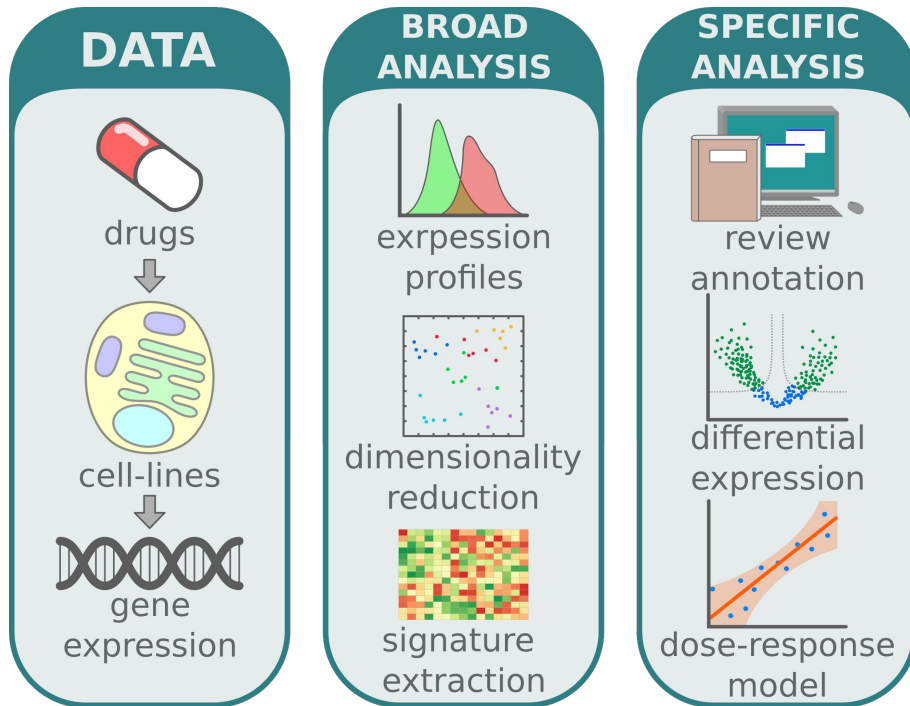# 02 - Cellular response to drug perturbations

Decipher the heterogeneous cellular response to drug perturbations in cancer.

DATA
- drugs
- cell-lines
- gene expression

BROAD ANALYSIS
- exrpession profiles
- dimensionality reduction
- signature extraction

SPECIFIC ANALYSIS
- review annotation
- differential expression
- dose-response model

https://github.com/datascience-mobi/02-cellular-response-to-drug-pertubations

Data set

Quantitative measurements of cellular response (Rx) of 60 well-characterized cancer cell lines upon single perturbations with 15 anti-cancer drugs.

Data types (data stored in *FigShare*):

- Drug perturbation data from cell lines:
  - Gene Expression profiles (treated and untreated) → transcriptome modulation.
  - Drug sensitivity assay (versus basal cell proliferation) → cell growth inhibition.
- Basal molecular profiles (mutations and basal gene expr) → Rx ~ subgroups.
- Feature annotation (drugs and cell lines) → stratification of cell lines, drug targets, etc.

Source:

Monks A *et al*. **Cancer Res**. 2018

NCI-60 (https://wiki.nci.nih.gov/display/NCIDTPdata/NCI-60+Growth+Inhibition+Data)