


USDA/ARS U-S Meat Animal Research Center




Tim Smith
Research Chemist

Mark Allan
Research Geneticist

300 employees
70 scientific staff
75 technicians
155 support staff (farm & animal crews, etc)





Beltsville Agricultural Research Center (BARC)

- FY04 \$121M budget
- 325 permanent PhD scientists
- 100+ postdocs, visiting scientists
- 200+ students
- 1,700 total workforce
- 6,615 acres



Tad Sonstegard
Research Geneticist

Lakshmi Matukumalli
Visiting Scientist

Curt Van Tassel
Research Geneticist





University of Missouri





Jerry Taylor
Wurdack Chair in Animal Genomics

Bob Schnabel
Research Assistant Professor








University of Alberta



Steve Moore
Professor of Bovine Genomics
Scientific Director, Alberta Prion Research Institute

Illumina, Inc.

Cindy Lawley
Scientific Accounts Manager

Christian Haudenschild
Associate Director Commercial Services

Marylinn Munson
Director Global Sales Operations





Acknowledgements

Support Personnel

- **BARC**
Steven Schroeder
Larry Shade
Alicia Bertles
Marcos Vinicius da Silva
- **Missouri**
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Jae Woo Kim
Matt McClure
Megan Rolf
Jared Decker
- **MARC**
Renee Godtel
Linda Flatman
Kevin Tennill
Kevin Beavers
Bob Lee
Steve Simcox
Tara McDonald

Funding Agencies

- **USDA/CSREES/NRI**
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2006-35205-16701
- **USDA/ARS**
1265-31000-081D
1265-31000-090-00D
5438-31000-073D
- **Merial, Ltd**
Stewart Bauck
- **Bull Studs/NAAB**
ABS Global
Accelerated Genetics
Alta Genetics
CRU/Genex
Select Sires
Semex Alliance
Taurus Service










BovineSNP50 has been resynthesized on the 2µm 24-sample BeadChip Format


BovineSNP50v2.0


- Faster sample throughput
- Faster scan times per sample
- Availability of 24-sample tip guide for more accurate loading

Due to the re-synthesis of beadpool onto 2µm beads, the content of v2 is slightly different than v1

- 54,609 loci are on BovineSNP50v2
- 52,340 loci are common to v1 and v2
- 1661 loci on v1 are not on v2**
- 2269 loci are new on v2

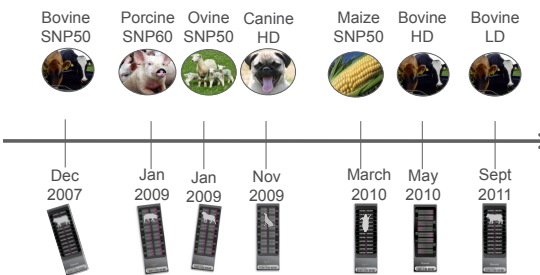
The concordance of genotypes between v1 and v2 is 99.72%




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Species-Specific Arrays

Species	Array Name	Release Date
Bovine	SNP50	Dec 2007
Porcine	SNP60	Jan 2009
Ovine	SNP50	Jan 2009
Canine	HD	Nov 2009
Maize	SNP50	March 2010
Bovine	HD	May 2010
Bovine	LD	Sept 2011



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Consortium Path Options



Public Chip


- Open Sell to All
- Commercialize, Illumina catalogue product

Sample numbers kept private

Private Chip*

- Sell Privately within consortium only
- Sell to third parties with permission

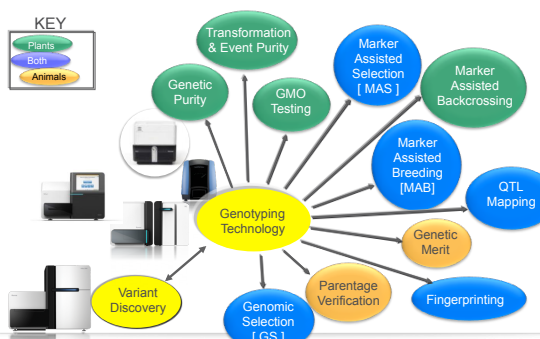
Species kept private


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Discover. Develop. Deploy.


Access to multiple applications

KEY
 Plants (Green)
 Both (Blue)
 Animals (Yellow)




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“Illumina’s BovineSNP50 product has revolutionized the cattle industry and led to over two million samples tested cumulatively across Illumina’s bovine portfolio.”





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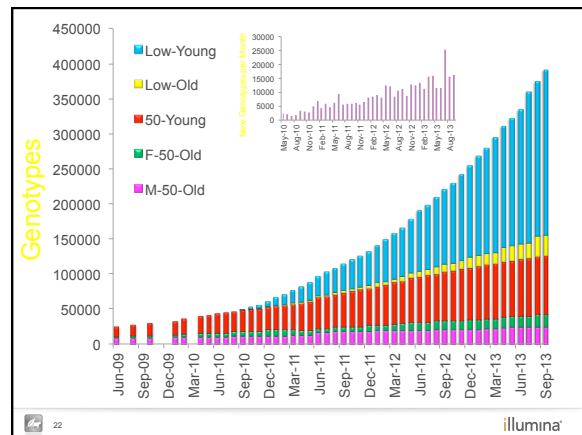
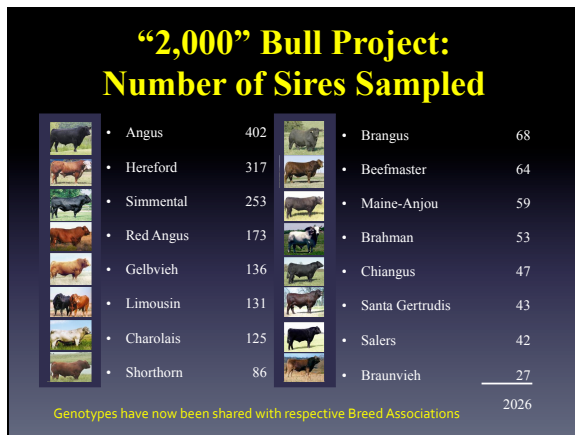
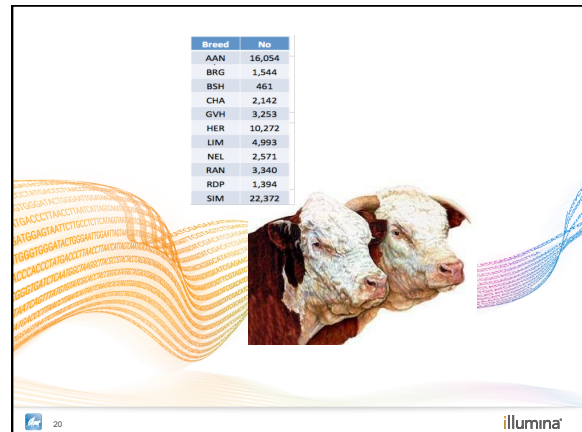
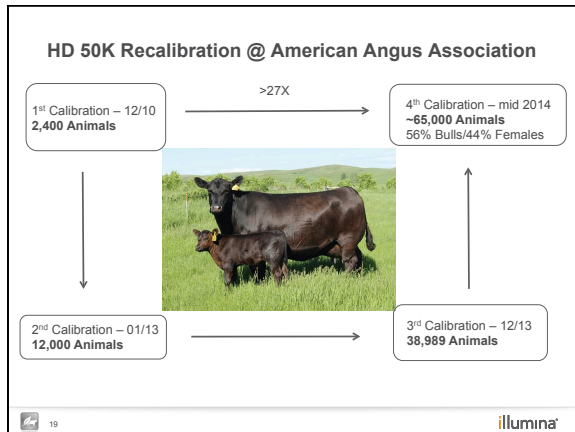
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Key Presentation:

- Advances in Genotyping – Angus Journal March 2008
 - Commercial Release of the Infinium BovineSNP50 BeadChip – mid-January of 2008.
 - “Developing the BovineSNP50 Beadchip was possible because of collaborative efforts from each of the bovine groups and the level of support we received from Illumina,” said Jerry Taylor, UMC professor of animal sciences and genetics at the 2007 BIF Meeting.



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June 2014

iCommunity
NEWSLETTER

Bringing a Better Steak to Texas

Genetic selection tools based on the BovineSNP50 BeadChip enable 44 Farms to ensure Angus beef quality from farm to table.

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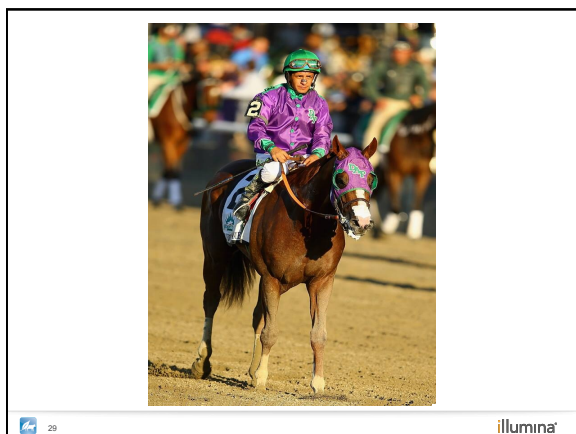
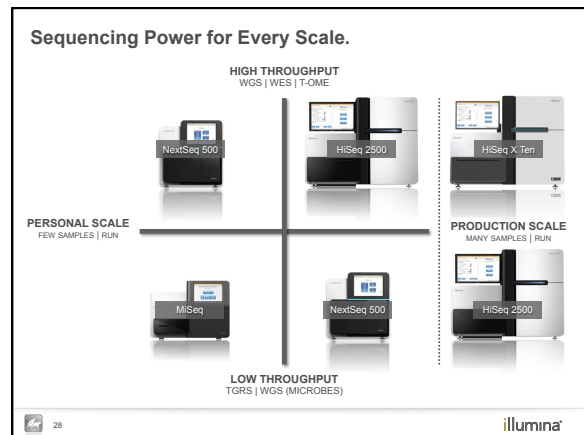
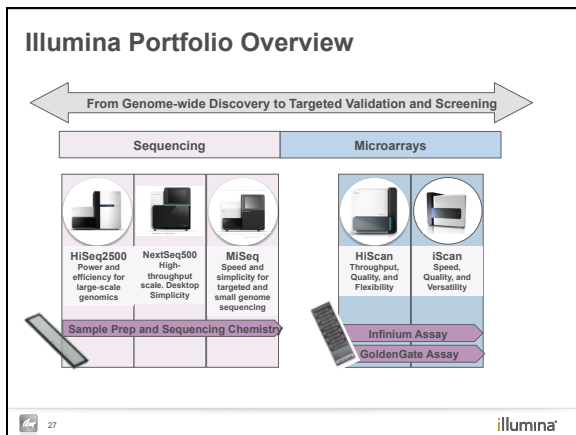
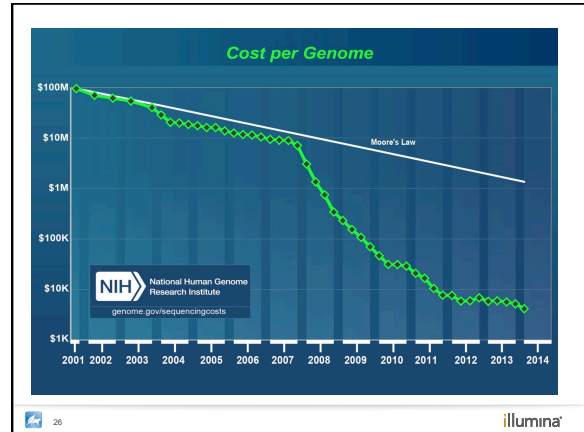
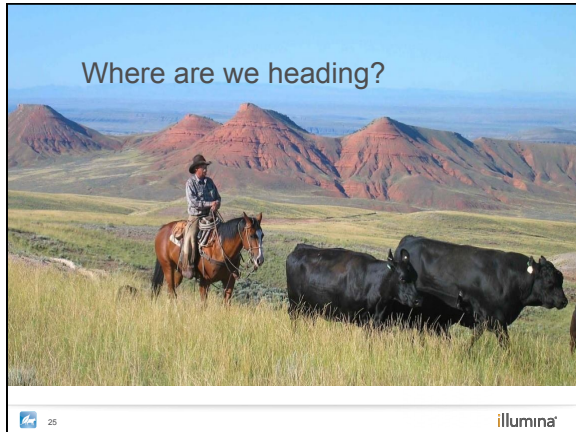
June 2014

iCommunity
NEWSLETTER

Breeding the Best Angus Cattle Begins with the Best Genomics Tools

A genotyping tool based on the BovineSNP50 BeadChip provides Three Trees Ranch with genomic data to make the best breeding decisions.

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Metagenomics & Microbiomics

The unexplored living world

- Metagenomics - the analysis of genomic DNA from a whole community
 - 16s DNA
 - Whole Genome
 - Targeted Gene
- Survey of micro organisms in specific environments
 - Soil
 - Aqueous / Marine
 - Medical / Ag
- What can we learn
 - Taxonomic diversity ('who is there')
 - Physiology ('what are they doing')
 - Gene discovery
- > 99% of the bacteria present in nature are non-culturable
- Operational Taxonomic Unit - OTU

↓

Metagenomics

sciancemolecular.blogspot.com

Fast Applications

Application	Time	Reads
Bovine Genome	30 HOURS	2 x 150bp
Transcriptome	18 HOURS	2 x 75bp
GEX/GBS	12 HOURS	1 x 75bp