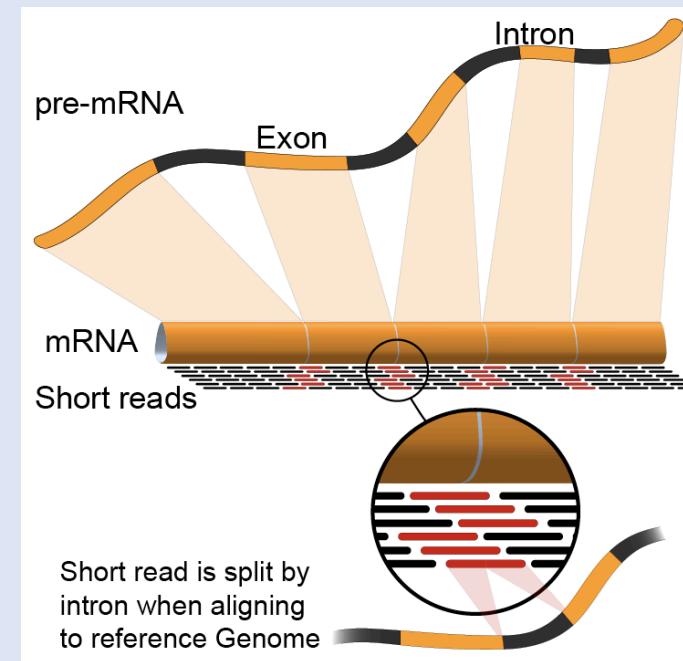
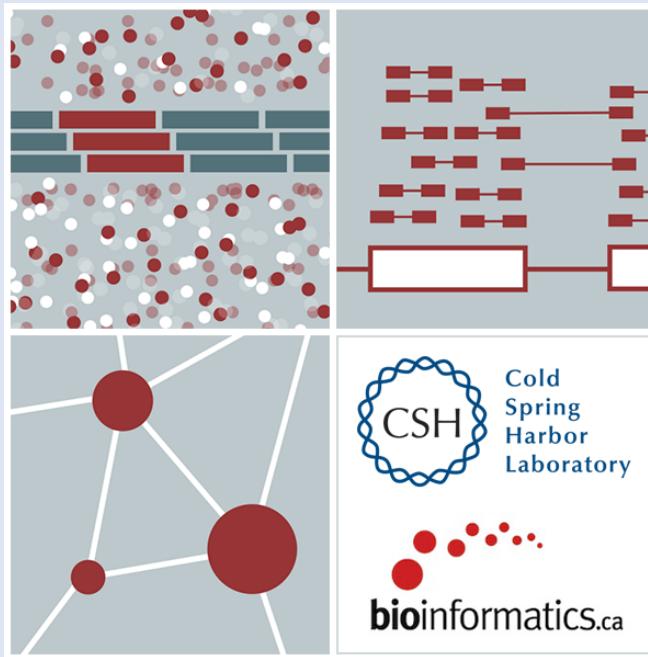




Cold
Spring
Harbor
Laboratory



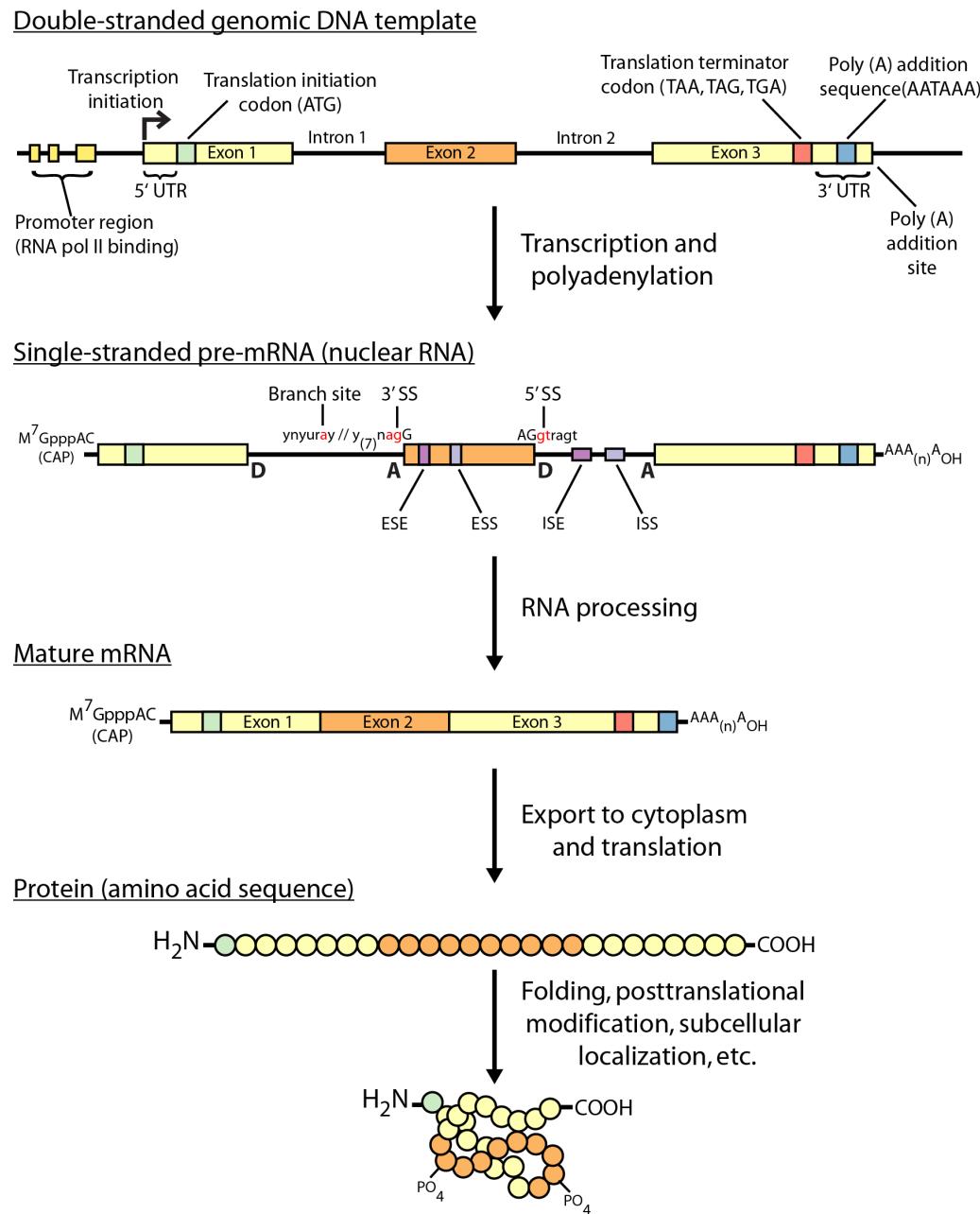
RNA-Seq Module 5

Alternative Splicing Analysis

Kelsy Cotto, Arpad Danos, Harriet Dashnow, Felicia Gomez, Sharon Freshour, Obi Griffith,
Malachi Griffith, Jason Kunisaki, Chris Miller, Jonathan Preall, Aaron Quinlan
Advanced Sequencing Technologies & Bioinformatics Analysis November 11-19, 2021

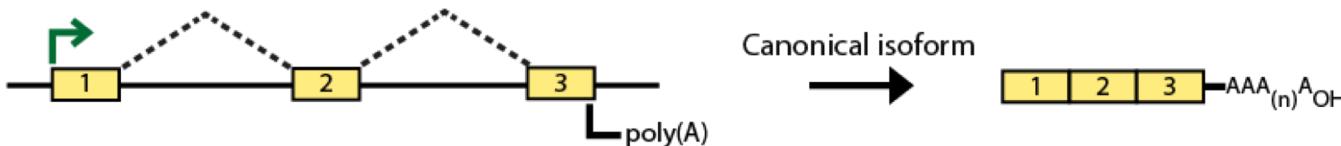
Washington University in St. Louis
SCHOOL OF MEDICINE

Review of gene expression



Types of alternative expression - part 1

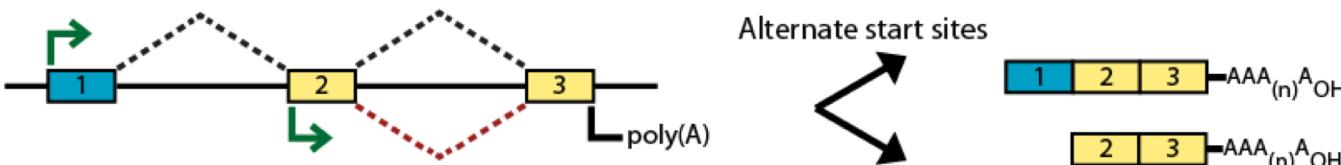
Simple transcription



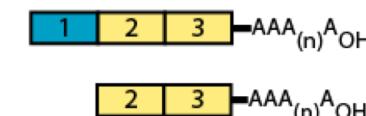
Canonical isoform



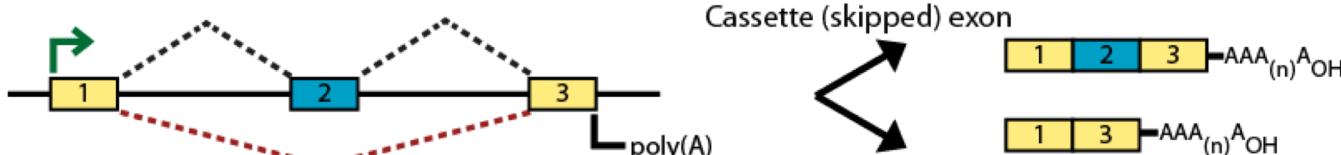
Alternative transcript initiation



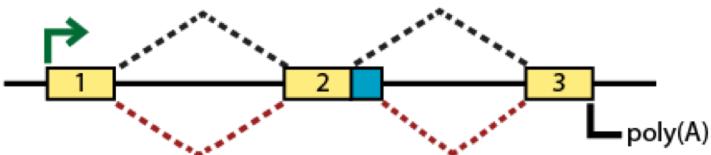
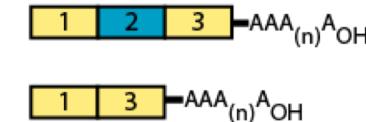
Alternate start sites



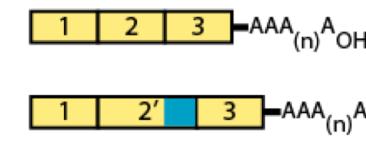
Alternative splicing



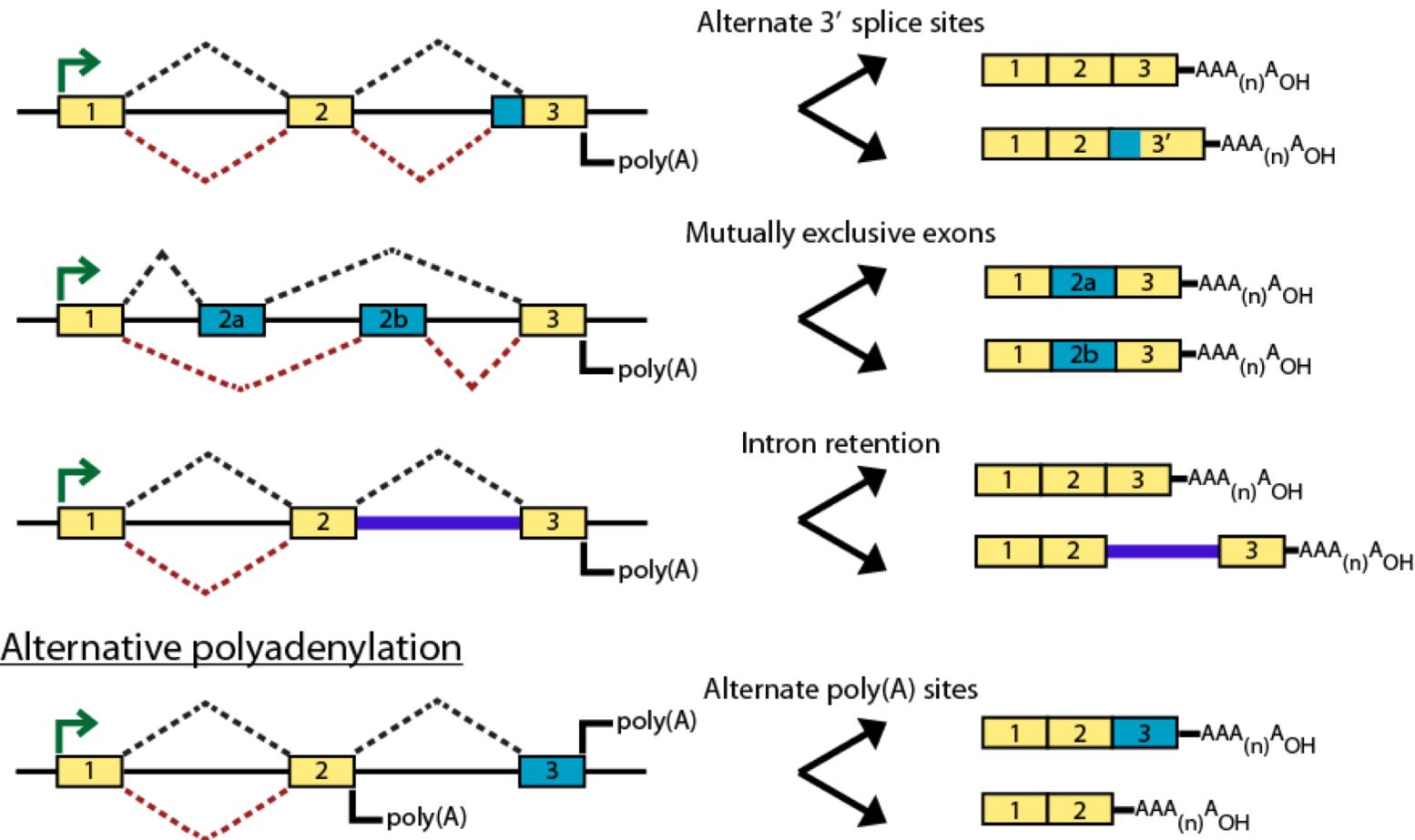
Cassette (skipped) exon



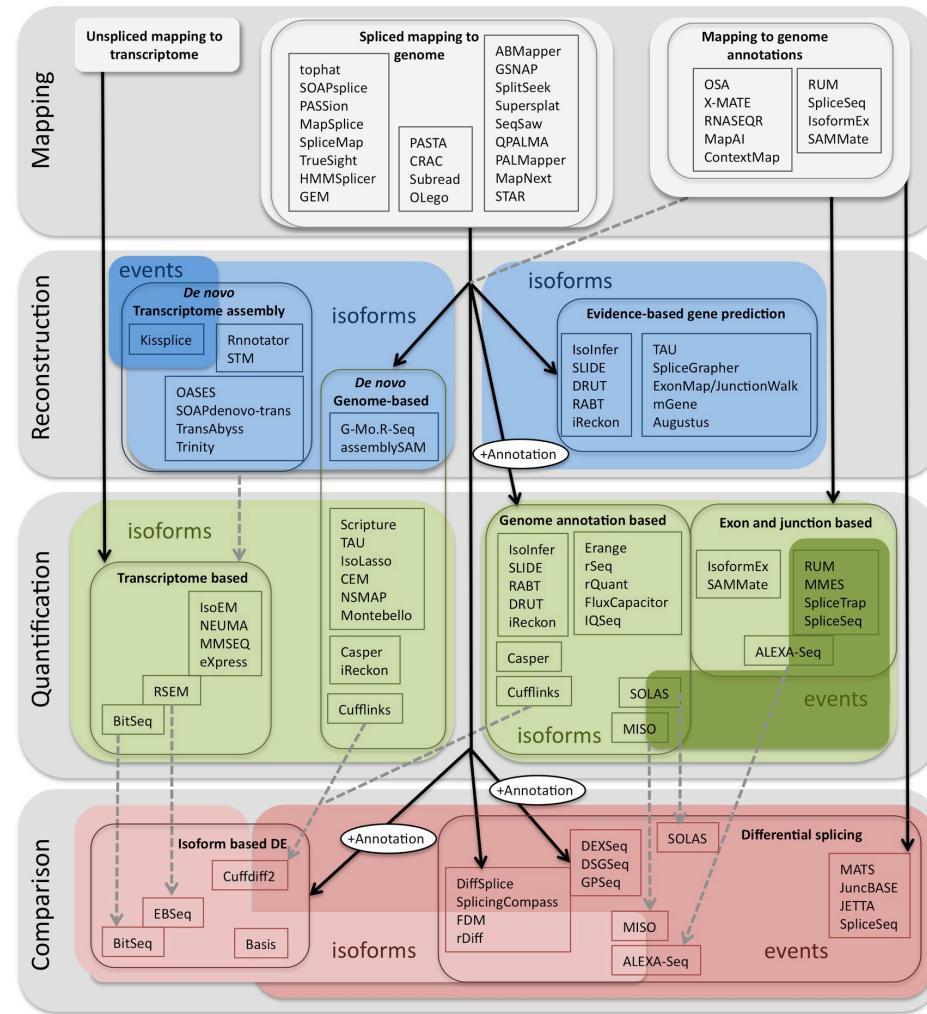
Alternate 5' splice sites



Types of alternative expression – part 2

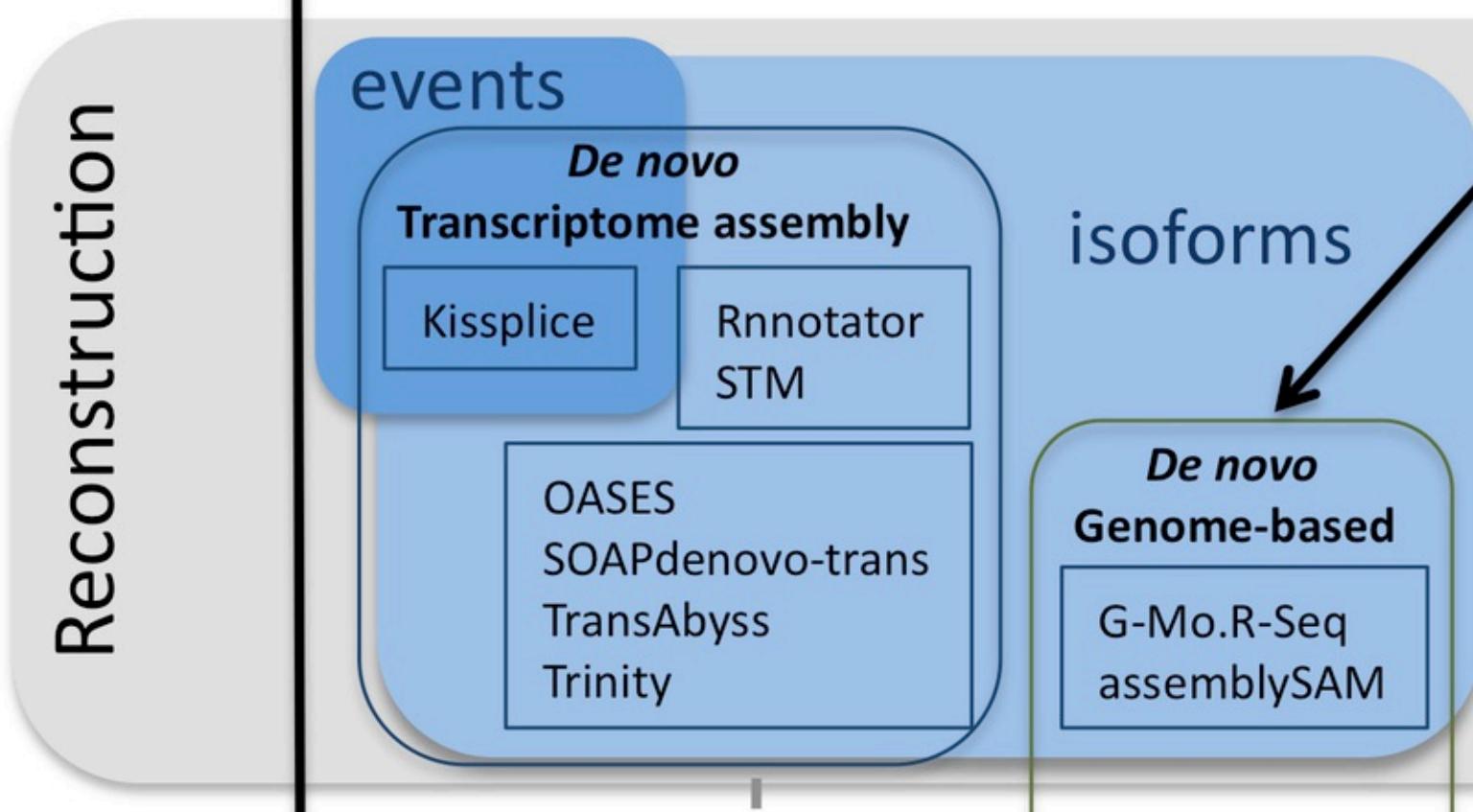


Methods to study splicing by RNA-seq



<http://www.rna-seqblog.com/data-analysis/splicing-junction/methods-to-study-splicing-from-rna-seq/>
<http://arxiv.org/ftp/arxiv/papers/1304/1304.5952.pdf>

Methods to study splicing by RNA-seq

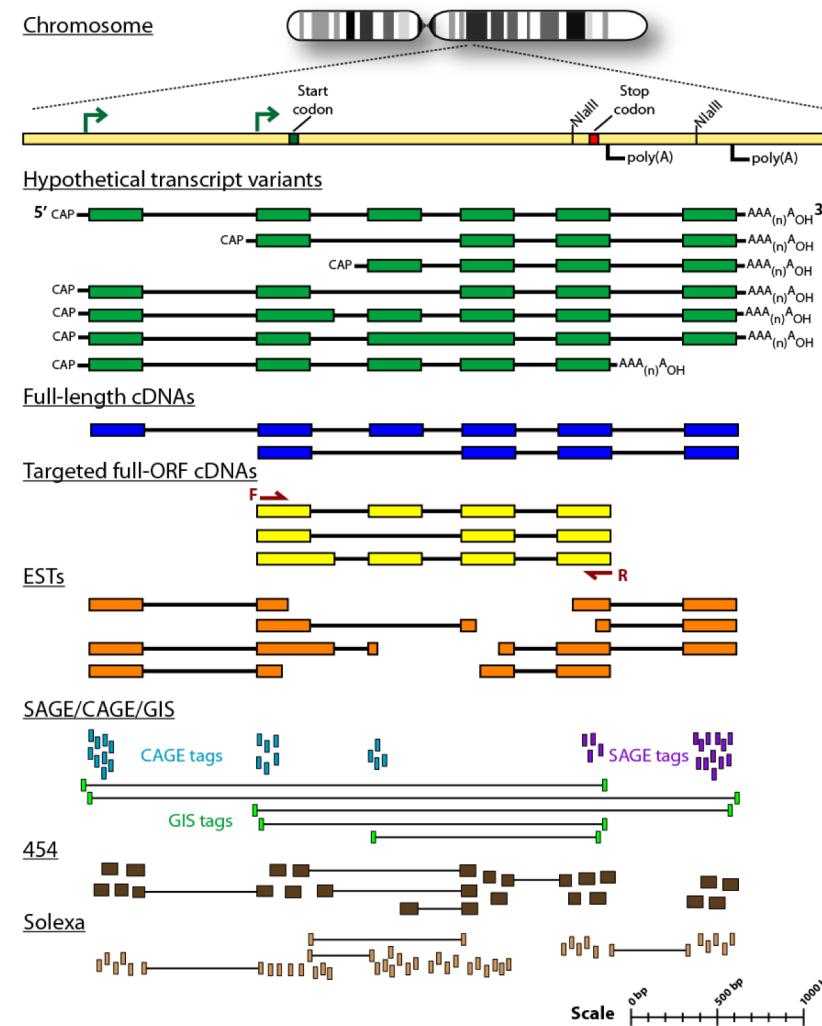


<http://www.rna-seqblog.com/data-analysis/splicing-junction/methods-to-study-splicing-from-rna-seq/>
<http://arxiv.org/ftp/arxiv/papers/1304/1304.5952.pdf>

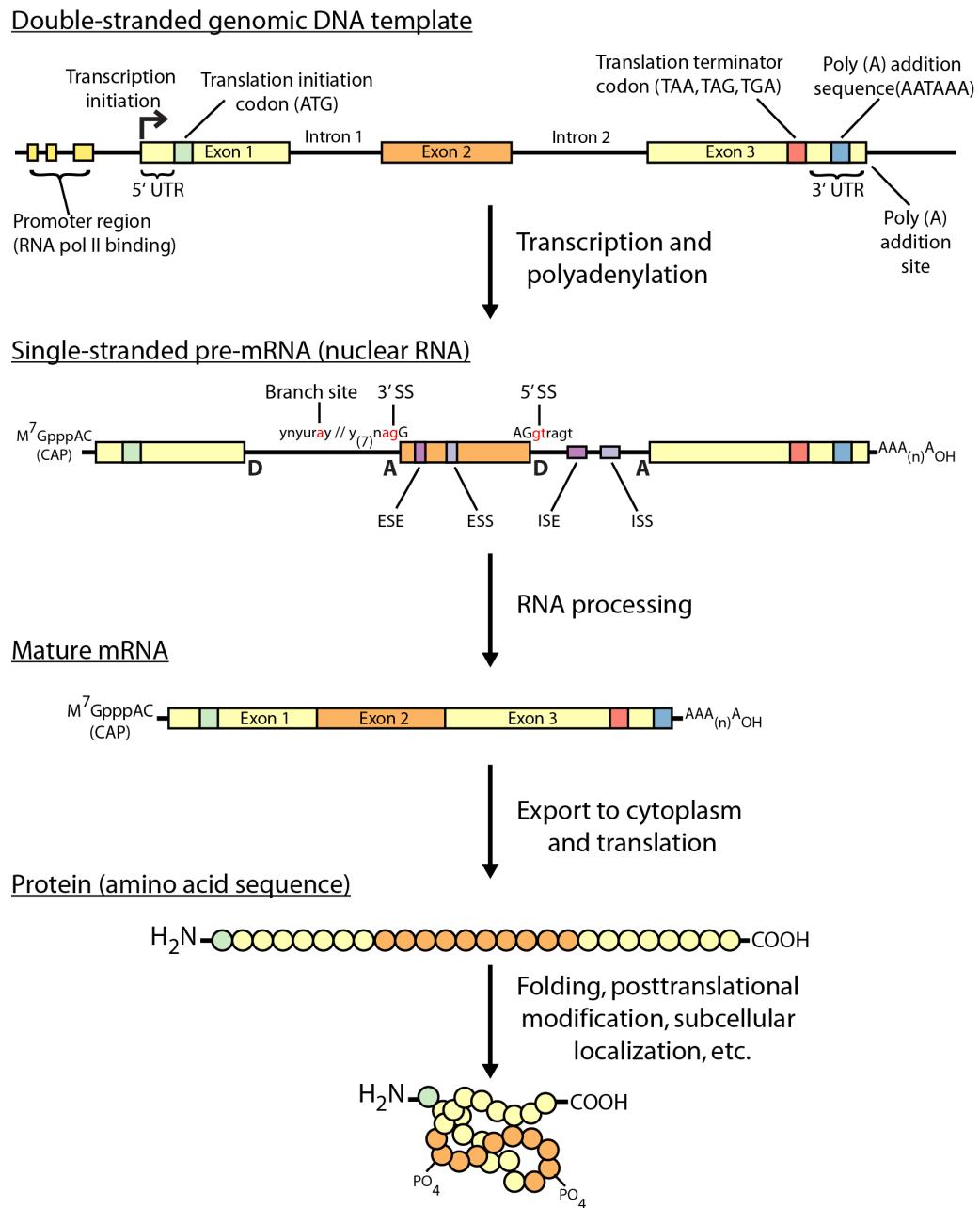
Useful resources and discussion

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 - <http://www.biostars.org/p/62728/>
- Alternative splicing detection
 - <http://www.biostars.org/p/65617/>
 - <http://www.biostars.org/p/11695/>
- Identifying genes that express different isoforms in cancer vs normal RNA-seq data
 - <http://www.biostars.org/p/50365/>
- Cufflinks / Cuffdiff Output - How are tests different?
 - <http://www.biostars.org/p/13525/>
- Visualization of alternative splicing events using RNA-seq data
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Sequencing methods for studying alternative isoforms

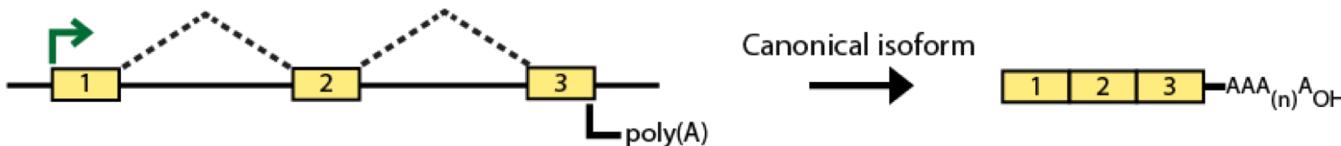


Review of gene expression



Types of alternative expression - part 1

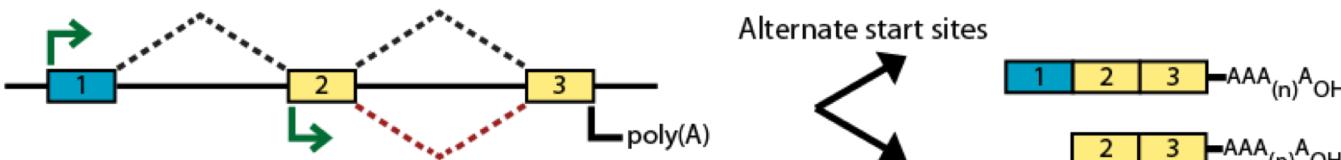
Simple transcription



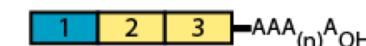
Canonical isoform



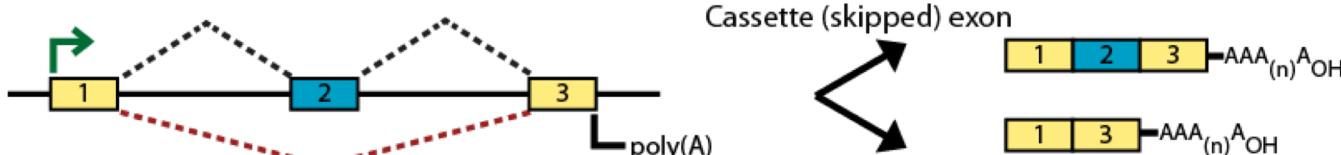
Alternative transcript initiation



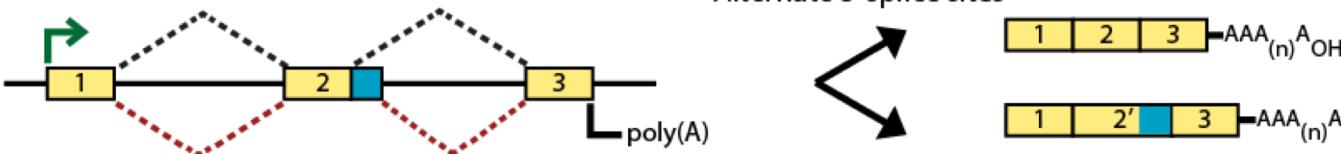
Alternate start sites



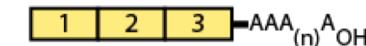
Alternative splicing



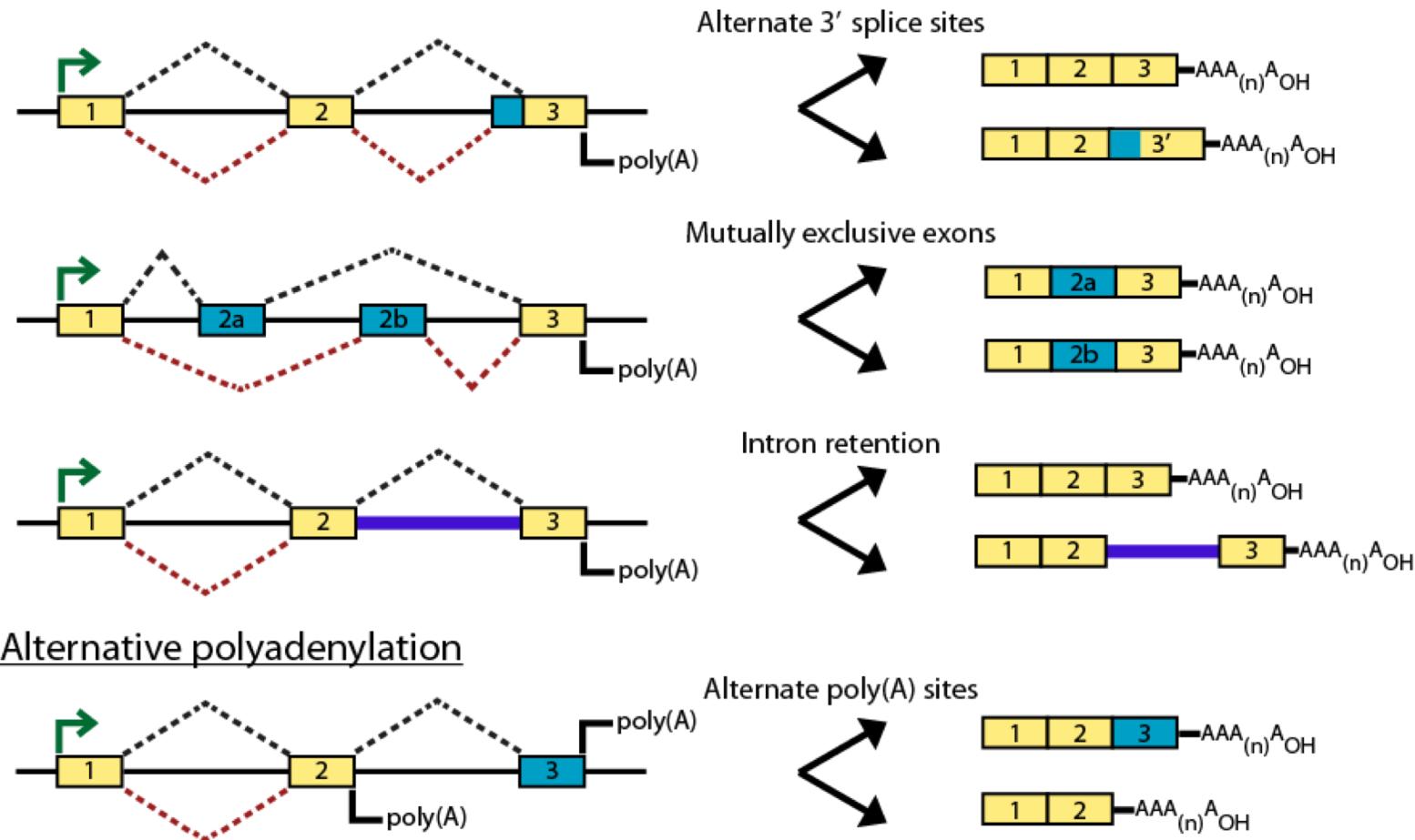
Cassette (skipped) exon



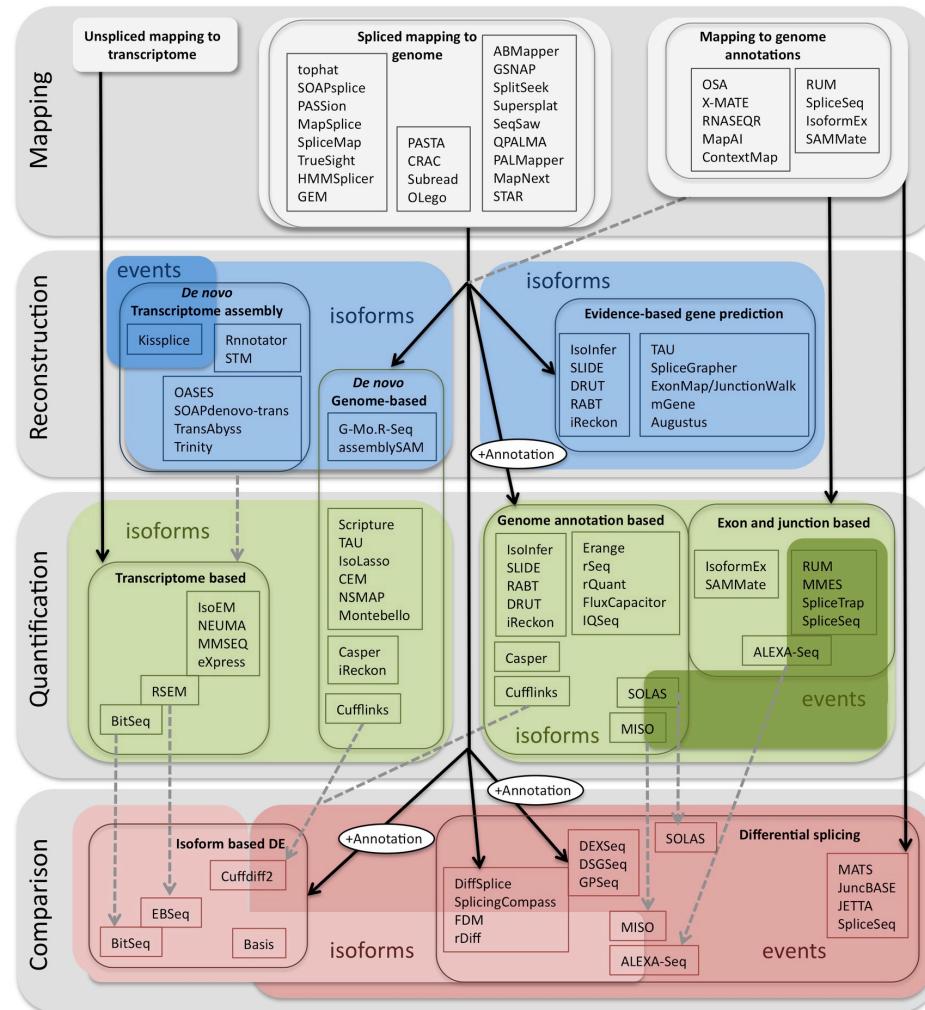
Alternate 5' splice sites



Types of alternative expression – part 2

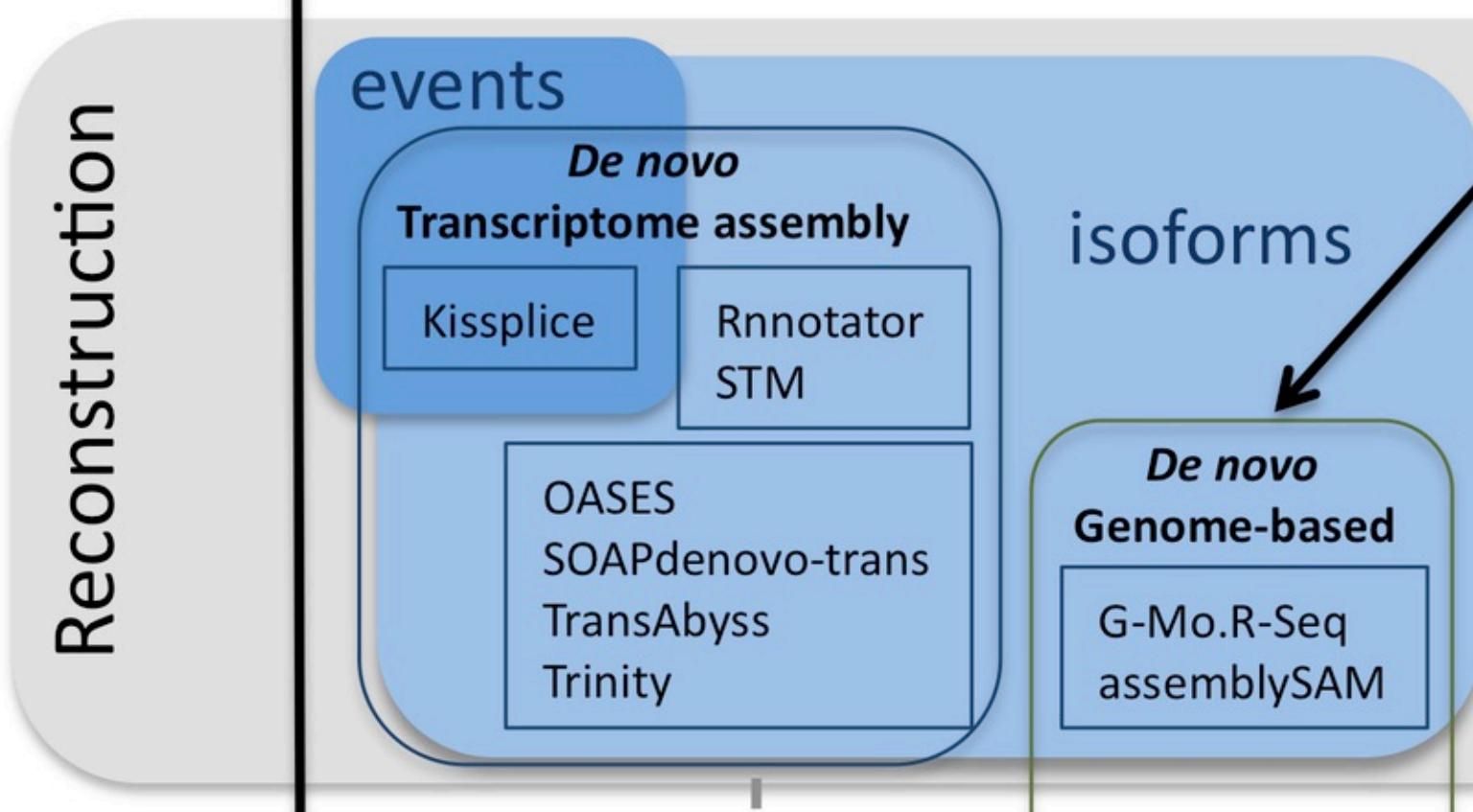


Methods to study splicing by RNA-seq



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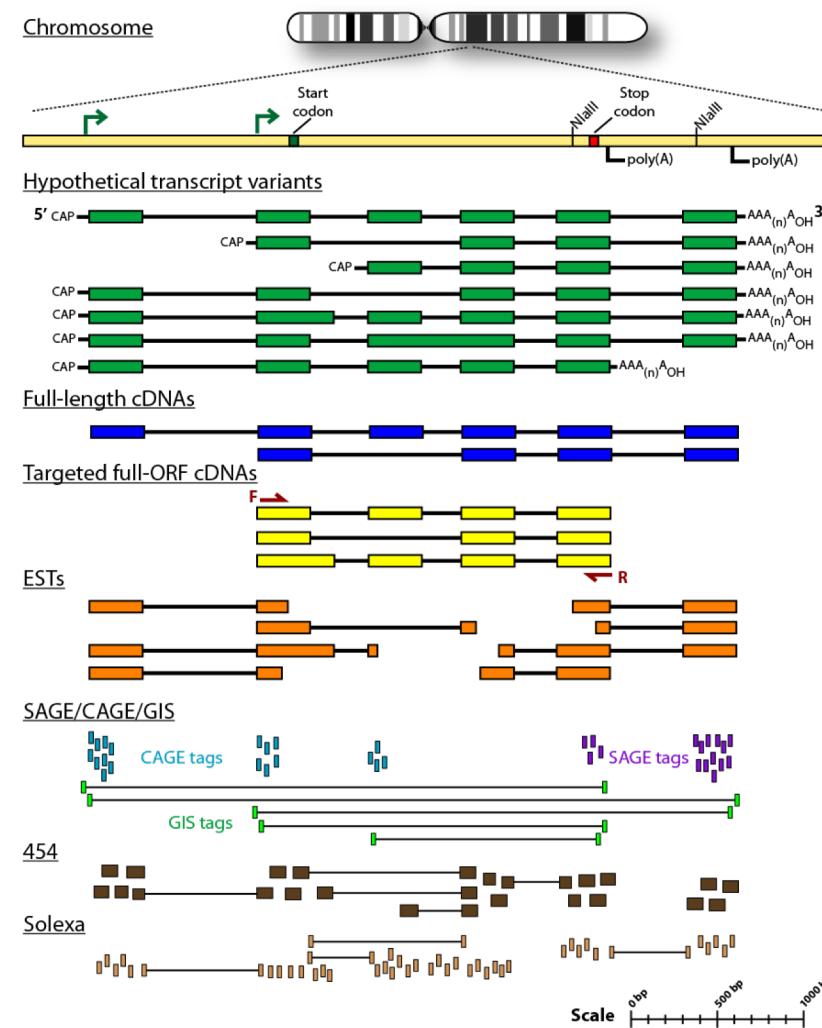


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Sequencing methods for studying alternative isoforms



We are on a Coffee Break &
Networking Session