzerland
- 2015 "Bacterial wilt in pastures: unraveling the virulence of *X. translucens* pv. *graminis*". Invited talk at the Symposium on plant-pathogenic Xanthomonads. Université Catholique de Louvain. Nov 20, Louvain-la-Neuve, BE
- 2015 "The way forward? Strategies to optimise sainfoin performance and tannin content". Invited talk at Bioactive Legumes: Forages with Veterinary, Nutritional & Environmental Qualities. October 20-21, Cambridge, UK
- 2015 "Exploration and exploitation of disease resistance in ryegrass". Invited talk at the XXIIIth Plant and Animal Genome Meeting, January 10-14, San Diego, CA, USA
- 2014 "Plant Molecular Ecology". Invited seminar at the Institute for Agricultural and Fisheries Research ILVO, Melle, Belgium, June 16
- 2013 "Virulence factors and genome sequencing of the bacterial wilt causing pathogen *X. translucens* pv. *graminis*". Invited talk at the XXIth Plant and Animal Genome Meeting, January 12-16, San Diego, CA

SELECTED PUBLICATIONS (5 YEARS)

- Kempf K, Malisch CS, Grieder C, Widmer F, **Kölliker R** (2017) Marker trait association analysis for agronomic and compositional traits in sainfoin (*Onobrychis viciifolia*). *Genet Mol Res in press*
- Hersemann L, Wibberg D, Blom J, Goesmann A, Widmer F, Vorhölter F-J, **Kölliker R** (2017) Comparative genomics of host adaptive traits in *Xanthomonas translucens* pv. *graminis*. *BMC Genomics* 18:35
- Malisch CS, Salminen J-P, **Kölliker R**, Engström MT, Suter D, Studer B, Lüscher A (2016) Drought effects on proanthocyanidins in sainfoin (*Onobrychis viciifolia*) are dependent on the plant's ontogenetic stage. *J Agr Food Chem* 64:9307–9316
- Kempf K, Mora-Ortiz M, Smith LMJ, **Kölliker R**, Skøt L (2016) Characterization of novel SSR markers in diverse sainfoin (*Onobrychis viciifolia*) germplasm. *BMC Genetics* 17:124
- Hersemann L, Wibberg D, Widmer F, Vorhölter F-J, **Kölliker R** (2016) Draft genome sequences of three *Xanthomonas translucens* pathovar reference strains (pv. *arrhenatheri*, pv. *poae* and pv. *phlei*) with different specificities for forage grasses. *Stand Genomic Sci* 11:50
- Jaenicke S, Bunk B, Wibberg D, Spröer C, Hersemann L, Blom J, Winkler A, Schatschneider S, Albaum S, **Kölliker R**, Goesmann A, Pühler A, Overmann J, Vorhölter F-J (2016) Complete genome sequence of the barley pathogen *Xanthomonas translucens* pv. *translucens* DSM 18974T / ATCC 19319 T. *Genome Announc* 4:e01334-16
- Hersemann L, Wibberg D, Blom J, Widmer F, **Kölliker R** (2016) Draft genome sequence of the *Xanthomonas bromi* type strain LMG 947. *Genome Announc* 4:e00961-16
- Kölliker R**, Knorst V, Studer B, Boller B (2016) Single-marker assisted introgression of crown rust resistance in an Italian ryegrass breeding program. In: I. Roldán-Ruiz et al. (eds) *Breeding in a World of Scarcity*. Springer International Publishing, Switzerland. 163-167
- Kempf K, Grieder C, Walter A, Widmer F, Reinhard S, **Kölliker R** (2015) Evidence and consequences of self-fertilisation in the predominantly outbreeding forage legume *Onobrychis viciifolia*. *BMC Genetics* 16:117

- Last, L, Arndorfer M, Balazs K, Dennis P, Dyman T, Fjellstad W, Friedel J, Herzog F, Jeanneret P, Lüscher G, Moreno G, Kwikiriza N, Gomiero T, Pointereau P, Sarthou JP, Stoyanova S, Wolfrum S, **Kölliker R** (2014) Indicators for the on-farm assessment of crop cultivar and livestock breed diversity: A survey-based participative approach. *Biodivers Conserv* 23:3051-3071
- Birrer M, **Kölliker R**, Manzanares C, Asp T, Studer B (2014) A DNA marker assay based on high resolution melting curve analysis to distinguish species of the *Festuca - Lolium* complex. *Mol Breed* 34:421-429
- Last L, Lüscher G, Widmer F, Boller B, **Kölliker R** (2014) Indicators for genetic and phenotypic diversity of *Dactylis glomerata* in Swiss permanent grassland Ecological Indicators. *Ecol Ind* 38: 181-191
- Kölliker R**, Last L, Herzog F, Widmer F (2014) Genetische Diversität in der Landwirtschaft. *Agrarforschung Schweiz* 5:12-19
- Last L, Widmer F, Fjellstad W, Stoyanova S, **Kölliker R** (2013) Genetic diversity of natural orchardgrass (*Dactylis glomerata* L) populations in three regions in Europe. *BMC Genetics* 14:102
- Isobe S, **Kölliker R**, Boller B, Riday H (2014) Red clover (*Trifolium pratense* L.). In: Cai H, Yamada T, Kole, C (eds) *Genetics, Genomics and Breeding of Forage Crops*. CRC Press, Boca Raton, FL, USA. 220-249
- Wichmann F, Vorhölter F-J, Hersemann L, Widmer F, Blom J, Niehaus K, Reinhard S, Conradin C, **Kölliker R** (2013) The non-canonical type III secretion system of *Xanthomonas translucens* pv. *graminis* is essential for forage grass infection. *Mol Plant Pathol* 14:576-588
- Kölliker R**, Wichmann F, Vorhölter F-J, Conradin C, Reinhard S, Boller B, Widmer F (2013) Bakterienwelke – eine rätselhafte Krankheit von Futtergräsern. *Agrarforschung Schweiz* 4:32-39
- Studer B, **Kölliker R** (2013) SNP genotyping technologies. In: Luebberstedt T and Varshney R (eds) *Diagnostics in Plant Breeding*. Springer Science+Business Media, Dordrecht, Germany. 187-210