

GPGR4 programme

Kongresshalle Giessen
Berliner Platz, 35390 Giessen

Sunday September 3, 2017

REGISTRATION

- **15:00 – 18:00**
Main foyer, Kongresshalle Giessen
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OPENING CEREMONY

- **18:00 – 18:30 Welcome addresses**
Rod Snowdon, GPGR4 Chair
Joybrato Mukherjee, President of Justus Liebig University, Giessen
Frank Ordon, Vice-President of Julius Kühn Institute, Vice-President of the German Society for Plant Breeding
 - **18:30 – 19:00 Impulse Presentation** *Marie Haga, The Global Crop Diversity Trust, Bonn, Germany* – Don't forget the little things
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OPENING RECEPTION, sponsored by DuPont Pioneer

- **19:00 – 21:30** Dinner and refreshments

Monday September 4, 2017

OPENING PRESENTATION

- **8:30 – 9:00 KEYNOTE** *Jianming Yu, Iowa State University, USA*
Design thinking and data mining in finding optimal genetic combinations
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SESSION 1: Plant genetic resources and the promise of genomics

(Chair: Rod Snowdon)

- **9:00 – 9:30 KEYNOTE** *Jiayang Li, Chinese Acad. of Agricultural Science, Beijing, China*
Genome analysis of the potential rubber crop, *Taraxacum kok-saghyz* Rodin
 - **9:30 – 9:50** *Matthew Haas, IPK Gatersleben, Germany*
Regulatory architecture and variation of gene expression in wild and domesticated barley
 - **9:50 – 10:10** *Wubishet Bekele, Agriculture and Agri-Food Canada, Ottawa, Canada*
What we learned from 7.5K Avena genomes
 - **10:10 – 10:30** *Torsten Pook, University of Göttingen, Germany*
Identification of haplotype blocks in DH-lines in maize
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COFFEE BREAK sponsored by Illumina

- **10:30 – 11:00** Exhibitions and posters open
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SESSION 2: Gene banks & genomics – beyond major crops (Chair: Ruth Bastow)

- **11:00 – 11:30 KEYNOTE** *Damaris Achieng Odeny, ICRISAT-ESA, Nairobi, Kenya*
Unlocking the potential of African orphan crops using genomics: The case of finger millet (*Eleusine coracana* subsp. *coracana*) and African eggplant (*Solanum aethiopicum*)
 - **11:30 – 11:50** *Rajneesh Paliwal, International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria*
SNP based assessment of duplicates, fidelity and diversity in the IITA Cassava core collection
11:50 – 12:10 *Kioumars Ghamkhar, AgResearch, Palmerston North, New Zealand*
Looking for clues: hardseededness in subterranean clover
 - **12:10 – 12:30** *Ibukun Ayoola, University of Ibadan, Nigeria*
Assessment of genetic fidelity of in vitro grown Musa taxonomic reference accessions, their antioxidant activity and diversity studies of selected *Musa* accessions using DArTseq
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LUNCH

- **12:30 – 13:30** Light food and refreshments in exhibition/poster area
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Lunchtime Industry Presentations (Chair: Sarah Schiessl)

- **13:30 – 13:50** *Nan Fang, Novogene, Beijing, China*
Advanced technical solutions for plant genomics
- **13:50 – 14:10** *Venkatramana Pegadaraju, Illumina, San Diego, USA*
New frontiers in genome sequencing to unlock the genetic potential of gene banks

- **14:10 – 14:30** *Huaiqian Xu, BGI Tech Solutions, Wuhan, China*
A total solution for low-input DNA/RNA library preparation in next-generation sequencing
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SESSION 3a: Genome diversity of crop genetic resources I (Chair: Paula Bramel)

- **14:30 – 15:00 KEYNOTE** *Nicolas Roux, Bioversity International, Montpellier, France*
Genebanks and genomics, beyond major crops: The vegetatively-propagated crops case
 - **15:00 – 15:20** *Jizeng Jia, Chinese Academy of Agricultural Sciences, Beijing, China*
Plant variomics – Wheat as an example
 - **15:20 – 15:40** *Francesca Taranto, SINAGRI S.r.l., University of Bari Aldo Moro, Italy*
Genotype-by-sequencing disclosed genetic diversity and revealed unexpected synonymy in a representative collection of the Italian olive germplasm
 - **15:40 – 16:00** *Martin Mascher, IPK Gatersleben, Germany*
Barley diversity now and 6000 years ago: archaeogenetics and genebank genomics
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COFFEE BREAK sponsored by Limagrain

- **16:00 – 16:30** Exhibitions and posters open
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SESSION 3b: Genome diversity of crop genetic resources II (Chair: Rodomiro Ortiz)

- **16:30 – 16:50** *Philippe Cubry, UMR DIADE, Montpellier, France*
Genome footprints of the rise and fall of African rice cultivation
 - **16:50 – 17:10** *Anne-Francoise Adam-Blondon, INRA-URGI, Versailles, France*
Findable, Accessible, Interoperable and Reusable data linked to genetic resources for plant biology and breeding
 - **17:10 – 17:30** *Guillaume Martin, CIRAD, Montpellier, France*
Evolution of the banana genome is impacted by large chromosomal translocations
 - **17:30 – 17:50** *Ghasemali Nazemi, University of Bologna, Italy*
Genetic diversity and molecular mapping of root traits in durum wheat
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POSTER SESSION, INDUSTRY EXHIBITION & NETWORKING EVENT

- **19:00 – 21:30** Dinner and refreshments

Tuesday September 5, 2017

SESSION 4: Expanding plant breeding gene pools with genomics (Chair: Emma Mace)

- **8:30 – 9:00 KEYNOTE** *David Jordan, Queensland Alliance for Agriculture and Food Innovation, Australia*
Integrating technologies to exploit natural variation in quantitative traits in breeding
- **9:00 – 9:20** *Franc-Christophe Baurens, CIRAD, Montpellier, France*
Genome structure and chromosome segregation in triploid interspecific plantain bananas (AAB) and breeding accessions (AAAB)
- **9:20 – 9:40** *Jun Zou, Huazhong Agricultural University, Wuhan, China*
Development and evaluation of a novel gene pool of *Brassica napus* with introgression of genomic variation between and within related oilseed species
- **9:40 – 10:00** *Andreas Maurer, Martin Luther University Halle-Wittenberg, Germany*
Using a wild barley NAM population to evaluate the potential of plant genetic resources for future breeding

COFFEE BREAK sponsored by German Seed Alliance

- **10:00 – 10:30** Exhibitions and posters open
- **10:30 – 10:50** *Vincent Garin, Wageningen University & Research, Wageningen, The Netherlands*
QTL detection in multi-parent populations using haplotypes and genetic similarity matrices
- **10:50 – 11:10** *Stéphane Nicolas, INRA Quantitative Genetics and Evolution - Le Moulon, Gif-sur-Yvette, France*
Genome-wide SNP genotyping of DNA pools identifies original landraces to enrich maize breeding gene pools

SESSION 5: Beyond native traits – Novel plant genetic resources from mutations and genome editing (Chair: Roberto Tuberosa)

- **11:10 – 11:40 KEYNOTE** *Ian Godwin, University of Queensland, Brisbane, Australia*
Genomics-informed GM and gene edited sorghum
- **11:40 – 12:00** *Sneha Datta, International Atomic Energy Agency, Vienna, Austria*
A low coverage NGS based pipeline for rapid screening of gamma irradiated mutant bananas for resistance to Fusarium Wilt TR4
- **12:00 – 12:20** *Valentina Fanelli, SINAGRI S.r.l., University of Bari Aldo Moro, Italy*
TILLING by sequencing to identify induced mutations in sunflower (*Helianthus annuus* L.) genes
- **12:20 – 12:40** *Dennis Eriksson, Swedish University of Agric. Sciences, Alnarp, Sweden*
Scandinavian perspectives on plant gene technology: Applications, policies and progress

LUNCH

- **12:40 – 13:40** Light food and refreshments in exhibition/poster area

Lunchtime Industry Presentations *(Chair: Sarah Schiessl)*

- **13:40 – 14:00** *Guy Kol, NRGene, Ness-Ziona, Israel*
Advanced technical solutions for plant genomics
- **14:00 – 14:20** *Marcus Jansen, LemnaTec, Aachen, Germany*
Phenotyping from the lab to the field and back

SESSION 6: Phenomics of plant genetic resources *(Chair: Ian Godwin)*

- **14:20 – 14:50 KEYNOTE** *Roland Pieruschka, Forschungszentrum Jülich, Germany*
Phenotyping for crop genetic resources- enabling phenotypic quantification of accessions in genebanks
- **14:50 – 15:10** *Pervez Zaidi, CIMMYT Asia, Hyderabad, India*
Field-based precision phenotyping for abiotic stresses in maize – focus on breeder's wish-list
- **15:10 – 15:30** *Reinhard Töpfer, Julius Kühn Institute for Grapevine Breeding, Siebeldingen, Germany*
Phenotyping grapevine genetic resources in the vineyard
- **15:30 – 15:50** *Ofere Francis Emeriewen, Julius Kühn Institute for Breeding Research on Fruits, Dresden, Germany*
Fire blight resistance gene loci in *Malus*: Findings from phenotypic evaluations with mutants of *Erwinia amylovora*

COFFEE BREAK sponsored by Syngenta

- **15:50 – 16:20** Exhibitions and posters open

SESSION 7: Plant genetic resources & genomic technologies to counter biotic stress *(Chair: Jizeng Jia)*

- **16:20 – 16:50 KEYNOTE** *Beat Keller, University of Zürich, Switzerland*
Origin, diversity and evolution of wheat resistance genes – applications in breeding
- **16:50 – 17:10** *Hélène Pidon, IPK Gatersleben, Germany*
Unraveling the diversity of resistances against Rice yellow mottle virus in African rice
- **17:10 – 17:30** *Marine Ollier, BOKU-University of Natural Resources and Life Sciences, Tulln, Austria*
Evaluation of Fusarium head blight resistance in Triticale populations with Fhb1 introgressions
- **17:30 – 17:50** *Lorena Parra, University of California Davis, CA, USA*
Identification of candidate genes for resistance to lettuce downy mildew using resistance gene enrichment sequencing
- **17:50 – 18:10** *Clémence Marchal, John Innes Centre, Norwich, UK*
MutRenSeq to elucidate the relationship between Yr7 and Yr5

ROUNDTABLE DISCUSSION: Seed and germplasm phenotyping (Kerkrade Room)

- **18:30 – 20:30** **Joint round-table discussion**, IPPN Seed Phenotyping / DivSeek Germplasm Phenotyping Working Groups *(Organisers: Roland Pieruschka and Kioumars Ghamkhar)*

Wednesday September 6, 2017

SESSION 8a: Plant genetic resources & genomic technologies to counter abiotic stress I (Chair: Rajeev Varshney)

- **8:30 – 9:00 KEYNOTE** Sarah Hearne, CIMMYT, Mexico
New approaches to mining maize landraces to enhance abiotic stress tolerance
- **9:00 – 9:20** Octavio Salazar, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia
Learning from the expert: generating genomic resources in *Salicornia* to improve our understanding of salinity tolerance
- **9:20 – 9:40** Antonio Costa de Oliveira, Universidade Federal de Pelotas, Pelotas, Brazil
Evolution of the SUB1 locus across the *Oryza* species
- **9:40 – 10:00** Sandra Schmöckel, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia
The genome of *Chenopodium quinoa* provides insights into saponin biosynthesis and salinity tolerance mechanisms

COFFEE BREAK sponsored by BGI

- **10:00 – 10:30** Exhibitions and posters open

SESSION 8b: Plant genetic resources & genomic technologies to counter abiotic stress II (Chair: Frank Ordon)

- **10:30 – 10:50** Reshmi Rani Das, CIMMYT Asia, Hyderabad, India
Developing stress-resilient maize through genomic selection for combined drought and waterlogging tolerance in tropical maize
- **10:50 – 11:10** Ruilian Jing, Chinese Academy of Agricultural Sciences, Beijing, China
Mining superior alleles underlying drought and heat tolerance in wheat germplasm resources using joint linkage-association analysis
- **11:10 – 11:40** Jan-Christoph Richter, Georg August University Göttingen, Germany
Genetic variation of vernalization requirement in a diverse set of winter oilseed rape genotypes
- **11:40 – 12:00** Miftahul Fendiyantol, Bogor Agricultural University, Indonesia
Functional Analysis of the promoter of OsGERLP, an aluminum tolerance gene in rice

LUNCH

- **12:00 – 13:30** Light food and refreshments in exhibition/poster area

SESSION 9: Capturing and understanding epigenetic variation (Chair: David Jordan)

- **13:30 – 14:00 KEYNOTE** Nathan Springer, University of Minnesota, Saint Paul MN, USA
Hidden variation in plant genomes - documenting the extent and roles of epigenetic natural variation

- **14:00 – 14:20** *Sarah Schiessl, Justus Liebig University Giessen, Germany*
The role of miRNAs in the crosstalk between flowering time and drought stress response in *Brassica napus*
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SESSION 10a: Exploring and exploiting pangenomic diversity and crop wild relatives I (Chair: David Jordan)

- **14:20 – 14:50 KEYNOTE** *Emma Mace, Queensland Department of Agriculture and Fisheries, Australia*
Structure and dynamics of the pan-genome of sorghum and wild relatives
 - **14:50 – 15:10** *Isobel Parkin, Agriculture and Agri-Food Canada, Saskatoon, Canada*
Assessing diversity in the *Camelina* genus provides insights into the genome structure of the emerging crop *Camelina sativa*
 - **15:10 – 15:30** *Benjamin Kilian, The Global Crop Diversity Trust, Bonn, Germany*
Reaching back through the domestication bottleneck to feed a hot and crowded planet
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COFFEE BREAK sponsored by Monsanto

- **15:30 – 16:00** Exhibitions and posters open for last time, please remove posters at 16:00
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FREE AFTERNOON

- **16:00 – 19:00**
Activities in Giessen available at discounted prices for GPGR4 participants:

Mathematikum (corner Liebigstrasse/Bahnhofstrasse, 35390 Giessen): Stimulate your brain at Giessen's award-winning, hands-on mathematics activity museum. Discounted entry €6 with GPGR4 delegate badge.

Liebig Museum (Liebigstrasse 12, 35390 Giessen): Step back in time into the former laboratory of Giessen's world-renowned chemist and inventor, Justus von Liebig, and learn how his discoveries in the early 19th century influenced agricultural and food science around the globe. Discounted entry €4 with GPGR4 delegate badge.

Botanical Garden (Kanzleiberg, 35390 Giessen): Discover 8000 plant species within just 1200m² in Germany's oldest botanical garden still at its original site, created as a *hortus medicus* in 1609. Entry free.

SYMPOSIUM BANQUET sponsored by Cargill

- **19:00 – 23:00** Dinner, refreshments and entertainment
Presentation of GPGR4 travel scholarships, announcement of GPGR5

Thursday September 7, 2017

SESSION 10b: Exploring and exploiting pangenomic diversity and crop wild relatives II (*Chair: Antonio Costa de Oliveira*)

- **9:00 – 9:30 KEYNOTE** *Michele Morgante, University of Udine, Italy*
Transposable elements, structural variation and the plant pan-genomes
- **9:30 – 9:50** *Rajeev Varshney, ICRISAT, Hyderabad, India*
Re-sequencing of 429 chickpea lines and 292 pigeonpea lines identifies genomic regions for domestication and agronomic traits for accelerated crop improvement
- **9:50 – 10:10** *Lenka Havlickova, University of York, UK*
The pan-genome platform to underpin the improvement of *Brassica* crops
- **10:10 – 10:30** *Hanan Sela, Tel-Aviv University, Israel*
Diversity analysis using genotyping by sequencing of wild Triticeae species from Israel
- **10:30 – 10:50** *Willmar Leiser, University of Hohenheim, Germany*
Multiply to conquer: how copy number variation facilitates wheat adaptation

COFFEE BREAK

- **10:50 – 11:20**

SESSION 10c: Exploring and exploiting pangenomic diversity and crop wild relatives III (*Chair: Andreas Graner*)

- **11:20 – 11:40** *Bernd Weisshaar, University of Bielefeld, Germany*
Application of the sugar beet genome sequence for identification of a rhizomania resistance gene in a crop wild relative population
- **11:40 – 12:00** *Cécile Monat, DIADE UMR, Montpellier, France*
The pan-genome of the cultivated African rice *Oryza glaberrima* and its wild relative *Oryza barthii*

SESSION 11: Future genomics technologies for plant genetic resources (*Chair: Graner*)

- **12:00 – 12:30 CLOSING KEYNOTE 1** *Richard Visser, Wageningen University & Research, Wageningen, The Netherlands*
The importance of genetic variation and diversity for breeding of Solaneceous crops
- **12:30 – 13:00 CLOSING KEYNOTE 2** *Nils Stein, IPK Gatersleben, Germany*
Genome diversity of the global barley population – or, how to convert seed banks from national treasure chests into natural heritage for mankind
- **13:00 – 13:15** Closing remarks

END OF GPGR4

- Lunch packages provided on departure

Thursday September 7, 2017

DivSeek Partner Assembly (for DivSeek partners by invitation only)

Organiser: Ruth Bastow, Global Plant Council

For more information please contact info@globalplantcouncil.org

- **14:30 – 18:00** IFZ Research Centre, JLU Giessen, Heinrich-Buff-Ring 32, 35392 Giessen
- **19:00** DivSeek dinner, Restaurant Dachcafé, Ludwigsplatz 11, 35390 Giessen
(self-payment)

Friday September 8, 2017

DivSeek Partner Assembly (for DivSeek partners by invitation only)

- **9:00 – 12:30** IFZ Research Centre, JLU Giessen, Heinrich-Buff-Ring 32, 35392 Giessen