

RNA-seq pipeline

NeLS workshop

1st June, 2016

Ståle Nygård

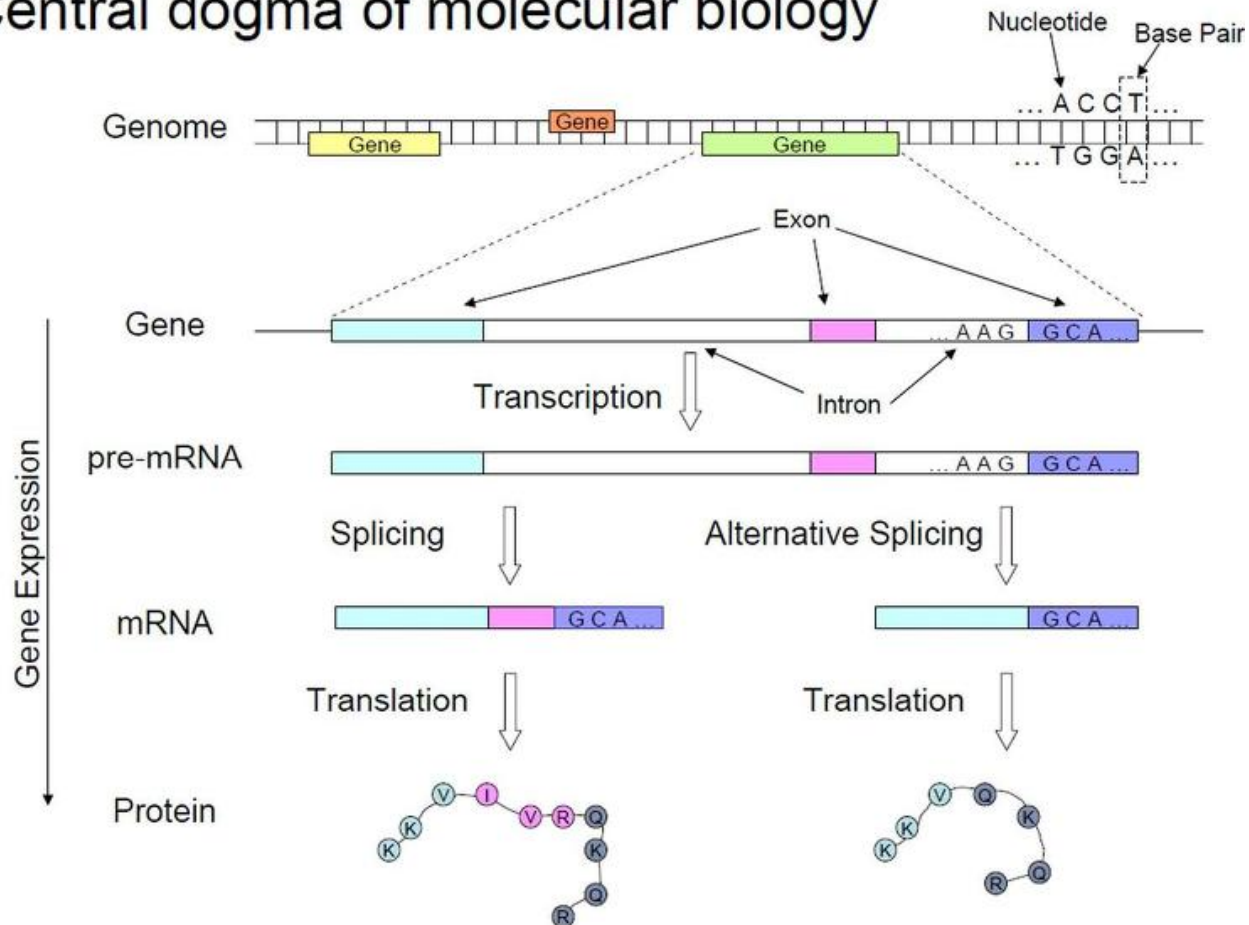
Bioinformatics core facility, OUS/UiO

staaln@ifi.uio.no

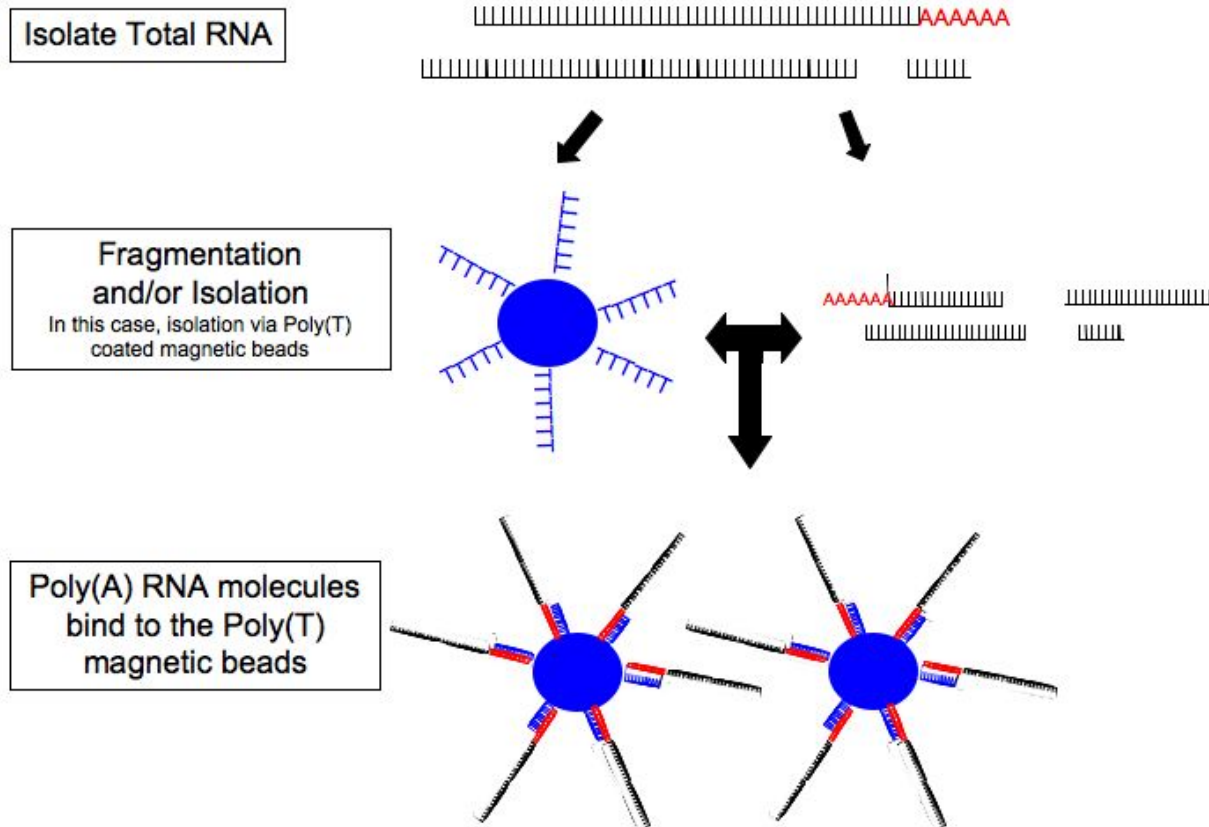
Gene expression

Gene expression is the process by which information from a gene is used in the synthesis of a functional gene product.

Central dogma of molecular biology

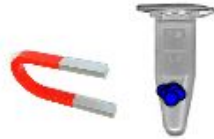


RNA sequencing (technology)

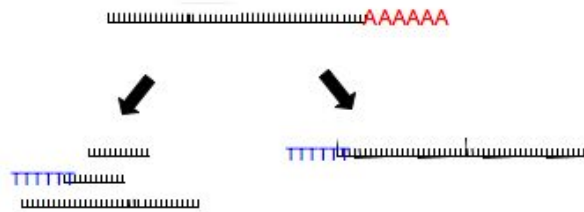


RNA sequencing (technology)

Magnetically isolate
and wash beads



Fragment and/or Reverse Transcribe



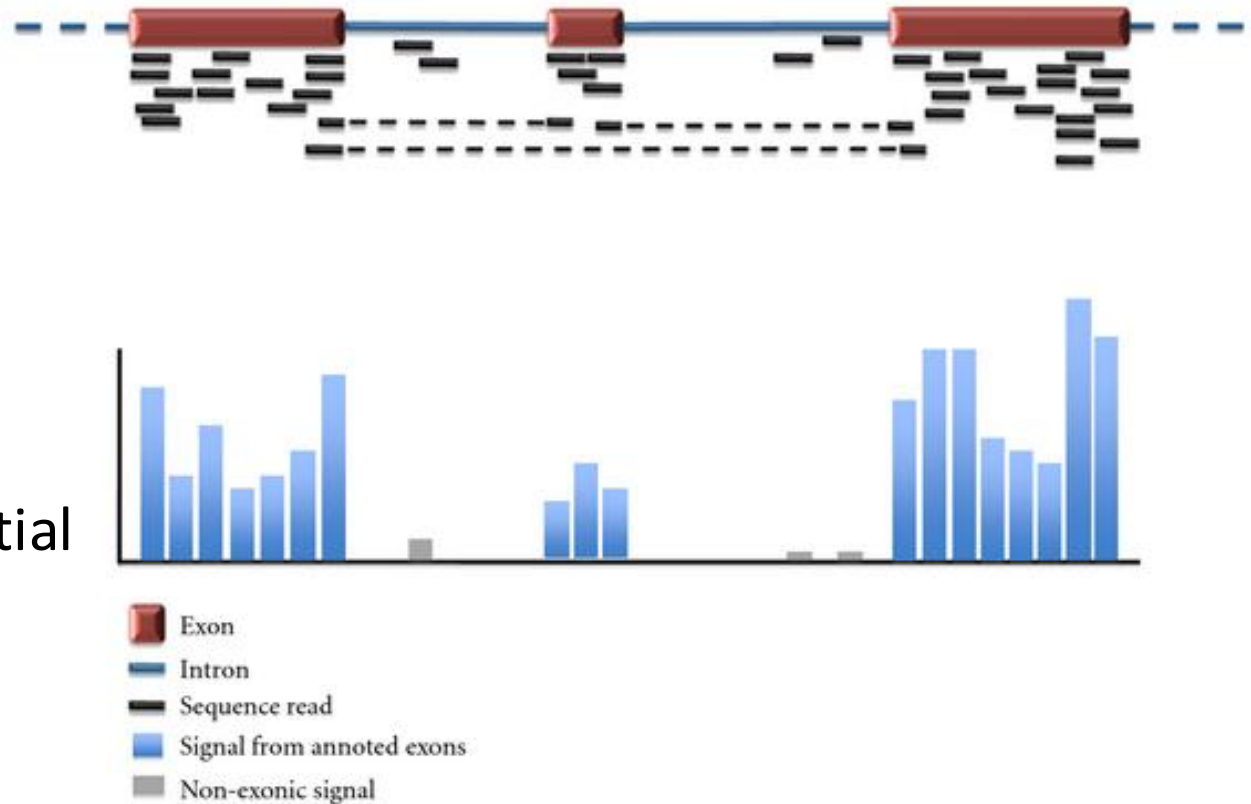
Fragmentation (if not done already),
size selection, and sequence



Illumina Solexa, Roche 454, or ABI SOLiD
Graphic shown here is Illumina

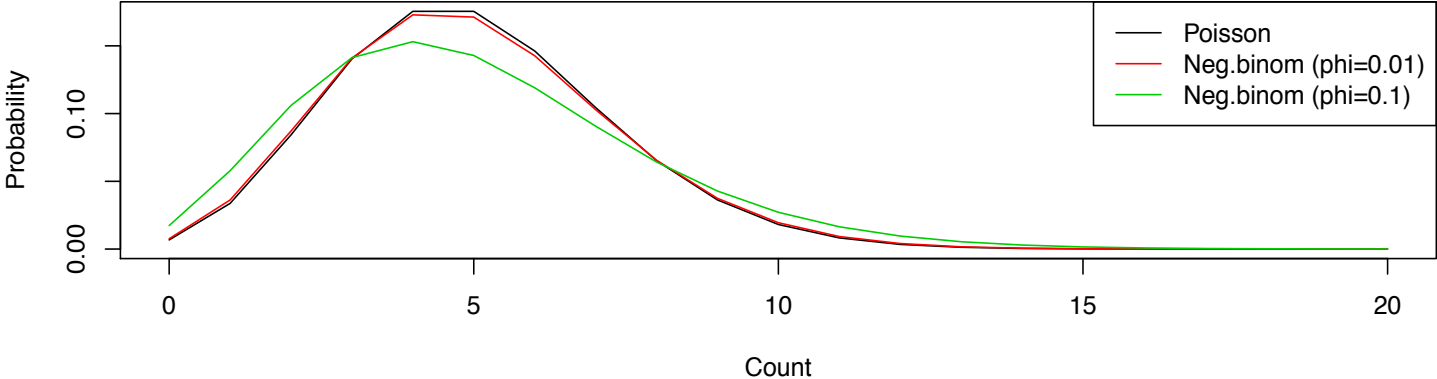
ELIXIR Galaxy RNA-seq pipeline

- At galaxy-ntnu.bioinfo.no
- Pipeline
 - Tophat2 (alignment)
 - FeatureCounts
 - DESeq (differential expression)

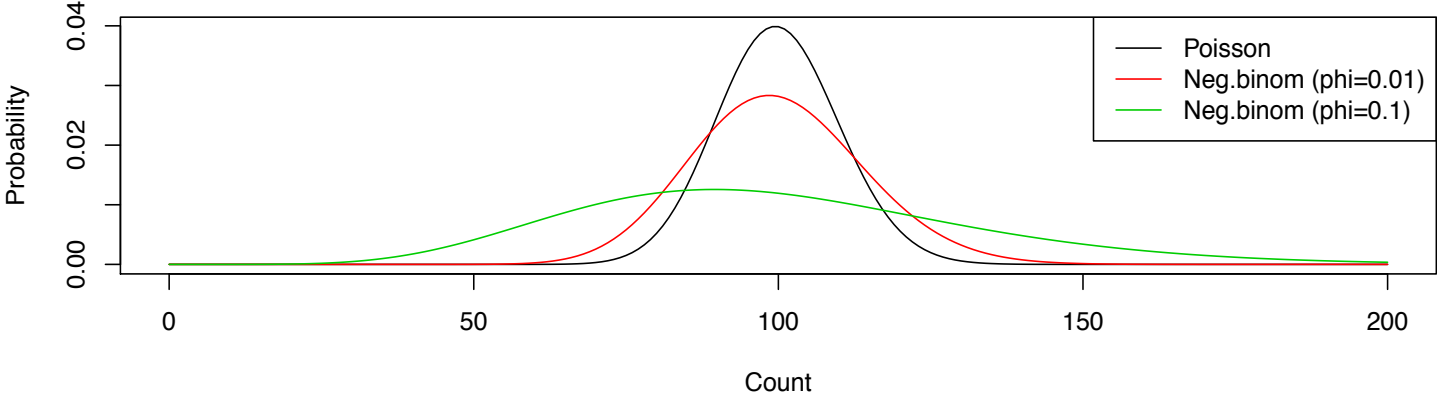


DESeq bulids on negative binomial distribution

Mean=5



Mean=100



Estimating dispersion

