

Other applications of RNA-Seq data

## A non-comprehensive list...

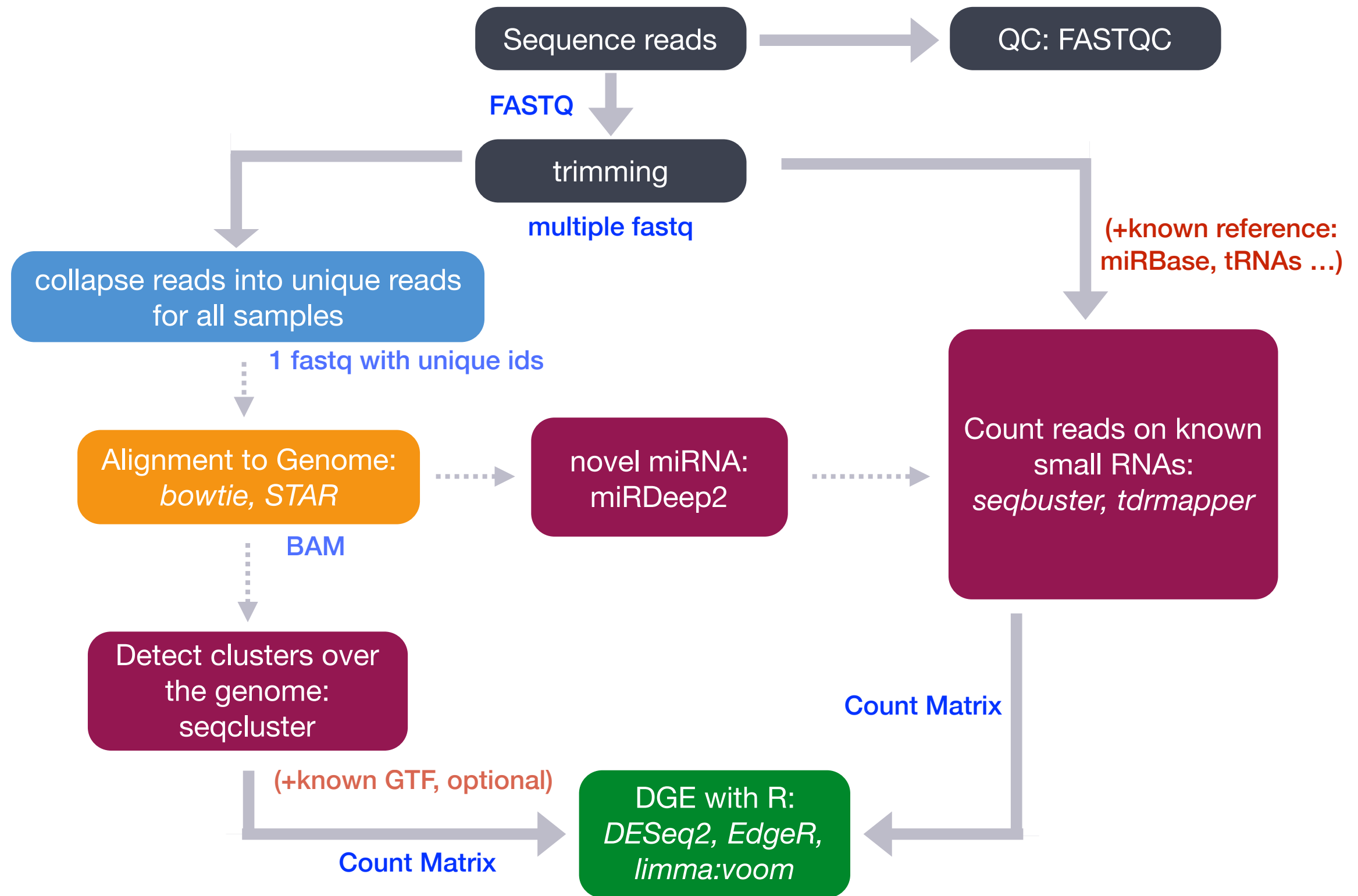
- Evaluating/comparing expression of small RNA
- Identifying the protein interaction sites on RNA molecules:

*HITS-CLIP, PAR-CLIP, iCLIP*

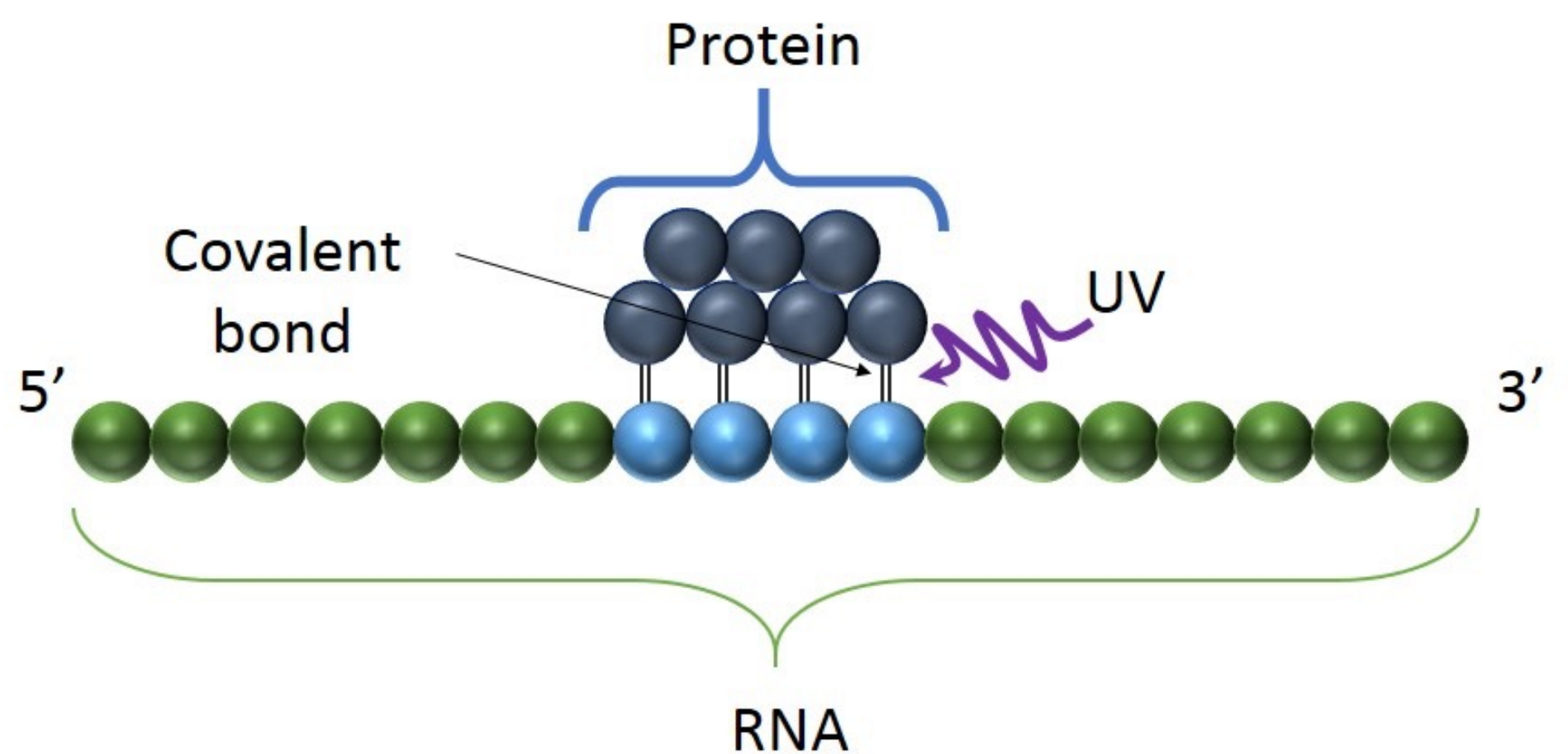
- Identifying translation status of genes:

*Ribo-Seq (Ribosomal Profiling)*

- Understanding expression profiles of cells starting with single cells



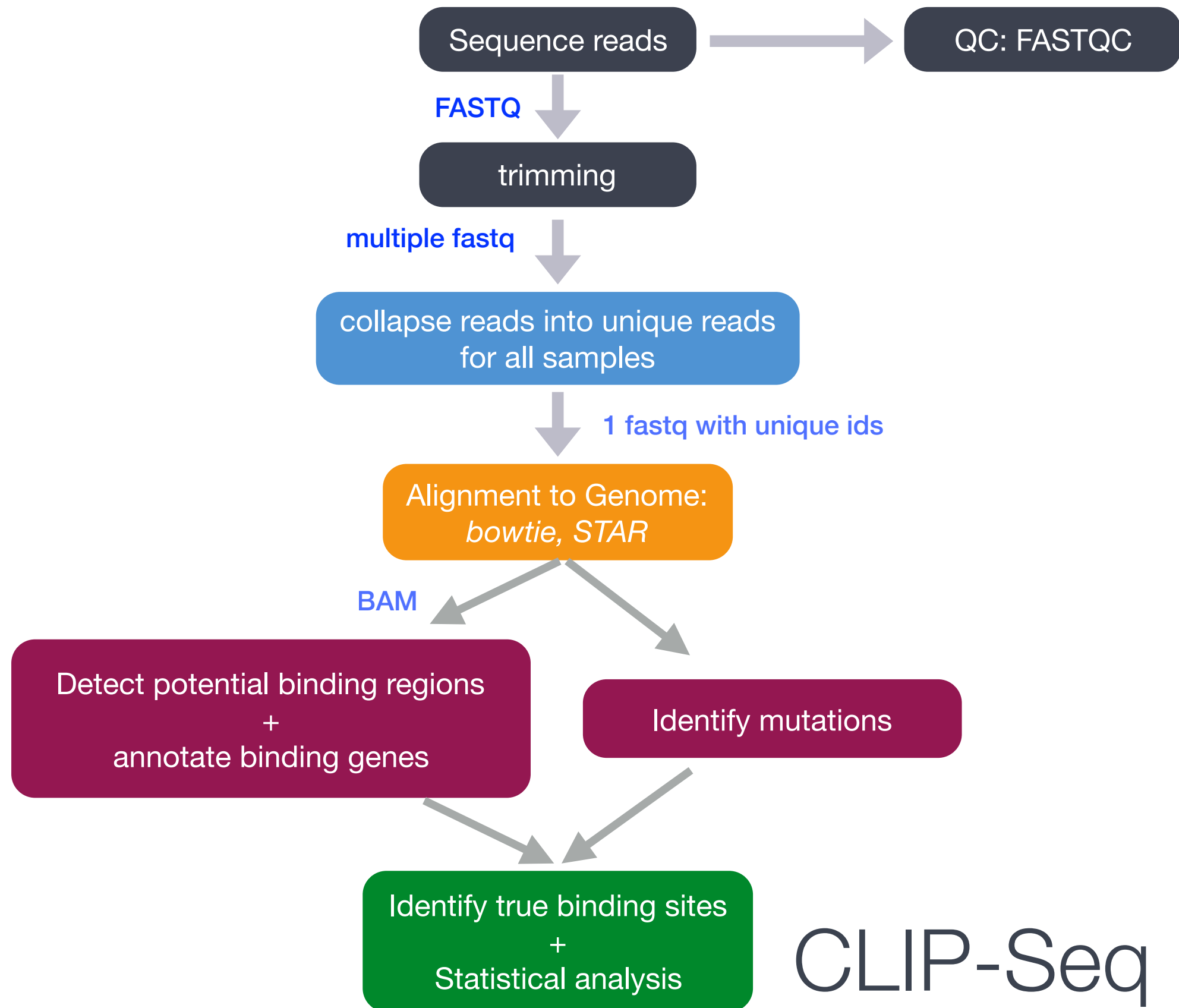
small RNA-Seq

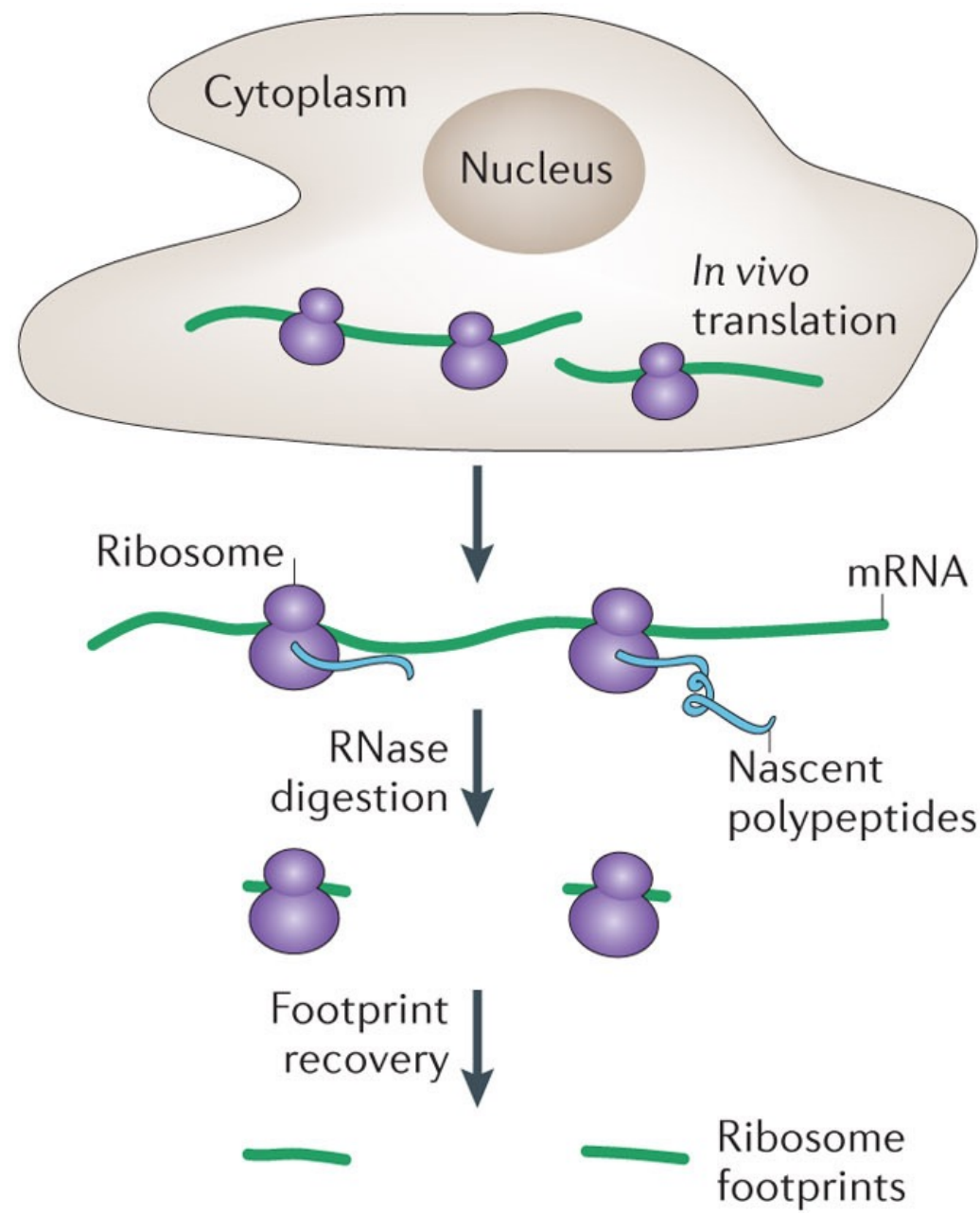


**Figure 1: Basic principle of CLIP.** Covalent bonds are formed between proximal proteins and RNA upon exposure to ultraviolet light. These bonds only occur at the sites of direct contact and preserve RNA-protein interactions.

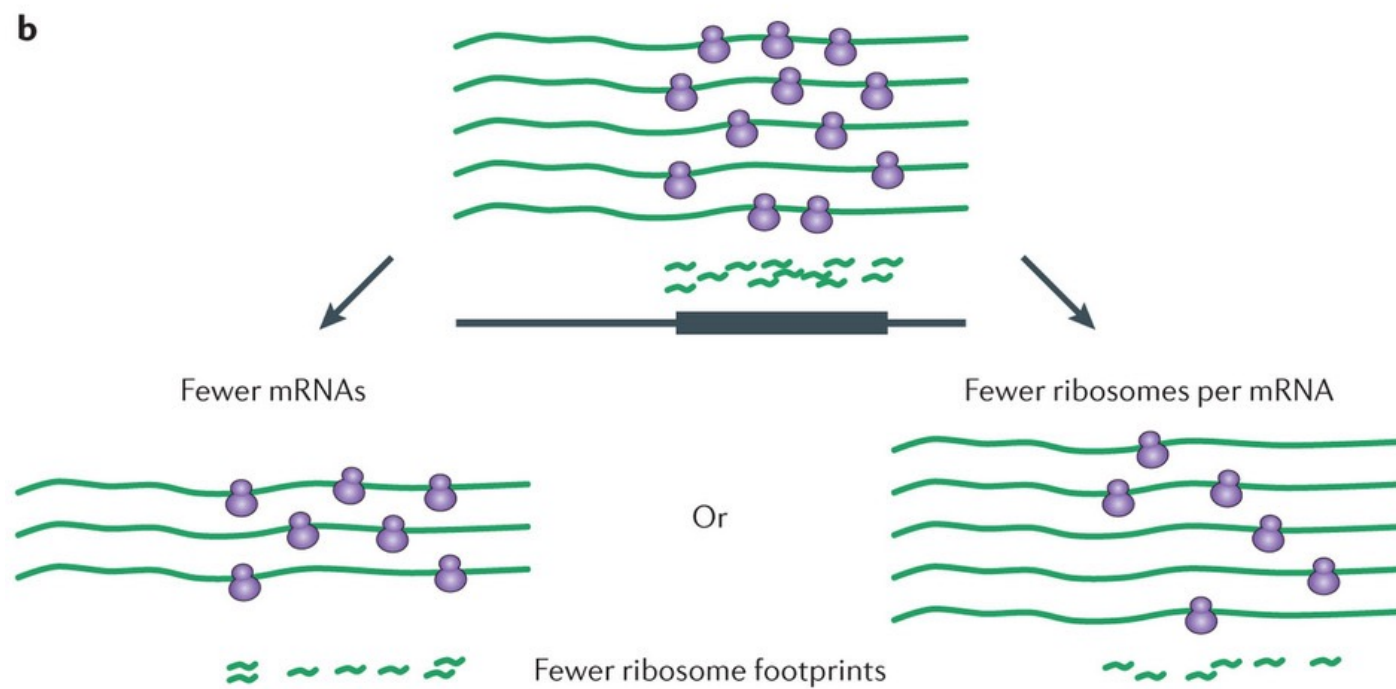
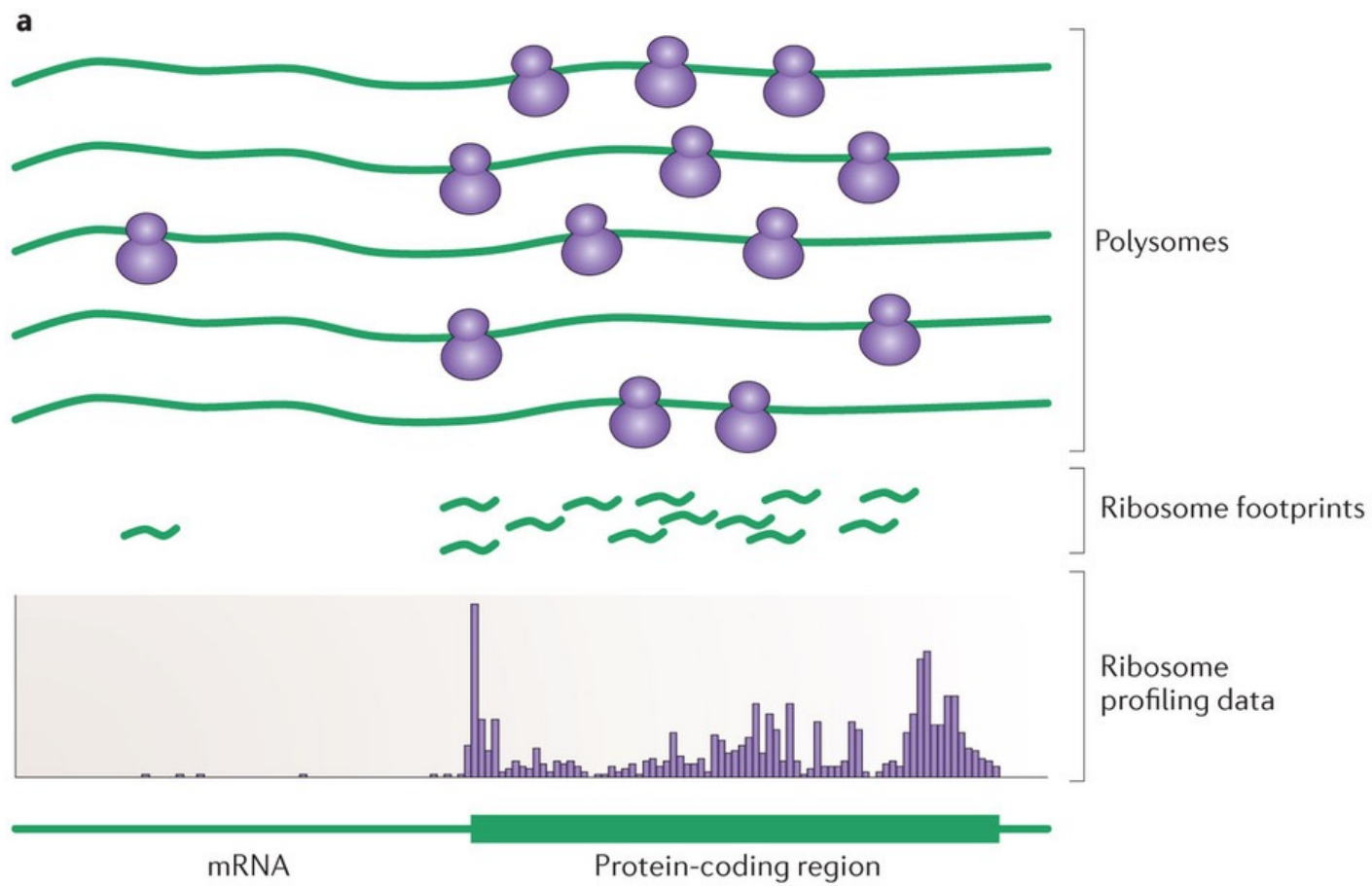
[https://en.wikipedia.org/wiki/CLIP#/media/File:Basic\\_Principle\\_of\\_CLIP.jpg](https://en.wikipedia.org/wiki/CLIP#/media/File:Basic_Principle_of_CLIP.jpg)

# CLIP-Seq



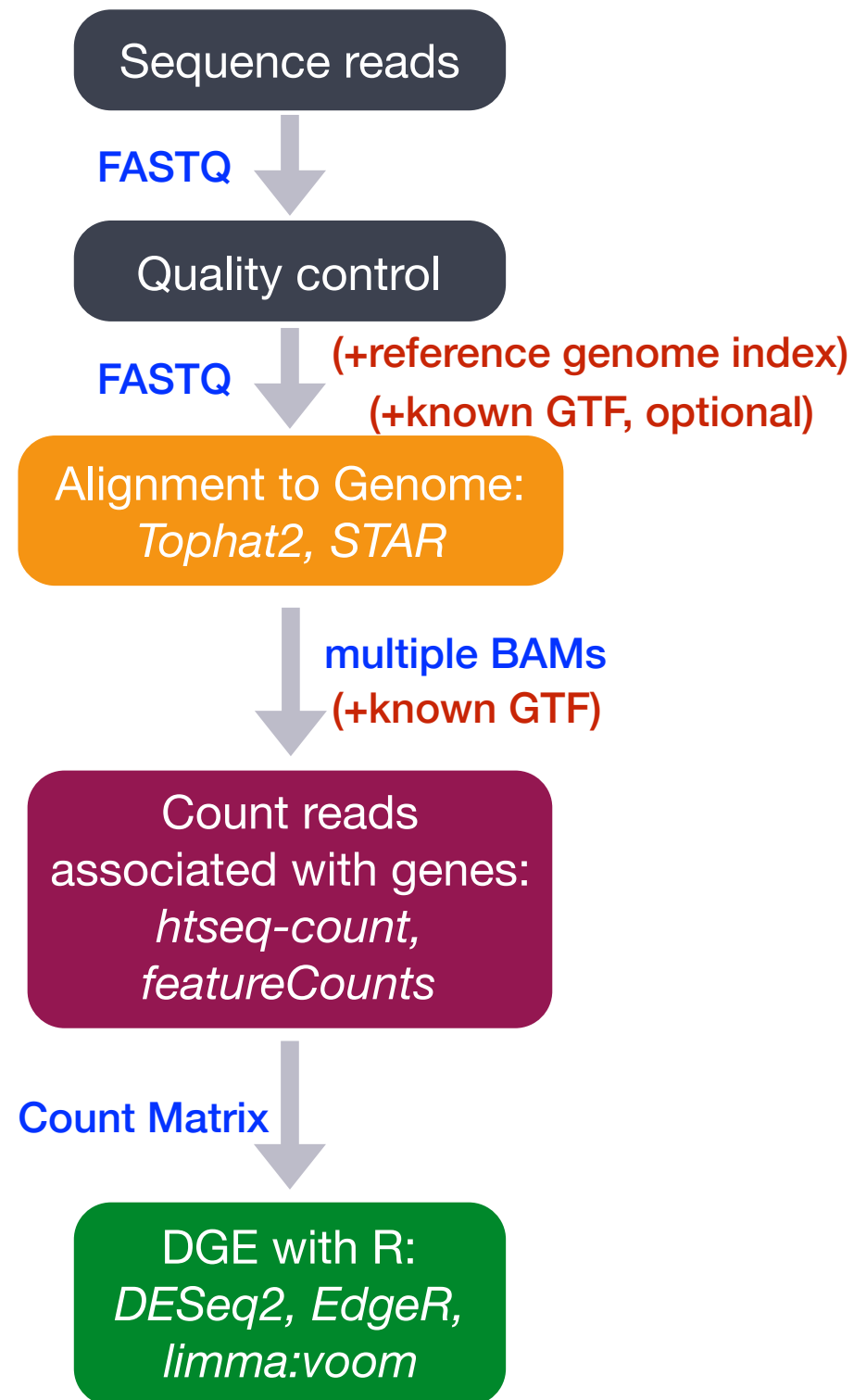


# Ribo-Seq



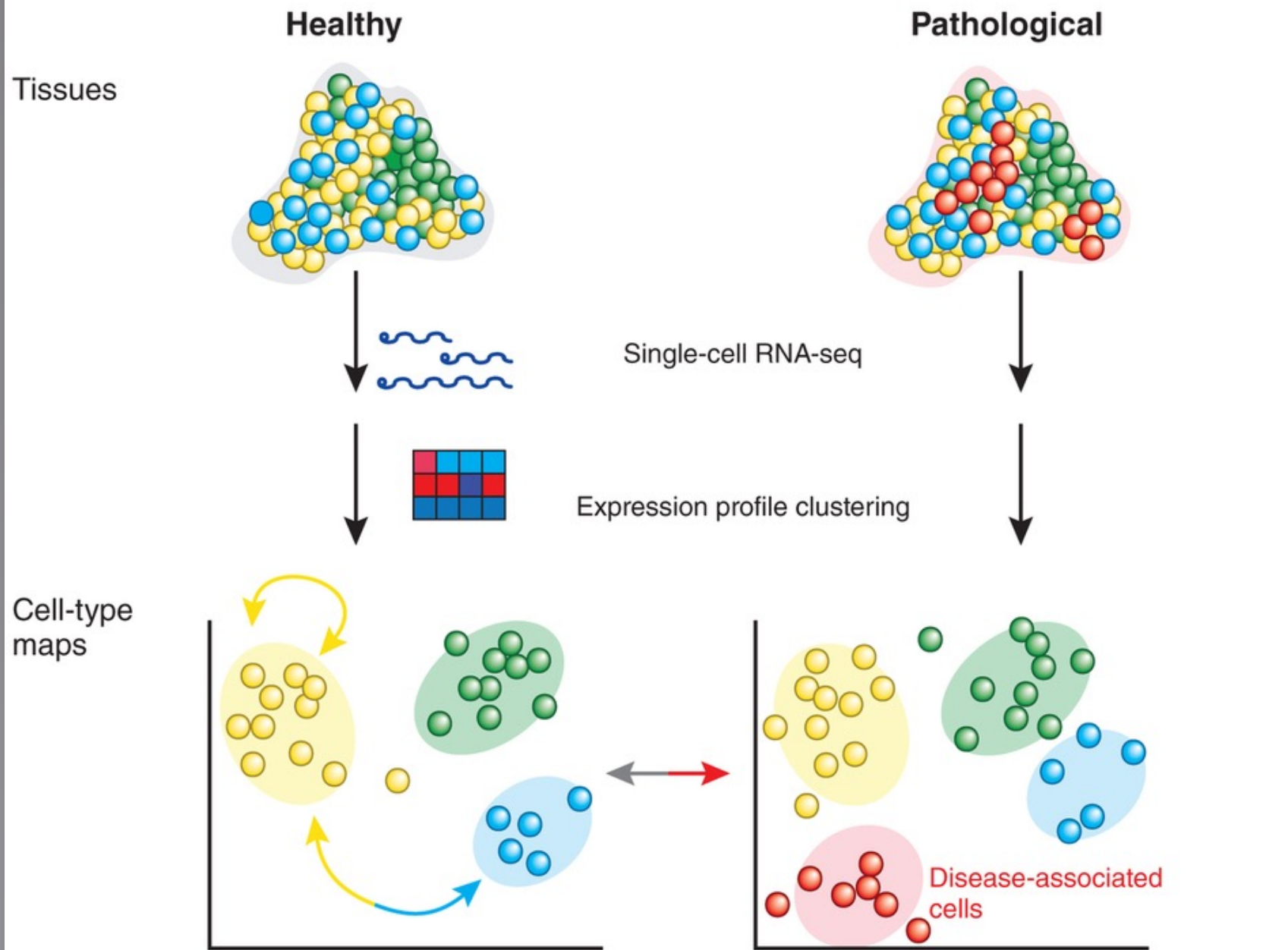
# Ribo-Seq

Nature Reviews | **Genetics**



# Ribo-Seq





### Types of analyses

#### Within cell type

- Stochasticity, variability of transcription
- Regulatory network inference
- Allelic expression patterns
- Scaling laws of transcription

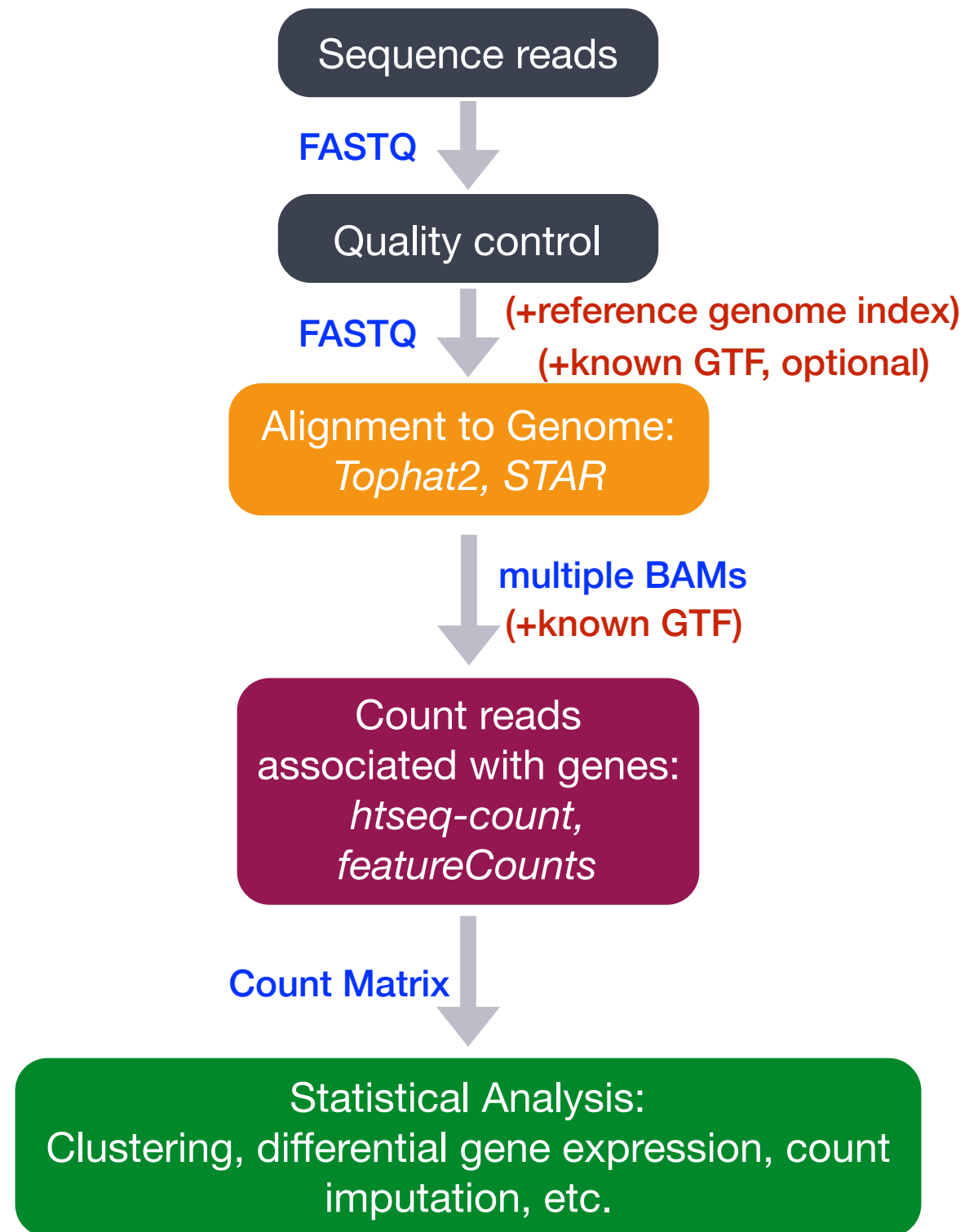
#### Between cell types

- Identify biomarkers
- (Post)-transcriptional differences

#### Between tissues

- Cell-type compositions
- Altered transcription in matched cell types

# scRNA-Seq



scRNA-Seq