

NGS at the London Regional Genomics Centre

October 22, 2012

David Carter



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Today's Agenda

- Our Facility
- Data Sharing
- Reproducibility
- Challenges

Our Facility

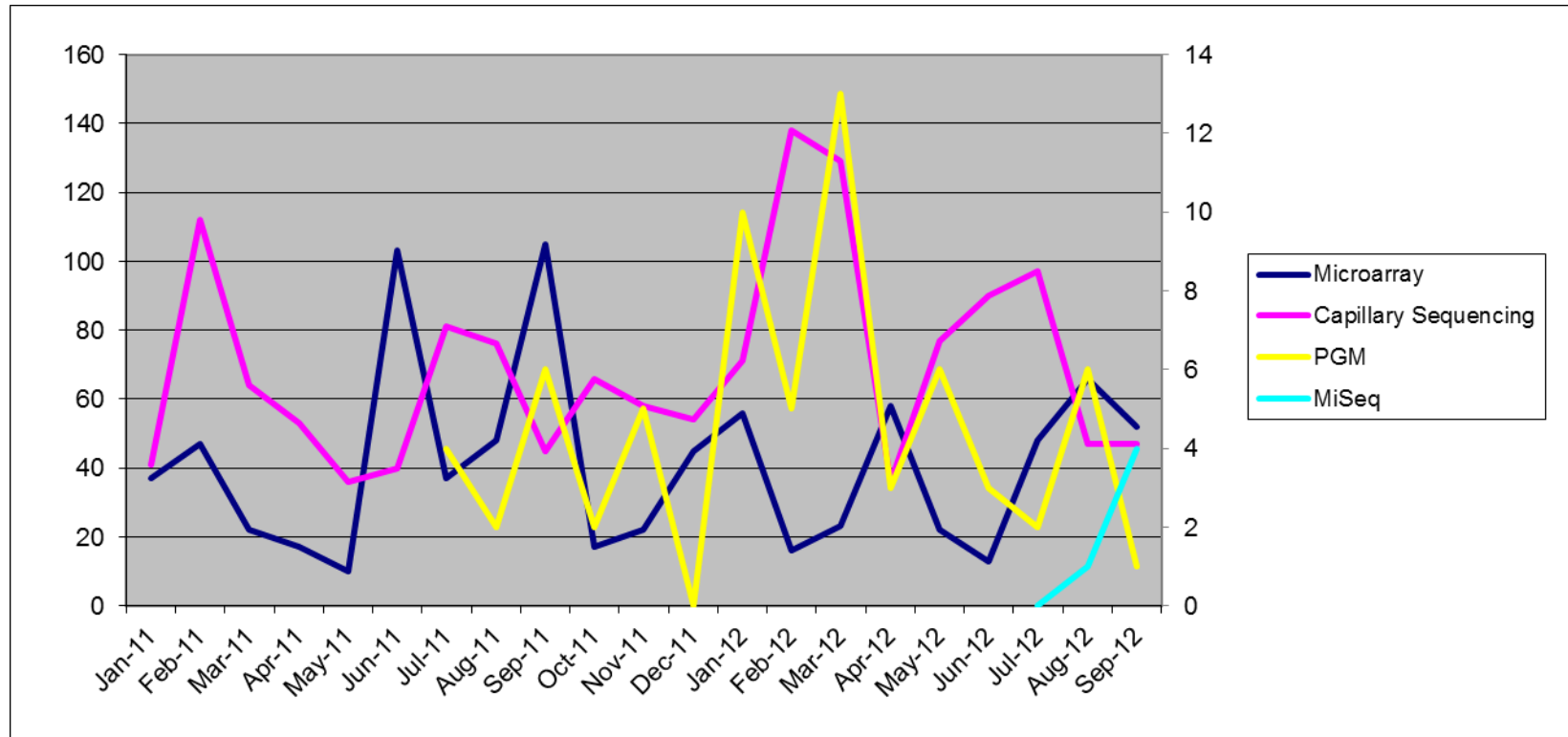
- Affymetrix GeneChip system
- Agilent 2100 Bioanalyzer
- ABI 3730 DNA Analyzer
- ABI 7900HT Real-Time PCR
- Perkin Elmer Janus Automated Workstation
- Covaris S2
- Sage Science Pippin Prep

Our Facility



- Small genomes, amplicons
- DNA/RNA-seq, denovo assembly
- Mixed microbiomes (Ribotyping)

Our Facility



Data Sharing

- With smaller capacity sequencers, images files can be saved
- Easier to transfer data from benchtop sequencers to users
- Sequence Read Archive

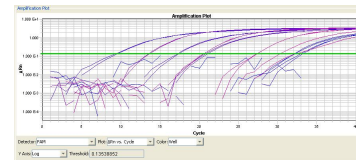
Reproducibility

- Ion Torrent PGM - software version number needs to be recorded
- Illumina MiSeq - Amount of PhiX added
- What would a universal control sample be for RNA-seq vs DNA-seq, small vs big sequencers
- Minimum coverage
- Data analysis details/parameters published

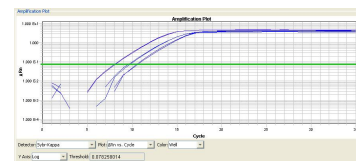
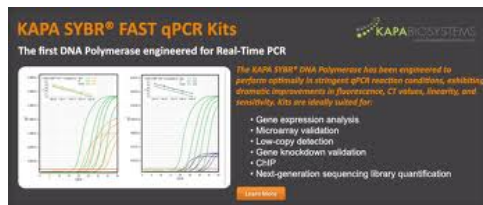
Challenges

- Library quantification

- Ion Torrent PGM – Template Dilution Factor



- Illumina MiSeq – cluster density (K/mm²)



Challenges for smaller cores

- Require multi functional staff
- No dedicated bioinformatics team
- Fixed costs amortized over fewer number of samples
- Cannot take advantages of economies of scale

The LRGC team

- Dr. Robert Hegele Research Director
- Gerry Barbe DNA Sequencing
- Alana Desouza DNA Sequencing
- David Carter Microarrays/NGS
- Jane Gui Microarrays/NGS
- John Robinson Data Analyst



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