

# Bay Area Team Against Resistance



University of California  
San Francisco



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**PI: Trever Bivona MD PhD**

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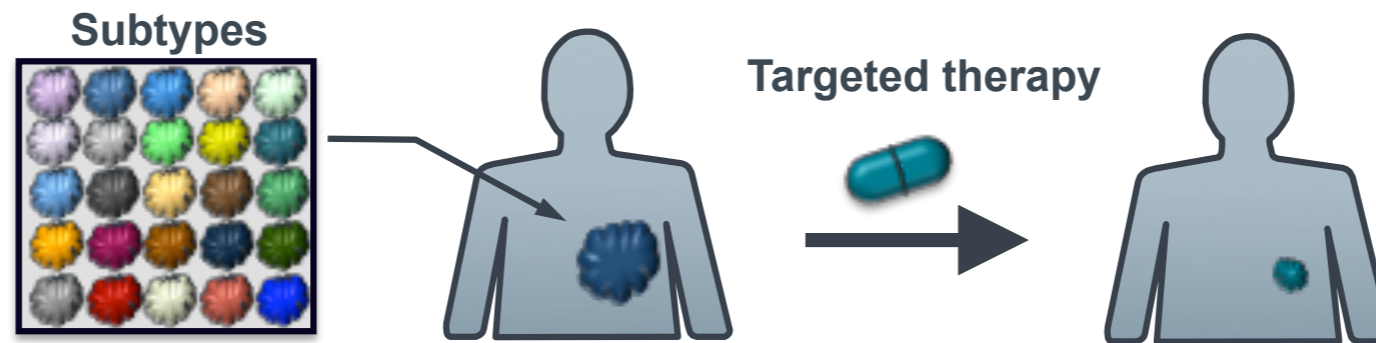
**Ron Levy MD**

**Heather Wakelee MD**

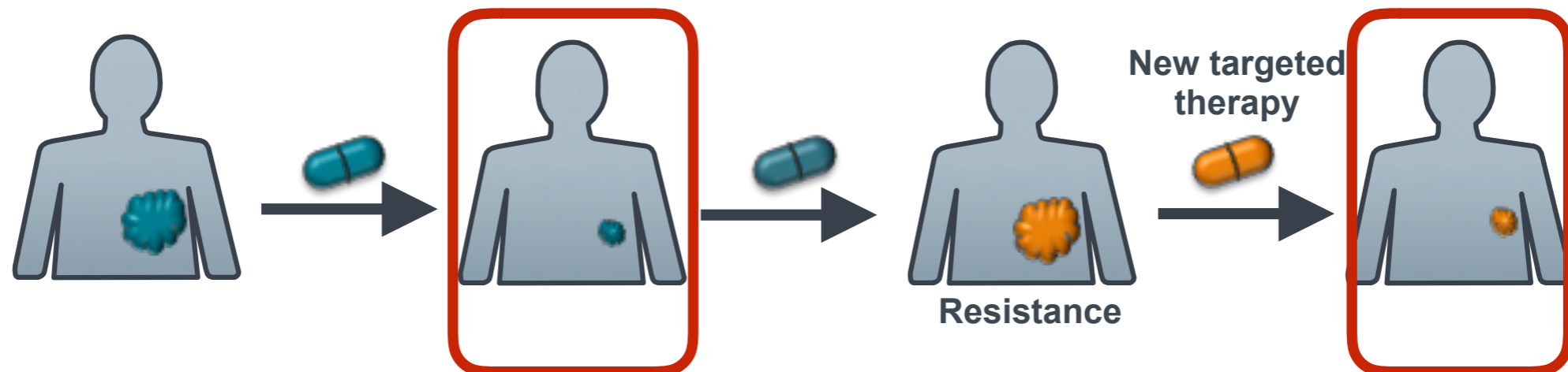
**Suki Padda, MD**

# Unleashing the full potential of molecular medicine

- Targeted therapy is effective:



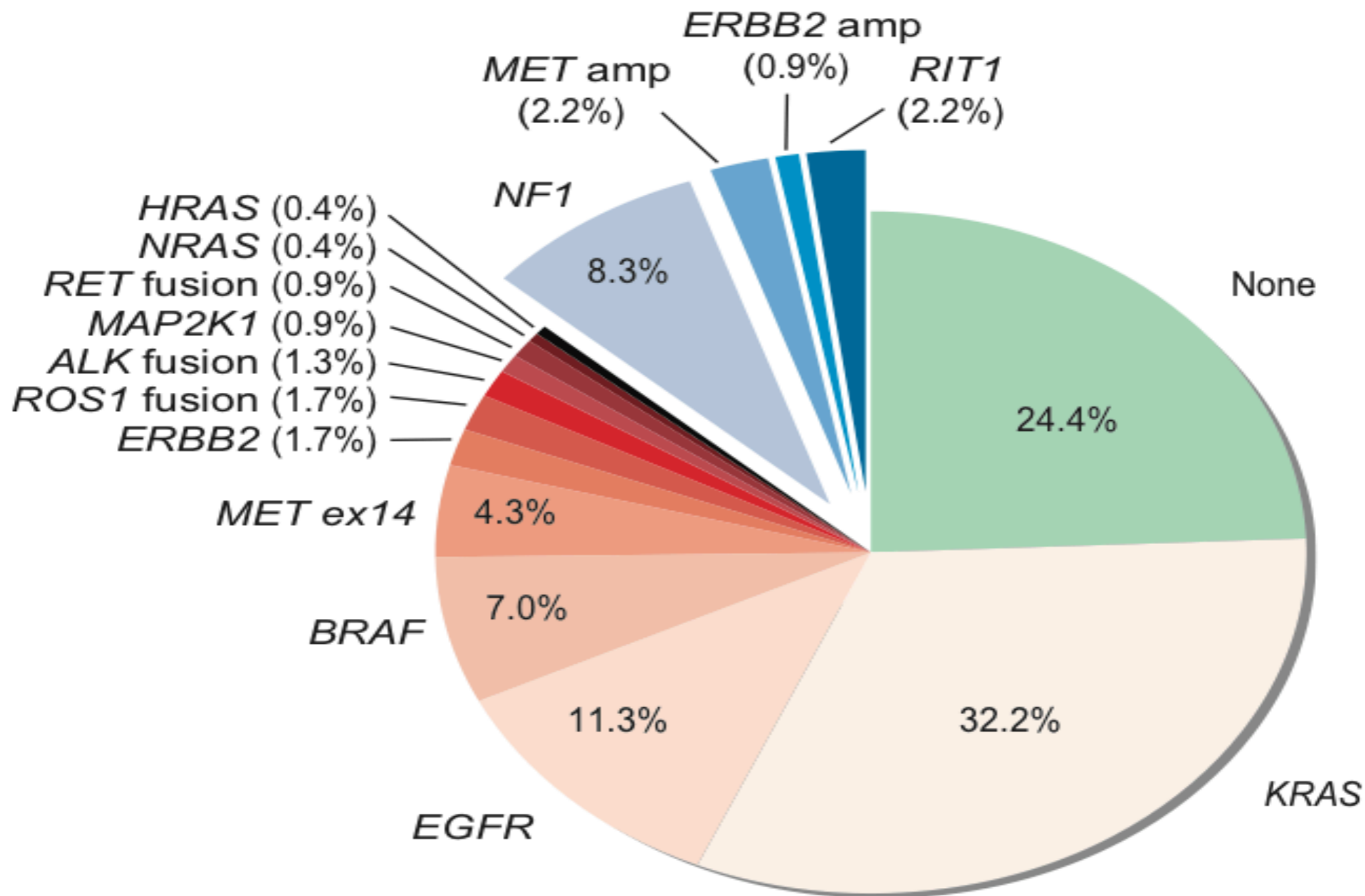
- Almost all tumors develop resistance:



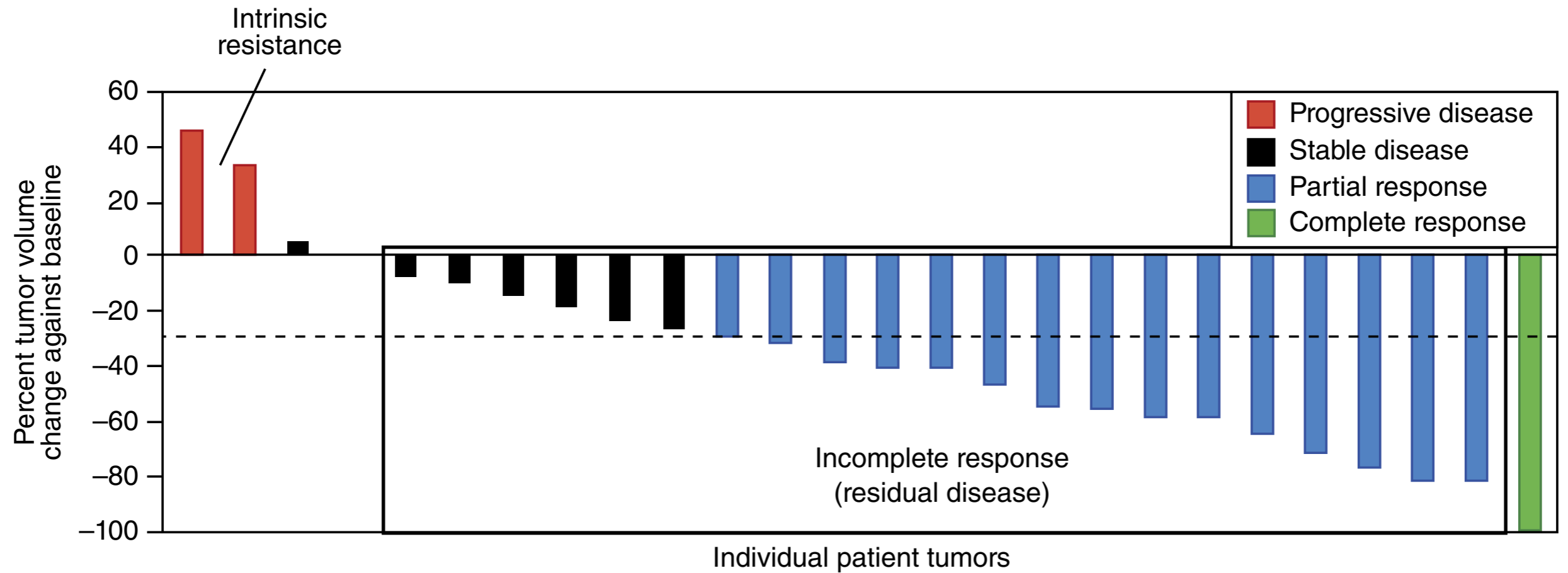
# High burden and mortality of lung cancer

- **1 in 15** Americans will be diagnosed with lung cancer
- 65% of lung cancer diagnoses are in **non-smokers**
- Lung cancer kills more people than the next 3 deadliest cancers combined
  - Lung cancer kills 3X as many men as prostate cancer
  - Lung cancer 2X as many women as breast cancer
- Only \$1,680 is spent on federal research per life lost from lung cancer; \$25,118 is spent in breast cancer; \$12,644 in prostate cancer

# Paradigm-defining molecular landscape of lung adenocarcinoma

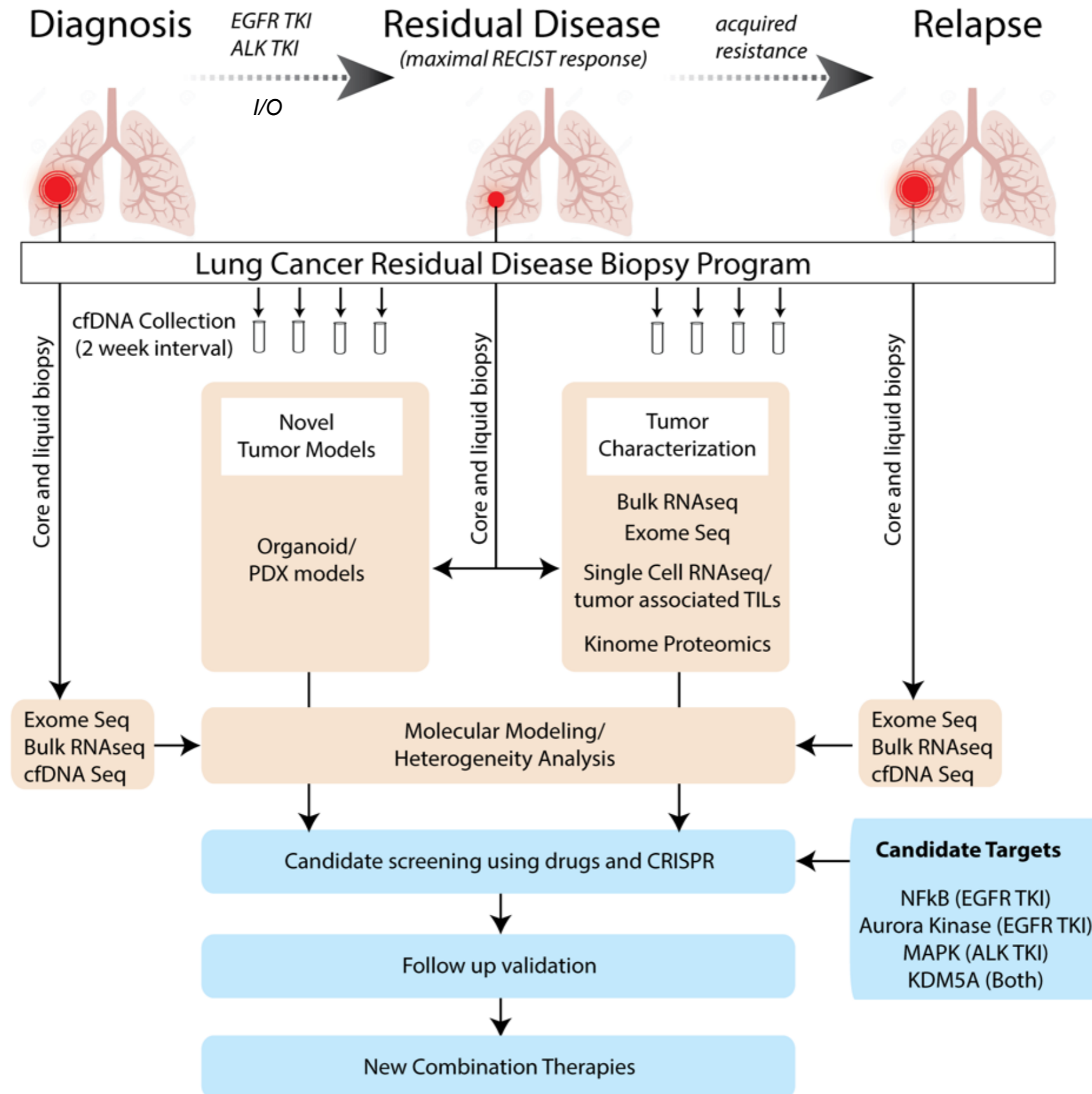


# Precision oncology: promise & challenge



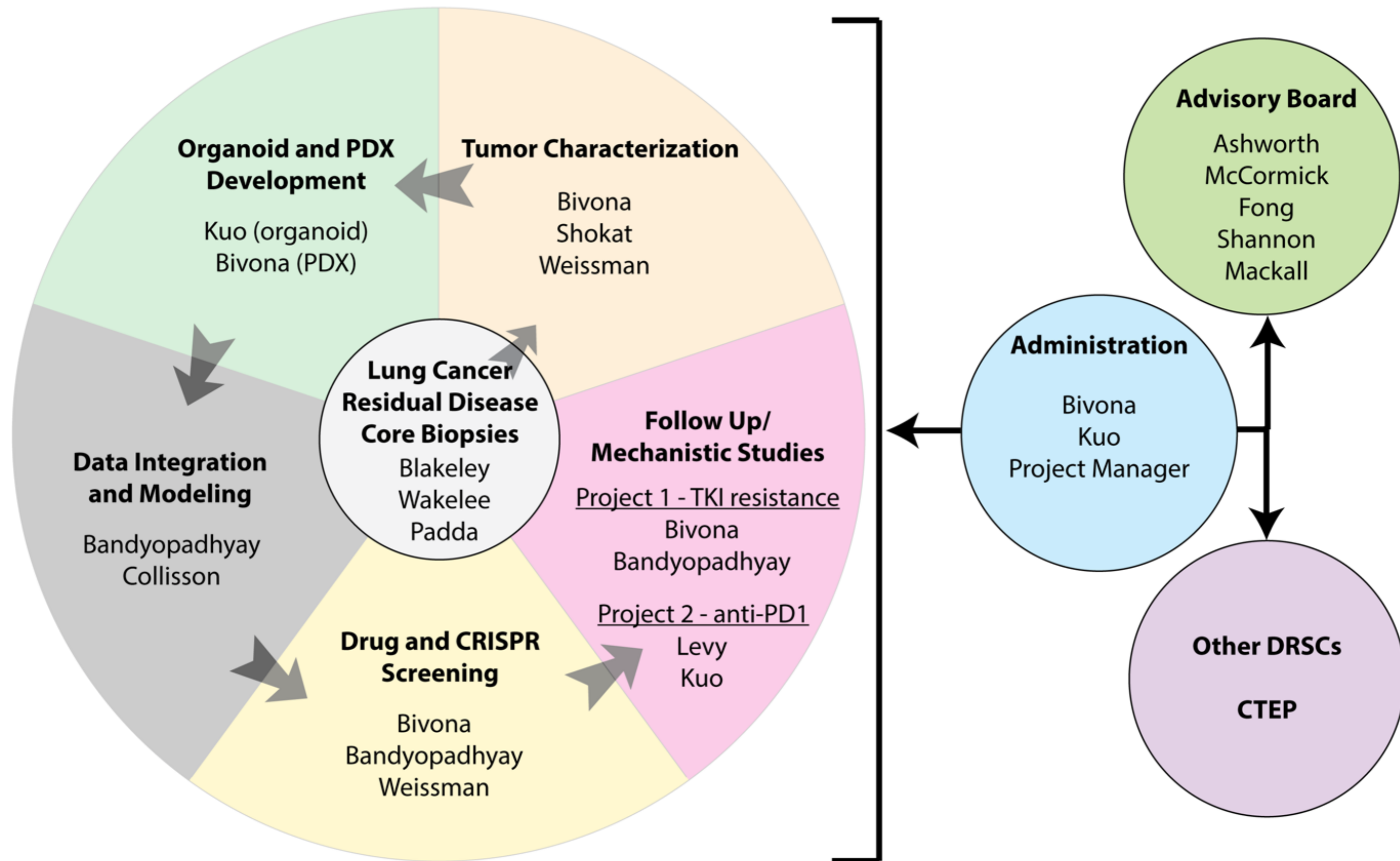
Bivona and Doebele 2016

# Systematic study of human specimens



# Bay Area Team Against Resistance

Bay Area Team Against Resistance - U54 Project (BATAR-UP)





# Bay Area Team Against Resistance

Systematic Collection of Lung Cancer On-Treatment Core Biopsies



## Project 1

Tyrosine Kinase Inhibitor  
Resistance

EGFR TKI  
ALK TKI

Leads: Bivona,  
Bandyopadhyay



Molecular profiling  
Single cell analysis  
Organoid development  
PDX models  
Computational modeling  
Small molecule/CRISPR screens



## Project 2

Immunotherapy  
Resistance

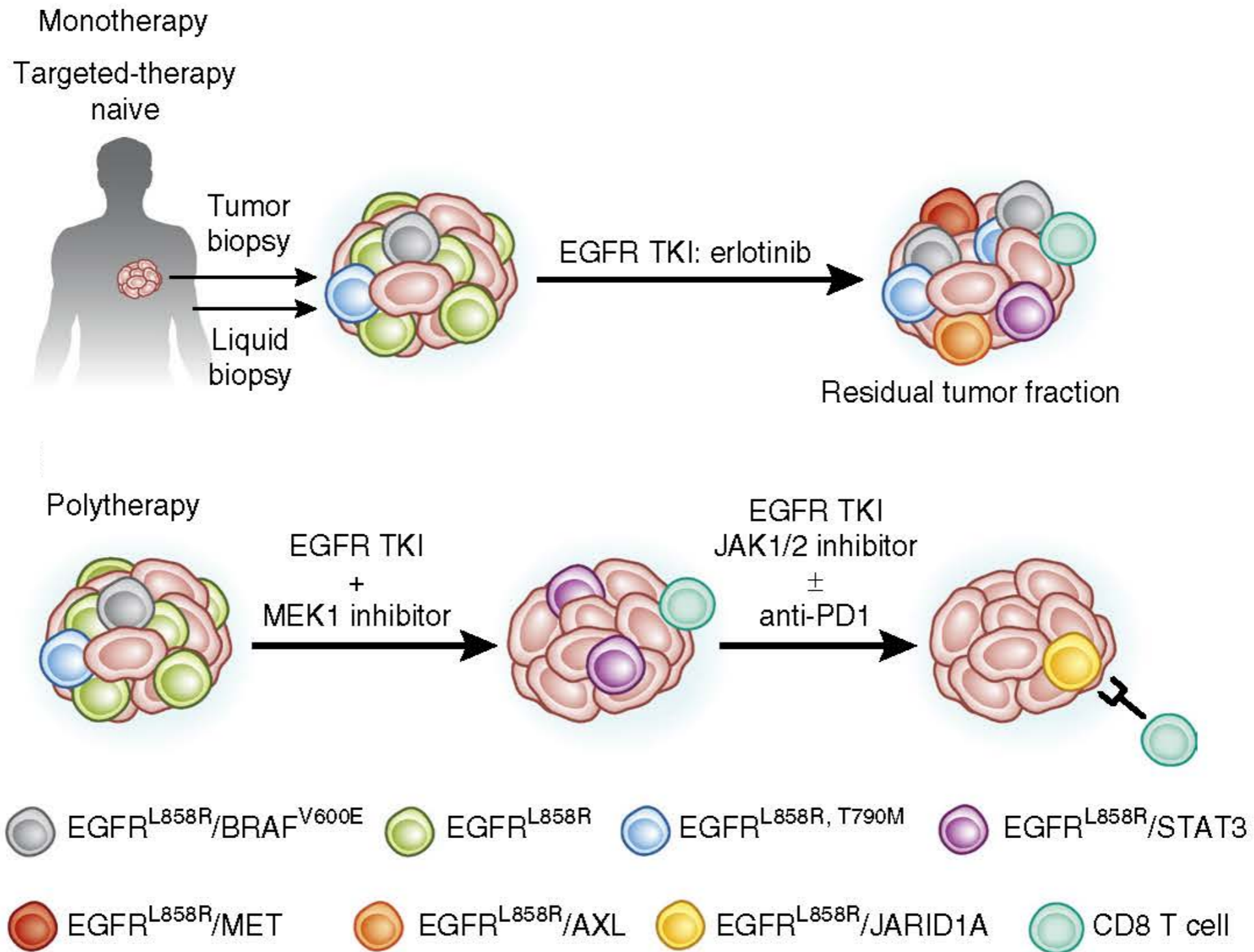
anti PD-1  
(pembrolizumab,  
nivolumab)

Leads: Kuo,  
Levy





# Characterizing and targeting the tumor ecosystem



# Thank you!



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