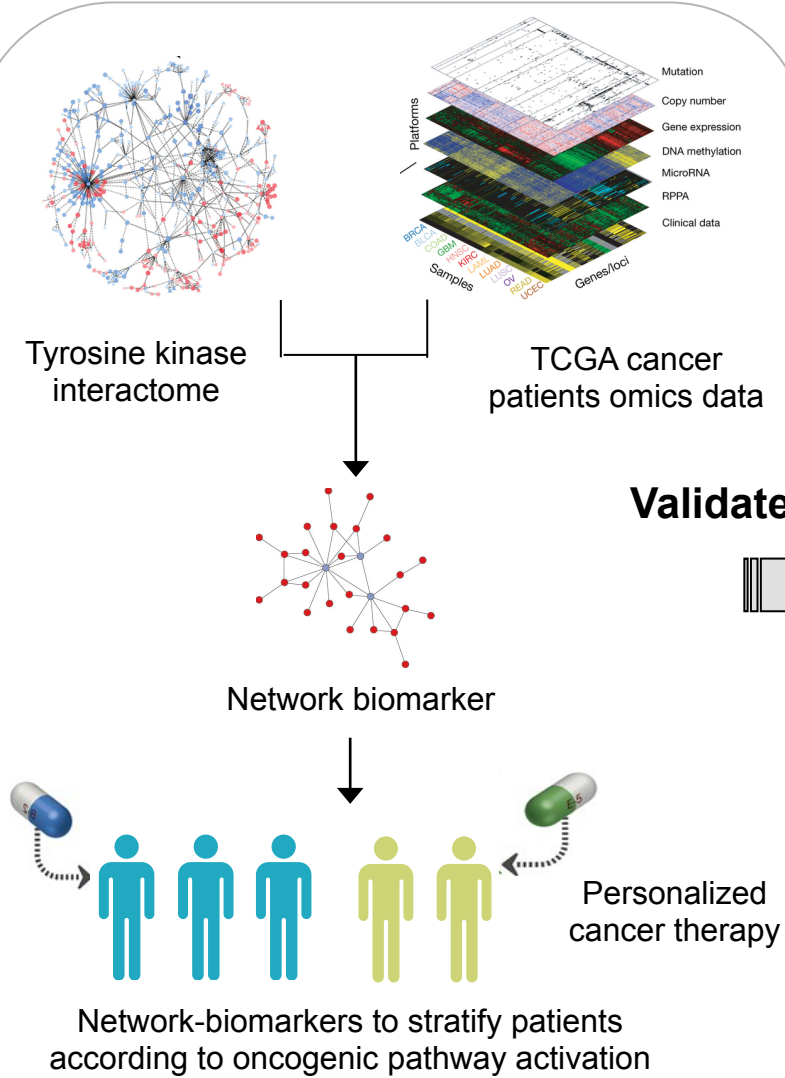
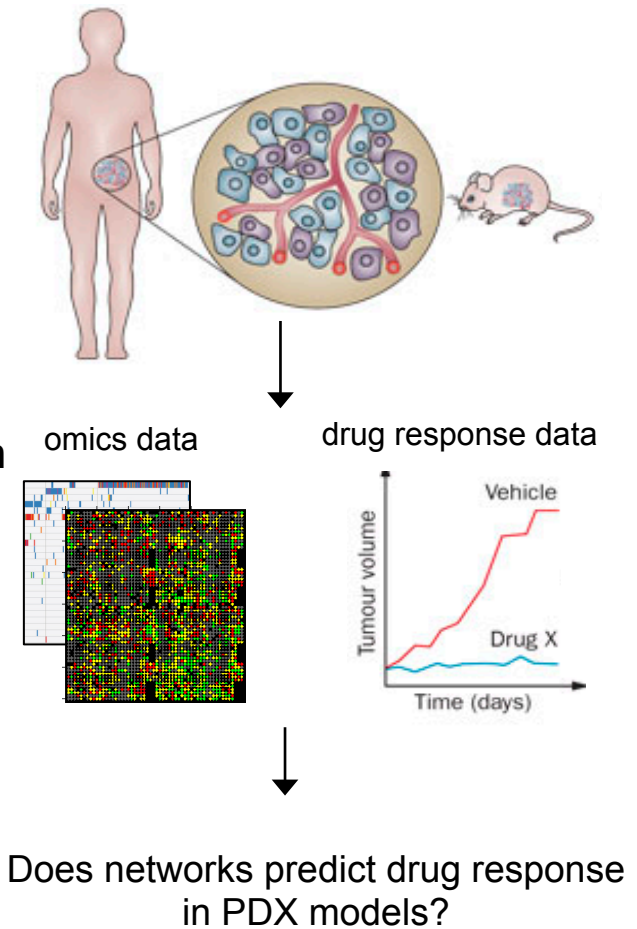


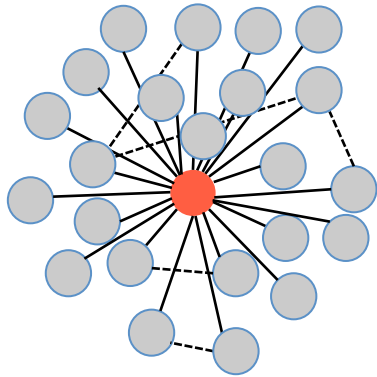
## Patient derived network biomarkers



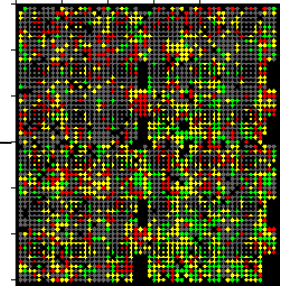
## Patient derived tumor xenografts



## Interaction map of a kinase



TCGA: gene expression



tumor type

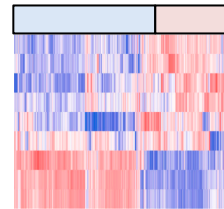
Mutation status  
of a kinase

Wild-type	mutant
Expression of interactors	

t-test, p-value <0.01, FDR 5%

Mutation status  
of a kinase

expression



Differentially expressed interactors

Calculate network activity

$$\text{Network activity} = \sum_{i=1}^n E_i(\text{positive}) - \sum_{i=1}^m E_i(\text{negative})$$

$E_i$  = expression of interactor  
 $n$  = # of positively  
 correlated interactors  
 $m$  = # of negatively  
 correlated interactors

