Contents of the Talk

• Brief description of sperm mobility
• Need for RNAseq
• Analysis with Qseq
• Some results

Sperm Mobility

• Ability of sperm to move against resistance at body temperature
• Male poultry vary in percentage of mobile sperm
• Male fertility is a function of mobility
• Divergent selection for mobility

Need for RNAseq

• Sperm cell proteome
  – Reduced glycolysis and ATP metabolism for low mobility sperm
• qPCR for total testis RNA

RNAseq

• 6 Biological Replicates
  – Mode of two lines
• PolyA+ RNA
  – Outsourced
    • Digitally tagged and pooled
    • Three independent runs on Illumina
    • 35 base reads plus tag
  – 9 GB of data

Credits

• Collaborators
  – David Froman - Oregon State University
  – Shane Burgess & Fiona McCarthy - University of Arizona
  – Carl Schmidt – University of Delaware
• Funding
  – USDA NIFA-AFRI
  – Arkansas Biosciences Institute
DNAStar

- DNAStar 10.1
  - Single user
  - Network license
- Dell T5500
  - Xeon Quad CPU 2.93 GHz
  - 24 GB RAM
  - 6 TB HD
  - Win7 64 bit
- Dell Optiplex 760
  - Dual core CPU 2.93 GHz
  - 8 GB RAM
  - 250 GB HD
  - Win7 64bit

Add the Data by Folder

Genome Data: DNAStar or NCBI

Choice of Normalization Methods

Processing Time

- Xeon Quad Core, 24 GB RAM: 15 minutes
- Dual Core, 8 GB RAM: 30 minutes

Replicates and Groups
Grouping Further

Scatter Plot: Set Axes

Scatter Plot: Find What You Want

Gene Lists

Add Columns

Analyze in ArrayStar and Export to Excel
- Examine by position for selective sweeps
Male Enhanced GgaZ Expression?

- Carl Schmidt - U Delaware

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