



### What do we want to achieve?

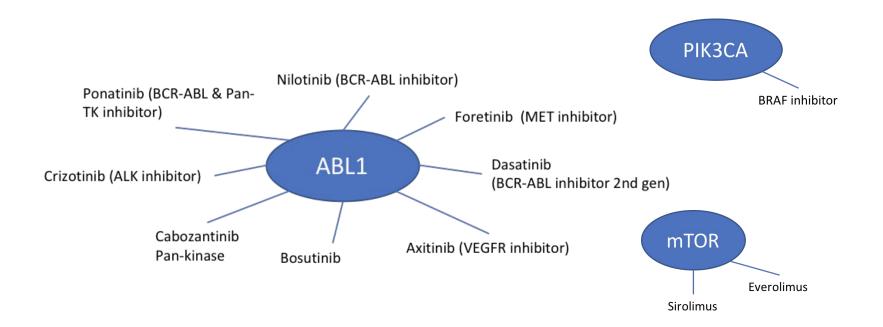
precision phenotyping . tcga . gene ontology . drug biomarker

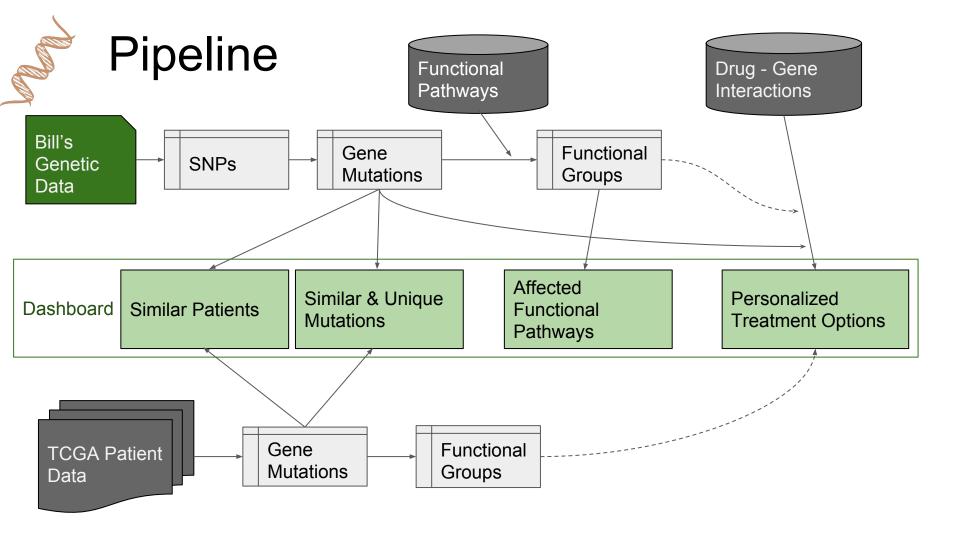


understand



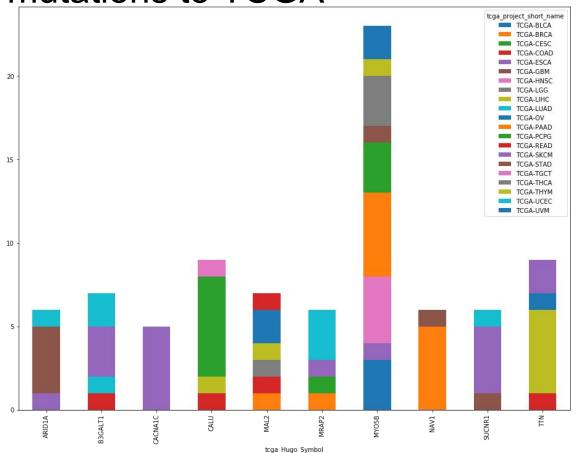
## Biomarkers to Precision Drugs





From Bill's cancer mutations to TCGA

SNPs that are present in Bill's cancer and are also present in specific cancer subtypes

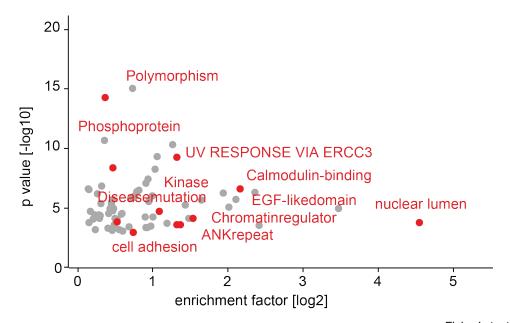


# What Pathways are significantly under / over represented in Bill's tumor?

missense mutations → genes

genes → pathways

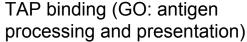
Bill's → tcga

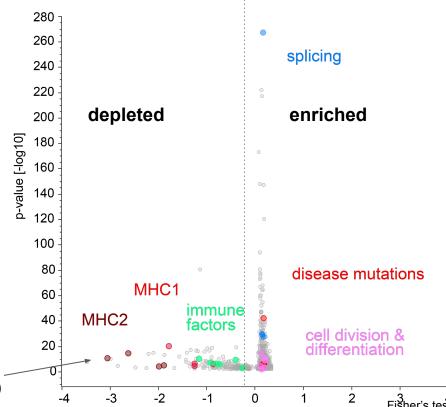


What Pathways are significantly under / over represented in Bill's tumor?

missense mutations → genes

 $\text{genes} \rightarrow \text{pathways}$ 

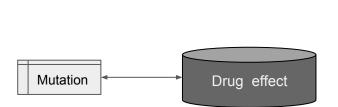


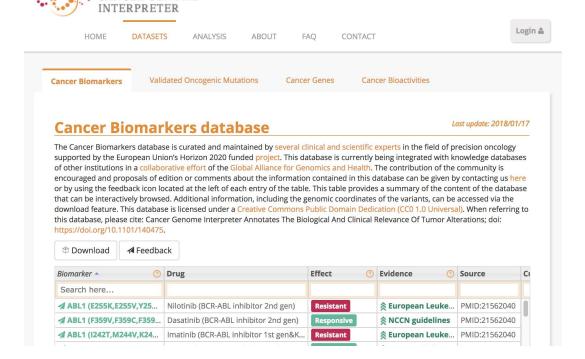


enrichment [log2]

## Biomarkers to Precision Drugs

specific mutations → response to drug therapy / drug resistance to drug therapy





## Biomarkers to Precision Drugs

