



**Advances in Genome Biology and Technology
Phoenix, Arizona**

Sunday, April 14	Transfers 1 p.m. - 8 p.m. Phoenix Sky Harbor International Airport (PHX)
7:00 a.m. - 7:00 p.m.	AGBT Meeting Registration Akimel Foyer
4:00 p.m. - 6:00 p.m.	The Future of Farm Animal Genomics Research Sergey Koren, NIH, Fiona McCarthy, Darren Hagen, Juan Steibel and Angelica Van Goor Akimel Ballroom 4
7:00 p.m. - 9:00 p.m.	Getting Over the T2T Finish Line Sergey Koren, Associate Investigator, NIH/NHGR Genome Informatics Section Arang Rhie, Staff Scientist, NIH/NHGR Genome Informatics Section Akimel Ballroom 4
Monday, April 15	Scientific Program
6:30 a.m. - 7:30 a.m.	Rise and Shine with AGBT - Optional Activity Meet at Hospitality Desk
7:30 a.m. - 7:00 p.m.	Meeting Registration / Hospitality Desk Akimel Foyer
7:30 a.m. - 9:00 a.m.	Breakfast Akimel Patio & Mesquite Terrace
9:00 a.m. - 9:10 a.m.	Opening Remarks, (Sarah Hearne, Genetic Resources Program Director a.i. (GPR), CIMMYT and Co-Chair of the AGBT Ag Scientific Organizing Committee) Komatke Ballroom
Plenary Session I:	Global Opportunities and Challenges for Agriculture, I (Sarah Hearne, Genetic Resources Program Director a.i. (GPR), CIMMYT and Co-Chair of the AGBT Ag Scientific Organizing Committee)
9:10 a.m. - 9:40 a.m.	Ben Hayes, Queensland Alliance for Agriculture and Food Innovation, Centre Director, Animal Science, The University of Queensland "Chromosome segment stacking to create ultimate crop and livestock genotypes"
9:40 a.m. - 10:10 a.m.	Damaris Odeny, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Principal Scientist

“Exploiting climate resilience of dryland crops using advanced breeding tools”

10:10 a.m. - 10:30 a.m.

Andre Garcia, (Abstract Selected) American Angus Association
“World Angus Evaluation, A collaboration to provide genetic evaluations for Angus cattle across the globe”

10:30 a.m. - 11:00 a.m.

Coffee Break Exhibits
Akimel Ballroom 1-3

Plenary Session II:

Global Opportunities and Challenges for Agriculture, II (Nathan Lakey, Orion Genomics, Session Chair)
Komatke Ballroom

11:00 a.m. - 11:30 a.m.

Ross Houston, Benchmark Holdings, Director of Genetics and Innovation
“Aquaculture breeding: the next frontiers”

11:30 a.m. - 12:00 p.m.

Howard Shapiro, Agricultural Sustainability Institute, UC Davis
“The speed of change is faster than our response: Nutrition & the end of stunting”

12:00 p.m. - 12:20 p.m.

Gold Sponsor Talk – Element Biosciences
John B. Horne, NRC Fellow, Senior Research Associate, Southwest Fisheries Science Center, NMFS, NOAA
“Marine conservation in the age of cost-effective genomics: The leatherback turtle”
Komatke Ballroom

12:20 p.m. - 2:00 p.m.

AGBT Lunch
Akimel Patio & Mesquite Terrace

12:40 p.m. - 2:10 p.m.

Workshops and Lunch
Komatke Ballroom

12:40 p.m. - 2:10 p.m.

Single Cell Technology in Plants and Animals Workshop and Lunch
John Driver, Marc Libault and Xiaosa XU
Discuss updates to cell atlases being built in plants and animals, computational best practices or new ways to analyze this data, and examples of its use to test novel hypotheses.

2:10 p.m. - 2:55 p.m.

Dessert & Coffee with Exhibits
Akimel Ballroom 1-3

Plenary Session III:

Applying the Science, I
Jack Dekkers, Distinguished Professor, section leader of animal breeding and genetics, Iowa State University)
Komatke Ballroom

3:00 p.m. - 3:30 p.m.

Diane Saunders, John Innes Centre, Group Leader, Head of Department
“Safeguarding wheat yields from cereal fungal invaders”

3:30 p.m. - 4:00 p.m.	Samuel Oyola, Senior Scientist, Head of Genomics, International Livestock Research Institute (ILRI) "Genomic epidemiology of rift valley fever virus"
4:00 p.m. - 4:20 p.m.	Kathryn McRae, (Abstract Selected) AgResearch "Pneumonia, Pseudopithomyces and Parasites: the role of genomics in addressing animal health challenges in sheep"
4:20 p.m. - 4:35 p.m.	Silver Sponsor Talk – Complete Genomics Wenchi Liao, Director of Product Marketing, Complete Genomics "Complete sequencing solutions for every lab" Bryan Witherbee, Founder, Ferris Genomics "Powering your breeding programs with MORE samples, MORE data" Komatke Ballroom
4:35 p.m. - 5:05 p.m.	Coffee Break and Exhibits Akimel Ballroom 1-3
Plenary Session IV:	Precision Genetic Technologies, (Alison Van Eenennaam, Extension Specialist, Animal Biotechnology and Genomics, University of California, Davis, Session Chair) Komatke Ballroom
5:05 p.m. - 5:35 p.m.	Ermias Kebreab, University of California, Davis, Associate Dean "CRISPR and other innovations in reducing livestock methane emissions"
5:35 p.m. - 6:05 p.m.	Erica McGale, University of Lausanne, UNIL "Using genomic and epigenomic variation of both mycorrhizal fungi and cassava to improve yields in the tropics"
6:30 p.m. - 9:30 p.m.	Welcome Dinner Akimel Lawn
Tuesday, April 16	(Morning)
7:30 a.m. - 7:00 p.m.	Hospitality/Information Desk Akimel Foyer
7:30 a.m. - 9:00 a.m.	Breakfast Akimel Patio & Mesquite Terrace
Plenary Session V:	Informatics and Data Analytics I (Daniela Lourenco, Associate Professor, Animal & Dairy Science, University of Georgia, Co-Chair of the AGBT Ag Scientific Organizing Committee, and Session Chair) Komatke Ballroom
9:00 a.m. - 9:30 a.m.	Charlie Messina, University of Florida "Breeding for climate change is imperative but may occur differently as we think"
9:30 a.m. - 10:00 a.m.	Eric Psota, PIC North America, Digital Innovation Manager "Never stop improving: Advancing pig genetics using digital phenotyping"
10:00 a.m. -10:20 a.m.	Jenna Kalleberg, (Abstract Selected) University of Missouri

“Overcoming limitations to deep learning in domesticated animals with TrioTrain”

10:20 a.m. - 10:40 a.m.

Gustavo de los Campos, (Abstract Selected) Michigan State University

“Regularization and transfer learning in genomic models through gradient descent with early stopping”

10:40 a.m. – 11:10 a.m.

Coffee Break and Exhibits

Akimel Ballroom1-3

Plenary Session VI:

Informatics and Data Analytics II: (Bruce Walsh, Professor of Ecology and Evolutionary Biology, University of Arizona, Chair)

Komatke Ballroom

11:10 a.m. - 11:40 a.m.

Mario Calus, Wageningen University, Associate Professor, Animal Breeding and Genomics

"Added value of functional annotation versus individual omics in genomic prediction"

11:40 a.m. - 12:00 p.m.

AGBT Next Gen Leadership Awards

12:00 p.m. - 2:00 p.m.

AGBT Lunch

Akimel Patio & Mesquite Terrace

12:20 p.m. - 1:50 p.m.

Data Sharing While Protecting Confidential and Proprietary Content Workshop and Lunch

Hao Cheng, University of California, Davis

Jack Dekkers, Iowa State University

Angelica van Goor, USDA-NIFA

Mario Calus, Wageningen University and Senior Editor of Genetics

Radu Totir, Corteva Agriscience

Rachel Hawken, Cobb-Vantress, Inc

The workshop will focus on current and new directives by governments and journals for sharing research data and how these can be aligned with the need to protect confidential or proprietary information that may be contained in the data.

Akimel Ballroom 4

12:20 p.m. - 1:50 p.m.

Ag T2T Workshop and Lunch

Arang Rhie, Tom Goldammer, Tim Smith and Katie Jenike

In this workshop you will hear from speakers about strategies and the benefits of telomere to telomere (T2T) genome assemblies for several agricultural species.

Komatke Ballroom

1:50 p.m. – 3:00 p.m.

Dessert & Coffee with Sponsors

Akimel Foyer

Len Pennacchio, DOE Joint Genome Institute, Lawrence Berkeley National Laboratory, Session Chair

Komatke Ballroom

3:05 p.m. - 3:25 p.m.	Julianna LeMieux, Deputy Editor-in-Chief, Genetic Engineering & Biotechnology News (GEN) "Life after the bench: Adventures in science communication"
Plenary Session VII:	From FASTQ to Fork (Len Pennacchio, DOE Joint Genome Institute, Lawrence Berkeley National Laboratory, Session Chair) Komatke Ballroom
3:25 p.m. - 3:55 p.m.	Cathie Martin, John Innes Centre "Healthy plants; healthy people - fortifying vitamins and phytonutrients in tomato"
3:55 p.m. - 4:25 p.m.	Geoff Morris, Colorado State University "From genome discovery to smallholder farmers – are we delivering?"
4:25 p.m. - 4:45 p.m.	Elizabeth Ross, (Abstract Selected) The University of Queensland "Opportunities and limitations of using long-read sequencing for predictive genomics"
4:45 p.m. - 5:05 p.m.	Poster Flash Talks
5:15 p.m. – 7:30 p.m.	Posters & Palate Pleasers Akimel Ballroom 1-3
Beginning at 7:35 p.m.	Sponsor’s Social (Connect, Collaborate, and Chill) Akimel Foyer
Wednesday, April 17	(Morning)
7:30 a.m. - 7:00 p.m.	Hospitality/Information Desk Akimel Foyer
7:30 a.m. - 9:00 a.m.	Breakfast Akimel Patio & Mesquite Terrace
Plenary Session VIII:	Unlocking Innovation From Basic Science I, (Appolinaire Djikeng, Director General, International Livestock Research Institute (ILRI), Senior Director, CGIAR Livestock-based systems, Session Chair) Komatke Ballroom
9:00 a.m. - 9:30 a.m.	Elinor Karlsson, Broad Institute of MIT and Harvard, Director of the Vertebrate Genomics Group "Investigating the validity of breed stereotypes through ancestry-inclusive genomics in thousands of dogs"
9:30 a.m. - 10:00 a.m.	Giles Oldroyd, University of Cambridge, Director, Crop Science Centre "Achieving sustainable productivity in agriculture through beneficial microbial associations"
10:00 a.m. - 10:20 a.m.	Kerstin Howe, (Abstract Selected) Wellcome Sanger Institute "Generating high-quality reference genomes assemblies at scale: The Tree of Life Genome Engine"

10:20 a.m. - 10:40 a.m.	Lucas Rocha Moreira, (Abstract Selected) University of Massachusetts, Chan Medical School "Inferring the genomic basis of cellular robustness in placental mammals"
10:40 a.m. – 11:10 a.m.	Coffee Break and Exhibits Akimel Ballroom 1-3
Plenary Session IX:	Unlocking Innovation From Basic Science II (Daniela Lourenco, Associate Professor, Animal & Dairy Science, University of Georgia, Co-Chair of the AGBT Ag Scientific Organizing Committee, and Session Chair) Komatke Ballroom
11:10 a.m. - 11:40 a.m.	Nathan Springer, Bayer, Head of Genetic and Genomic Innovation "Opportunities to advance crop germplasm development using genome editing"
11:40 a.m. - 12:00 p.m.	Keith Slotkin, (Abstract Selected) Donald Danforth Plant Science Center "The control of transposable elements in plants"
12:00 p.m. - 12:20 p.m.	Ricarda Jahnel, (Abstract Selected) University of Guelph "Phenotyping for dairy cattle resilience: Enhancing livestock sustainability through genetics and genomics"
12:20 p.m. - 2:00 p.m.	AGBT Lunch Akimel Patio & Mesquite Terrace
12:40 p.m. - 2:10 p.m.	Functional Annotation of Animal Genomes (FAANG) Workshop and Lunch (Chair, Dr. Martien Groenen, Wageningen University, The Netherlands) Dr. Emily Clark, Roslin Institute, Edinburgh, UK Dr. Richard Crooijmans, Wageningen University, The Netherlands Dr. Lingzhao Fang, Aarhus University, Denmark Dr. Irene Kaplow, Carnegie Mellon University, Pittsburgh, USA Dr. Martien Groenen, Wageningen University FAANG celebrates its 10th anniversary to discover basic functional knowledge of genome function to decipher the genotype-to-phenotype (G2P) with an emphasis on farmed animals and its applications in animal breeding. It provides fundamental insight in molecular mechanisms underlying complex traits, adaptive evolution, domestication, and speciation and as such overlaps with other large ongoing projects like the Farm animal Genotype-Tissue Expression (FarmGTEx) project and the Zoonomia project aimed at discovering the genomic basis of shared and specialized traits in mammals. This workshop is aimed at exploring and strengthening further collaborations between these different ongoing projects.
Plenary Session X:	Quantitative and Molecular Genetics (Charlie Johnson, Executive Director Genomics & Bioinformatics, Texas A&M AgriLife, Session Chair) Komatke Ballroom

2:45 p.m. - 3:15 p.m.	Mike Gore, Cornell University, Chair of the Plant Breeding and Genetics Section in the School of Integrative Plant Science "A genome-level approach to balancing the micronutrient content of maize grain"
3:15 p.m. - 3:45 p.m.	Xiaofeng Cao, Chinese Academy of Sciences "Breeding of new forage grass for saline-alkali land improvement"
3:45 p.m. - 4:05 p.m.	Kira Villiers, (Abstract Selected) The University of Queensland "Haplotype level characterization of resistance traits in Vavilov wheat accessions reveals the potential for breeding multi-disease-resistant varieties"
4:05 p.m. - 4:25 p.m.	Owen Hudson, (Abstract Selected) University of Florida "Developing genomic selection models, association studies, and machine vision algorithms to predict Fusarium ear rot severity"
4:25 p.m. - 4:55 p.m.	Coffee Break Komatke Foyer
Plenary Session XI:	From the Cutting Edge-New Ideas and Opportunities (Renee Lafitte, Deputy Director for Crops R&D, Bill and Melinda Gates Foundation, Session Chair) Komatke Ballroom
5:00 p.m. - 5:20 p.m.	Tatiana Briody, (Abstract Selected) Queensland Alliance for Agriculture and Food Innovation, The University of Queensland "High throughput precision editing at bovine genomic safe harbours"
5:20 p.m. - 5:40 p.m.	Ivan Liachko, (Abstract Selected) Phase Genomics, Inc. "Building the world's largest virome- and resistome- host interaction atlas for precision microbiomics"
5:40 p.m. - 6:00 p.m.	Evan Ernst, (Abstract Selected) Howard Hughes Medical Institute; Cold Spring Harbor Laboratory "The genomes and epigenomes of aquatic plants (Lemnaceae) promote triploid hybridization and clonal reproduction"
6:00 p.m. - 6:20 p.m.	Temitayo Olagunju, (Abstract Selected) University of Idaho "An ovine pangenome to characterize genetic diversity in sheep breeds"
6:20 p.m. - 6:40 p.m.	Maci Mueller, (Abstract Selected) Kansas State University "Long-read amplicon sequencing reveals large on-target deletions in CRISPR/Cas9 gene-edited bovine samples"
6:40 p.m. - 6:50 p.m.	Closing Comments and Click2Win Announcements (Sarah Hearne, Principal Scientist, International Maize, and Wheat Improvement Center (CIMMYT) and Daniela Lourenco, University of Georgia and AGBT Ag Conference Co-Chairs)
7:15 p.m. - 10:00 p.m.	Farewell Dinner and Stargazing Hemapik Lawn
Thursday, April 18	Transfers 4 a.m. - 2 p.m. Phoenix Sky Harbor International Airport (PHX)