

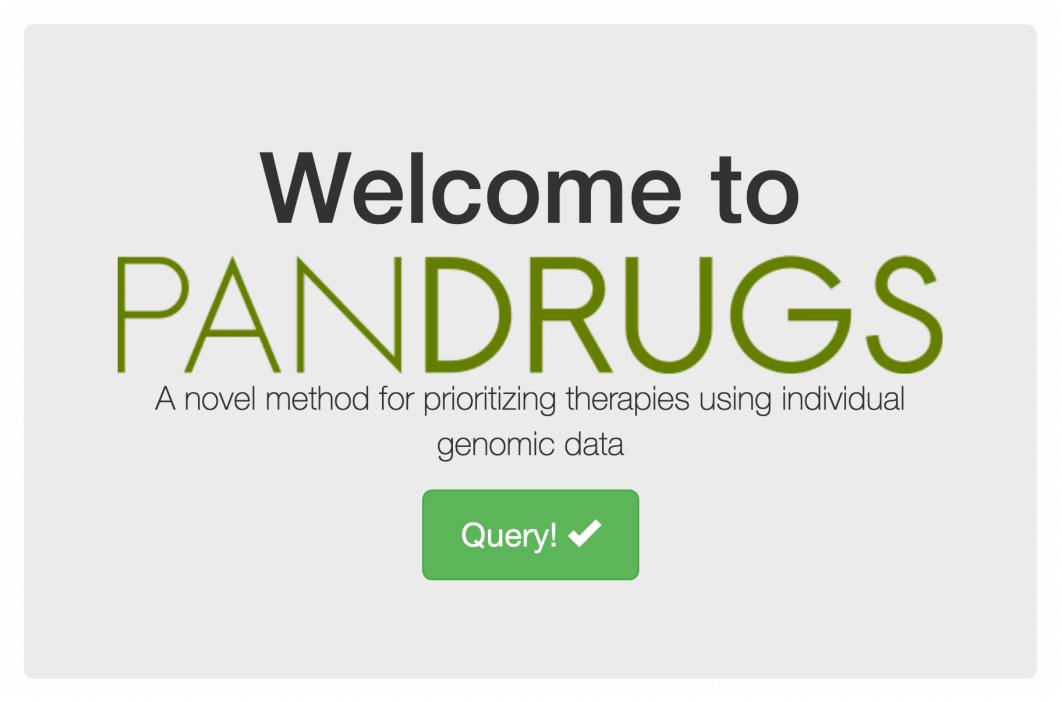
# PO21: Precision Oncology Course Exercise: Running PanDrugs





#### www.pandrugs.org



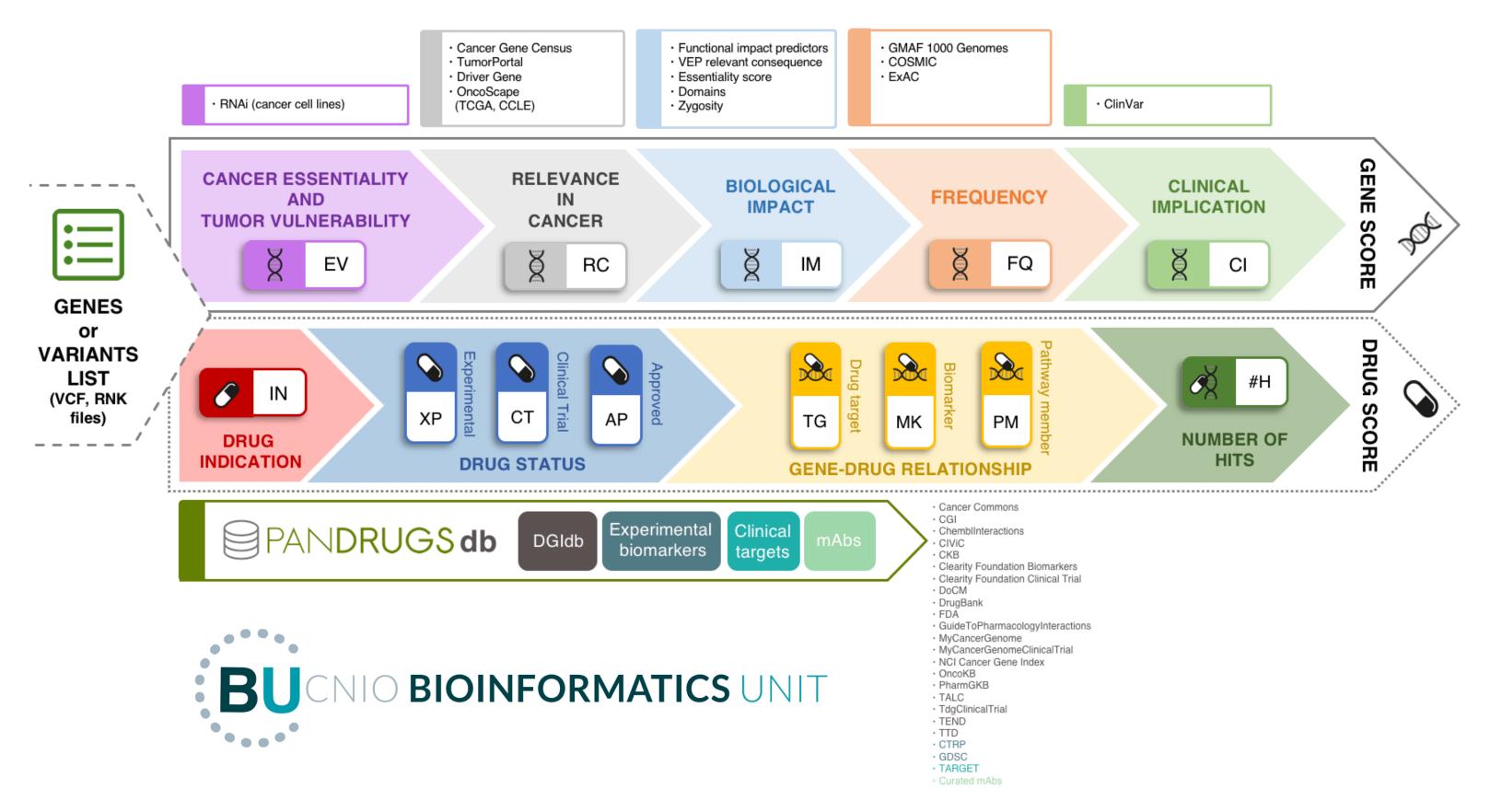




PanDrugs is a web tool for prioritizing cancer therapies based on individual genomics data.

#### www.pandrugs.org

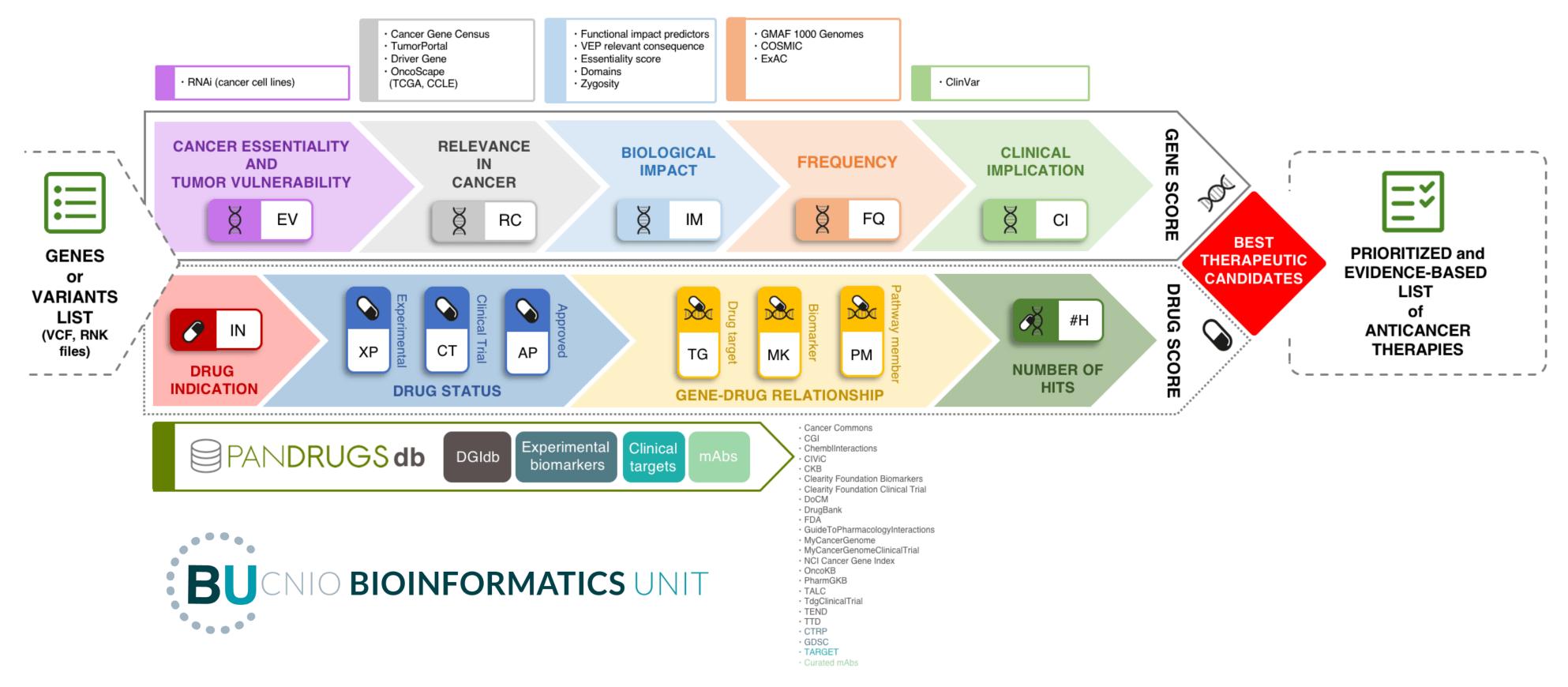




- GScore (0-1): Measures the relevance of genetic variants in cancer.
- DScore (0-1): Measures the drug efficacy against different targets.

#### www.pandrugs.org





Based on these two scores, PanDrugs outputs a ranking of the best therapeutic candidates for a particular patient.

#### Input 1: Gene list



- 1. Query PanDrugs using the Genes section
- 2. Load Example 3 (Genes Involved in PI3K-AKT-mTOR pathway)
- 3. Query the database with these genes

#### Input 1: Gene list

- Are all the genes in PanDrugs? How many drugs are in each approval status?
- Which is the most abundant mechanism of action?
- Which are the best therapeutic candidates?
- What are the evidences for these best therapeutic candidates?
- Is there any drug suggested by a gene that is discarded by another?

#### Input 2: Gene ranking



- 1. Query PanDrugs using the Gene Ranking section
- 2. Load Example file (Expression data for the top 500 upregulated genes in a lung adenocarcinoma patient with *EGFR* alteration from TCGA)
- 3. Query the database with these genes

#### Input 2: Gene ranking



- How many genes are in PanDrugs?
- Which are the best candidates according to PanDrugs?
- What are the evidences for the drugs that rank higher in the assignments?
- Is there any drug approved for the same cancer type?

#### Input 3: VCF

- 1. Query PanDrugs using the Genomic Variant section
- 2. Load Example file (VCF of melanoma patient with mutant BRAF from TCGA)
- 3. Query the database with this file

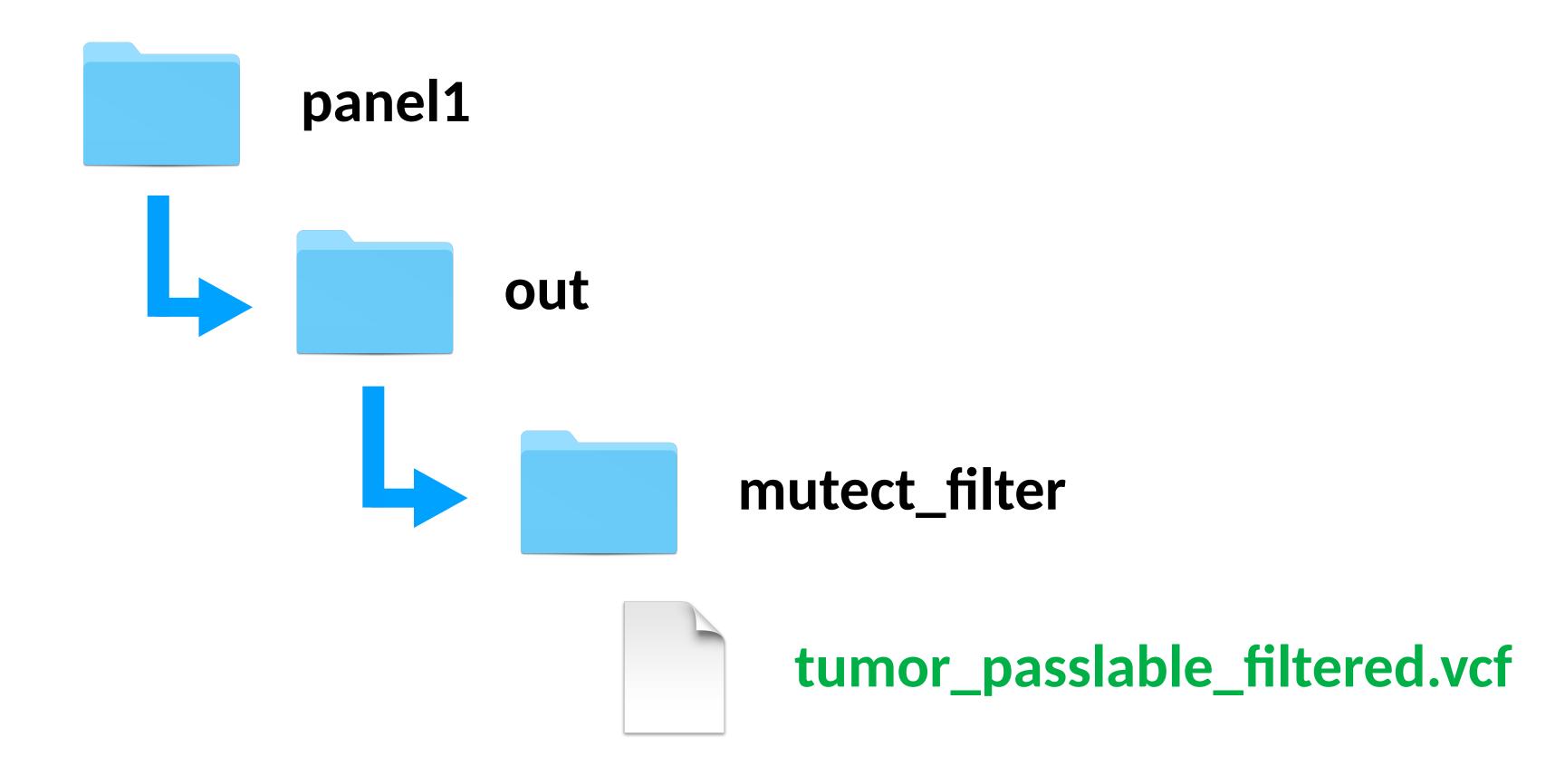
#### Input 3: VCF

- Which are the suggested therapies? Do they match the specific alterations?
- What are the evidences for the gene with the highest GScore?
- Is there any drug suggested by a gene that is discarded by another?
- Is there any drug approved for the same cancer type? Is there any drug in cancer clinical trials for this cancer type?
- Could a drug repositioning approach be used?

#### Input 4: VCF

- 1. Query PanDrugs using the Genomic Variant section
- 2. Load the VCF without annotations from the exercise of the CHP patient
- 3. Query the database with this file

#### Input 4: VCF



#### Input 4: VCF

- Which are the suggested therapies?
- Is there any drug suggested by a gene that is discarded by another?
- Is there any drug approved for the same cancer type? Is there any drug in cancer clinical trials for this cancer type?
- Could a drug repositioning approach be used?