PMBIO Module 06

RNAseq. RNA-sequence analysis

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Learning objectives of module 06: RNAseq

- **Key concepts**: RNA-seq, library strategies, RNA splicing, genes and transcripts, transcription strand, gene/transcript abundance estimation, FPKM and TPM, differential expression (DE) analysis, normalization, batch effects

- Perform alignment of RNA-seq data and a basic QC analysis of the resulting alignments
- Obtain gene and transcript abundance estimates
- Perform a reference-free alignment and abundance estimation and contrast the results with the reference based approach
- Basic differential expression analysis
- Perform an expression outlier analysis
- Run an RNA fusion detection tool and parse the results for interesting candidates
- Assess expression of specific gene markers of relevance (e.g. HER2, ER, PR)
- Assess the expression of specific variants identified in previous sections.
- Identify an example of allele specific expression