

Lawrence Berkeley National Laboratory

LBL Publications

Title

Supporting the Sanger, 454 and Illumina Production Lines

Permalink

<https://escholarship.org/uc/item/5z82n66k>

Authors

Copeland, A.
Rio, T. Glavina del
Pang, G.
et al.

Publication Date

2008-12-01

Supporting the Sanger, 454 and Illumina Production Lines

A. Copeland, T. Glavina del Rio, G.Pang, M. Pollard, A. Lapidus, S. Lucas

Production Project Scheduling for Sanger, Illumina and 454 platforms.

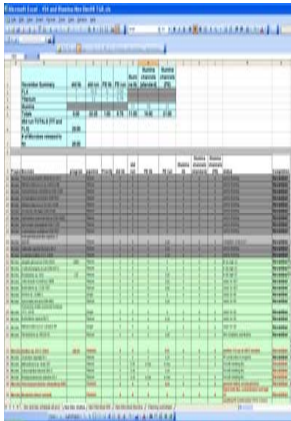


Fig 1. An example of a 454/Illumina schedule

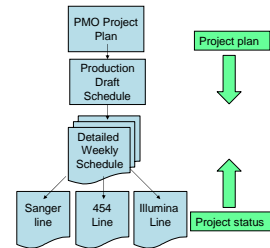


Fig 2. Planning, Communicating and Executing the schedule.

- Scheduling projects for all three platforms from DNA entry to sequence completion.
- Ensuring successful and timely completion of projects.
- Communicating with PMO and Production supervisors regarding project status.
- Reporting on project status.

Training - Set up and support a full-cycle training program

Document Control

- Create a structured central location with access control for all the current and archived official production documents.
- Cleanup the network and eRoom: Remove unofficial documents or duplicates that may cause confusion.

Document Process

- Develop policy to process and approve documents to ensure the documents are uniformed, accurate and implemented smoothly.
- This project includes re-developing procedures and creating new policies.

Technical Training Program

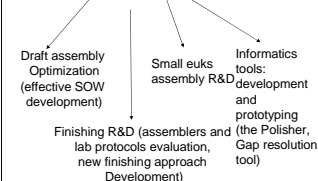
- Create job specific training plan.
- Create and ensure training material is available.
- Provide a mean to assess training result and maintain training records.

Non-job specific Training Program

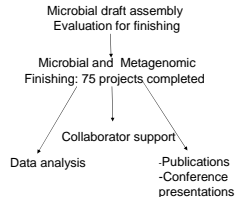
- Arrange and customize training classes with in-house trainers or outside consultants that support the production employees' development needs.

Assembly improvement/finishing

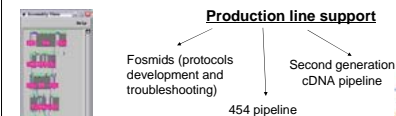
Second generation assembly improvement



Microbial projects

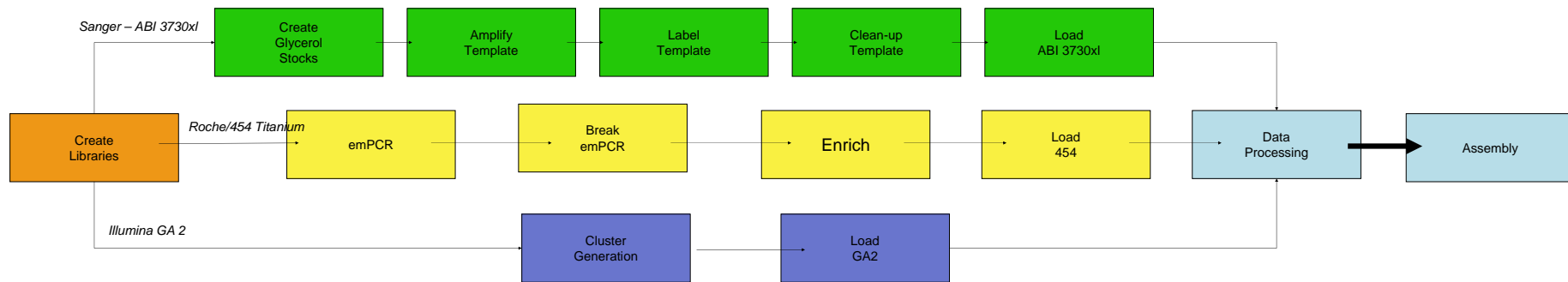


Production line support



-view of microbial draft assembly

Genome of *D. audaxviator*, Science, 2008



Instrumentation Group

Our goal is to keep the existing production lines up and running and provide instrumentation support for future improvements

- Performance monitoring and calibration
- Troubleshooting, preventative maintenance and repair
- Acquisition, installation and acceptance testing
- Custom instrument engineering: hardware and software
- Engineering support for safety and ergonomic controls
- Industrial engineering process mapping and modeling



Instrumentation Technician Mission Statement

Provide competent support and maintenance in a timely manner to all instrumentation users at the JGI. Ensuring open communication is maintained with all users and team members cooperate fully to maximize work quality and instrument availability. Strive to constantly & consistently exceed our customer's needs & expectations.

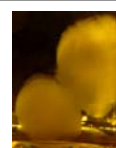


Fig 1. Failed lot Of Luria broth

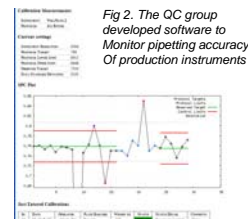


Fig 2. The QC group developed software to Monitor pipetting accuracy Of production instruments

Quality Control

The mission of the quality control team is to maintain the quality of the production lines.

The team is responsible for all reagent ordering, testing and release to the production lines, monitoring instrument performance, statistical process control, and troubleshooting failures as they arise in the production area. We also participate in process optimization through the testing of new materials and methods and experimental design and data analysis.

Quality Assurance

The mission of the QA team is to insure that sequencing projects meet specifications.

The QA team focuses on data data analysis support for production and finishing including library and assembly QC. A focus of the group is to produce contamination free genomes for finishing and assembly and to identify data which should not be submitted to NCBi because it is either low quality or contamination.



Fig 3. ThermoChromic Ink was used to show Characteristic failure Patterns in RCA were Due to thermal gradients Across 384-well plates Caused by plate sealers

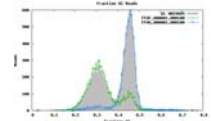


Fig 4. GC plots are used to look for Contamination in sequence data