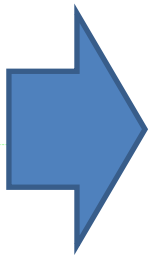
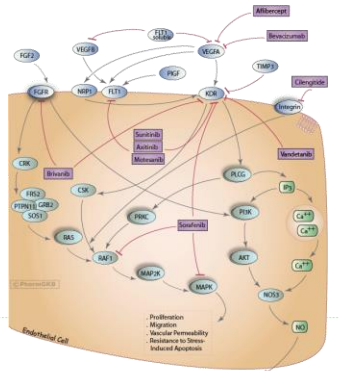


Cancer Pharmacogenetics

G. Liu, PMCC/OCI
Background

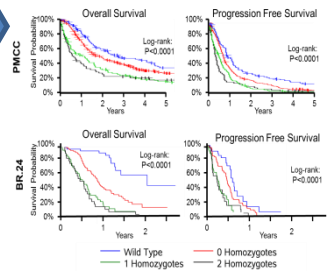
- Genetics of the Pharmacokinetics and Pharmacodynamics of Drugs
- Clinically affects efficacy or toxicity

Discovery, Modeling

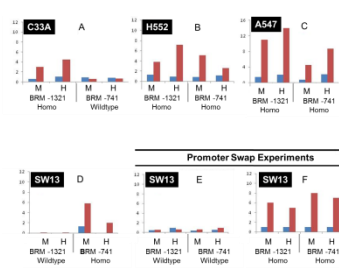


Validation

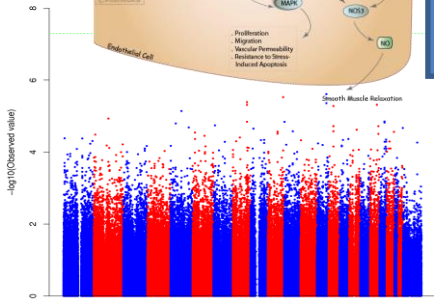
- Association
- Prediction



Deep Sequencing
In silico modeling
Functional Testing



Knowledge
Synthesis
And
Translation



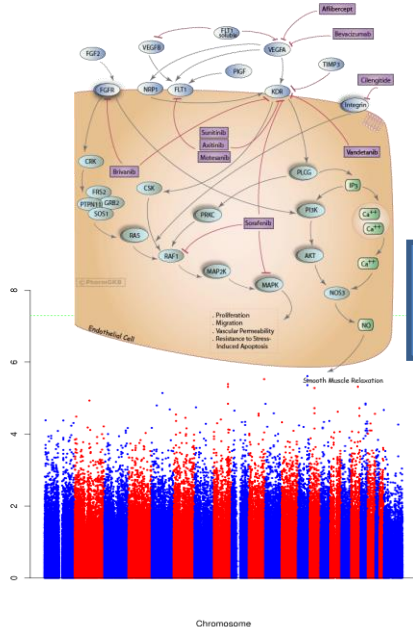
Cancer Pharmacogenetics

G. Liu, PMCC/OCI

Background

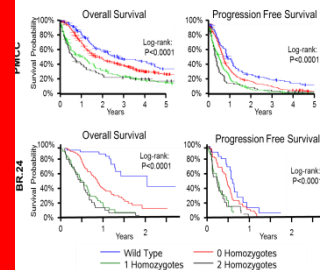
- Genetics of the Pharmacokinetics and Pharmacodynamics of Drugs
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Discovery, Modeling

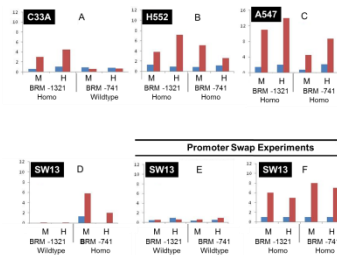


Validation

- Association
- Prediction



Deep Sequencing
In silico modeling
Functional Testing



Knowledge
Synthesis
And
Translation

Examples

Drug used in Lung Cancer	Lung Cancer Trials/Studies	Other Cancer Trials/Studies
EGFR targeted	BR.21, BR.19, TORCH, RTOG0617	MA.31, CO.17, HN.6, PA.3, CO.20
VEGF targeted	BR.24	ICON7, CO.20
Platinum	BR.24, BR.10, PMH-Lung, RTOG0617	PMH-ESO, ICON7, HN.6, TOPGEAR, PMH-testes
Gemcitabine	PMH-lung, TORCH	PA.3, RTOG9704 OPCS
Taxanes	PMH-lung, BR.24	ICON7

Observational Datasets/Trials

Drug used in Lung Cancer	Lung Cancer Trials/Studies	Other Cancer Trials/Studies
EGFR targeted	BR.21, BR.19, TORCH, RTOG0617	MA.31, CO.17, HN.6, PA.3, CO.20
VEGF targeted	BR.24	ICON7, CO.20
Platinum	BR.24, BR.10, PMH-Lung, RTOG0617	PMH-ESO, ICON7, HN.6, TOPGEAR, PMH-testes
Gemcitabine	PMH-lung, TORCH	PA.3, RTOG9704, OPCS
Taxanes	PMH-lung, BR.24	ICON7

- To identify patients for recruitment/genetic testing,
- as cases or controls, or for cohort analysis

Potential for Collaboration Using “Big Data”

- Validation of trial-derived pharmacogenetic markers
 - Multiple validation datasets
- Effectiveness analysis in real world
 - Expanded patient populations
 - Oral compliance
- Economics of pharmacogenetic testing
- Linkages:
 - CCO data, >65 yrs old, pharmacy data
 - PROMs data (CCO – ON-PROST)
 - Long term follow-up of trial patients
 - Ontario Health Study