



American Association
for Cancer Research

FINDING CURES TOGETHER®

PROJECT**GENIE**

Genomics **E**vidence **N**eoplasia **I**nformation **E**xchange

GENIE BPC NSCLC 2.0-PUBLIC

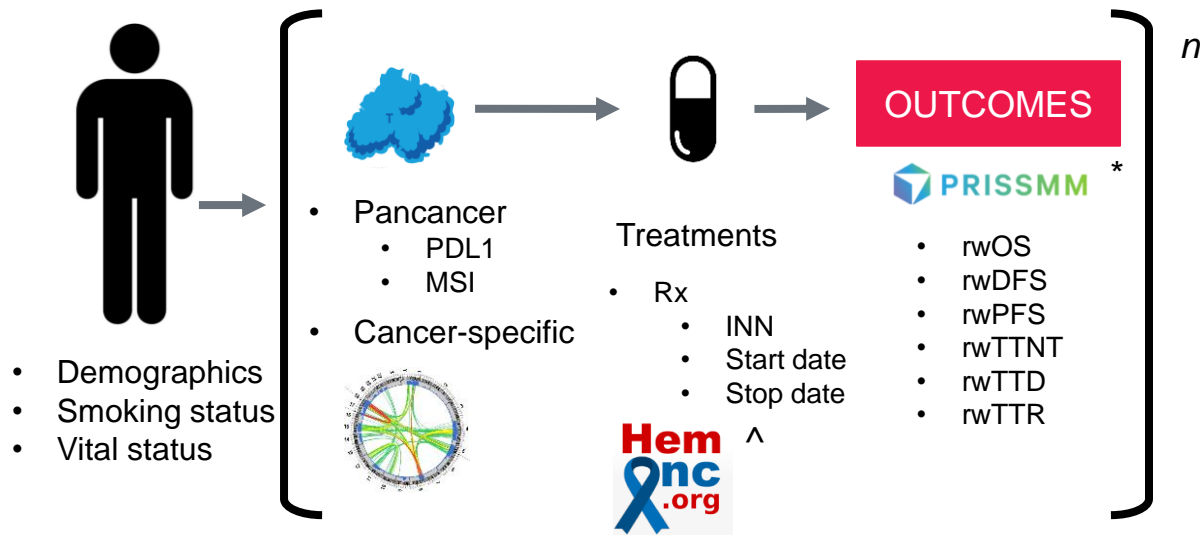
OVERVIEW

2022

Release Notes

- **PRISMM™**: the BPC NSCLC dataset uses the PRISMM™ framework developed at the Dana-Farber Cancer Institute to determine outcomes from retrospective real-world data to ascertain cancer treatment responses in the real world. Additional information can be found in the [analytic data guide](#) and information about licensing PRISMM™ can be obtained by emailing PRISMM@mskcc.org
- **Pathologic information**: Each pathology specimen from diagnosis through death or last follow-up is curated with specimen type, site, and histology.
- **Imaging information**: Each CT, MRI, PET-CT scan from diagnosis through death or last follow-up is curated for the presence or absence of cancer and an evaluation of whether the cancer was stable, responding, or progressing.
- **Medical oncologist's evaluations**: Medical oncology notes (1/month) have been curated to ascertain the presence or absence of cancer and whether the cancer was stable, responding, or progressing.
- **Additional relevant biomarkers**: Information about select biomarkers not included on the NGS panels, including PDL1, PD1 and MSI, are also curated.
- NSCLC cancer diagnosis is considered the index tumor for this patient cohort. There are data about other cancer diagnoses antecedent to the NSCLC and subsequent to the NSCLC diagnosis.

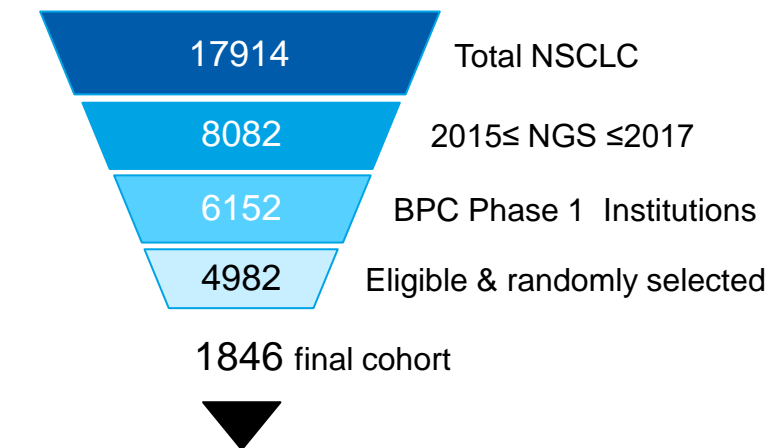
GENIE BPC Data Model



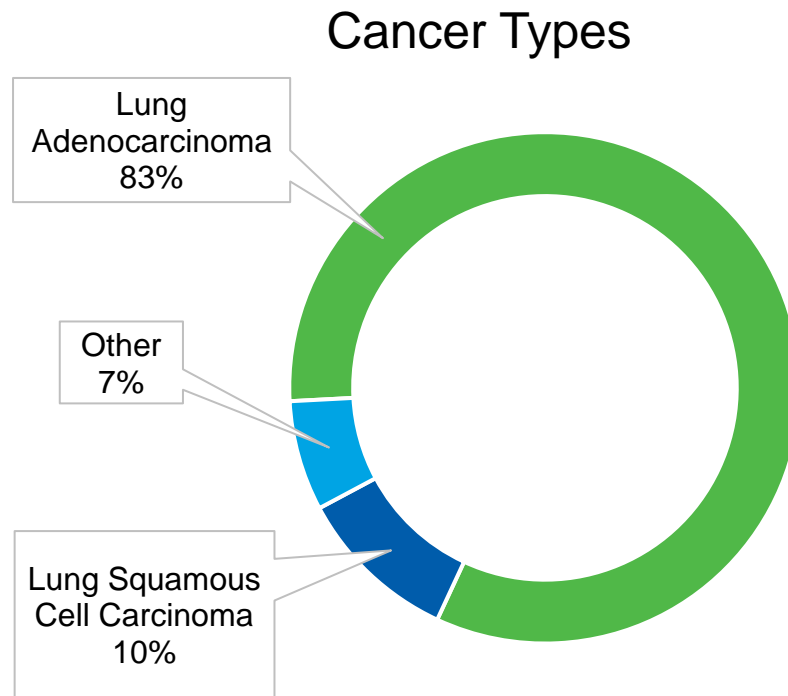
*PRISMM is licensed from the DFCI

^HemOnc is available through a creative commons license

BPC NSCLC 2.0-public Cohort

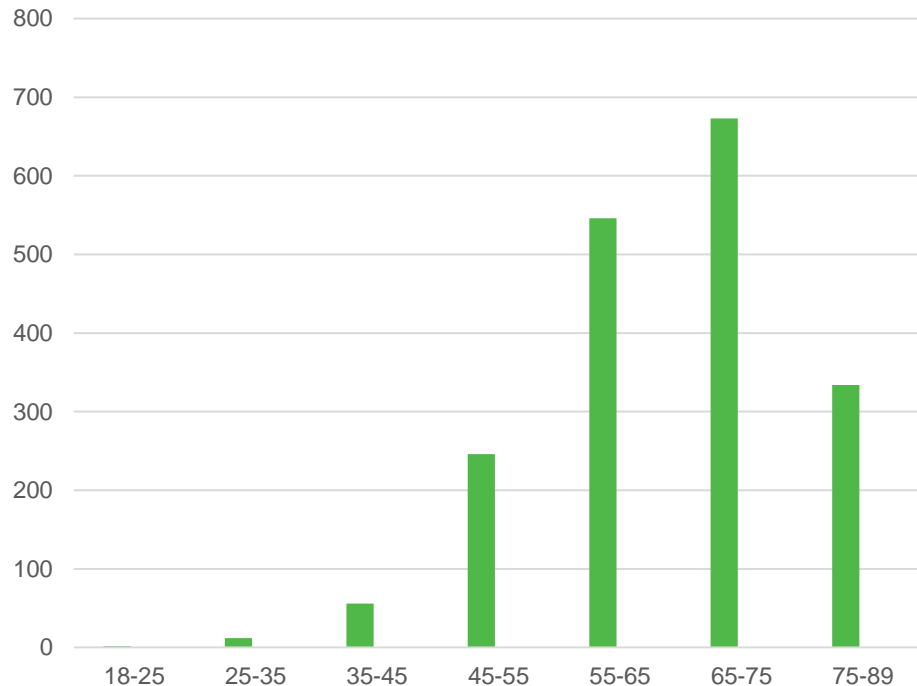


- Lung Adenocarcinoma: 1667 (83.2%)
- Lung Squamous Cell Carcinoma: 207 (10.3%)
- Non-Small Cell Lung Cancer: 51 (2.5%)
- Poorly Differentiated Non-Small Cell Lung Cancer: 46 (2.3%)
- Lung Adenosquamous Carcinoma: 14 (0.7%)
- Pleomorphic Carcinoma of the Lung: 14 (0.7%)
- Large Cell Lung Carcinoma: 2 (<0.1%)
- Large Cell Neuroendocrine Carcinoma: 1 (<0.1%)
- Lymphoepithelioma-like Carcinoma of the Lung: 1 (<0.1%)
- Sarcomatoid Carcinoma of the Lung: 1 (<0.1%)

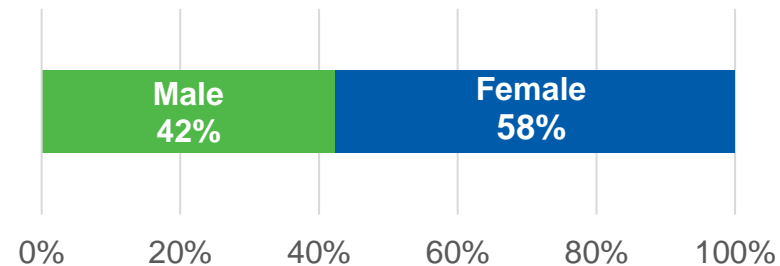


BPC NSCLC 2.0-public Demographics

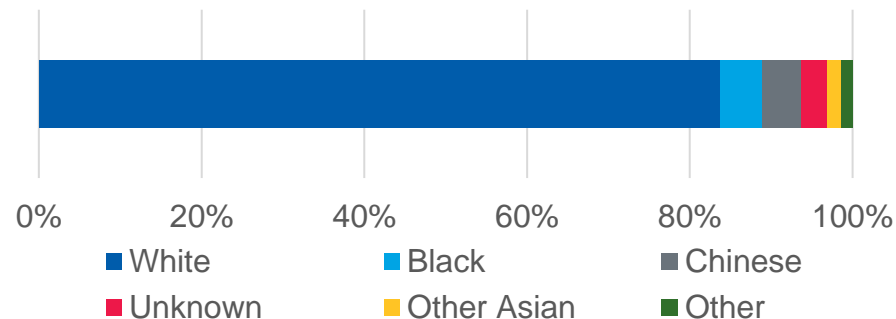
Age at Diagnosis



Sex

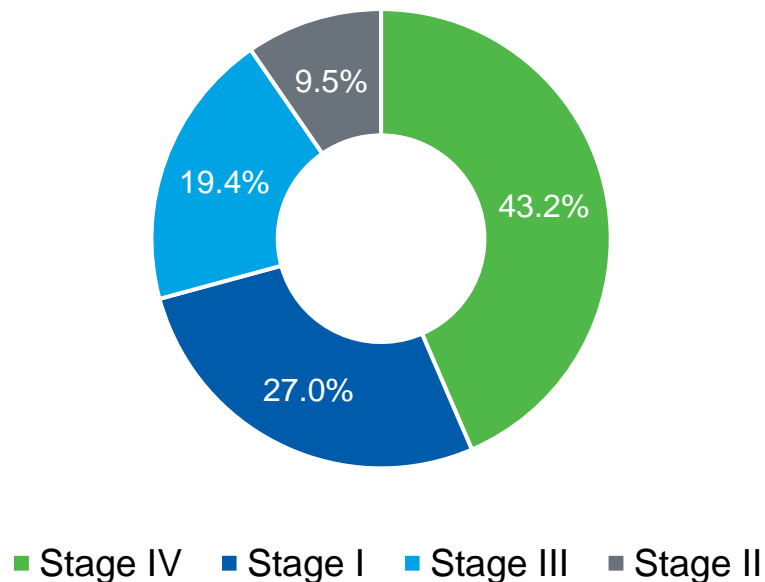


Primary Race

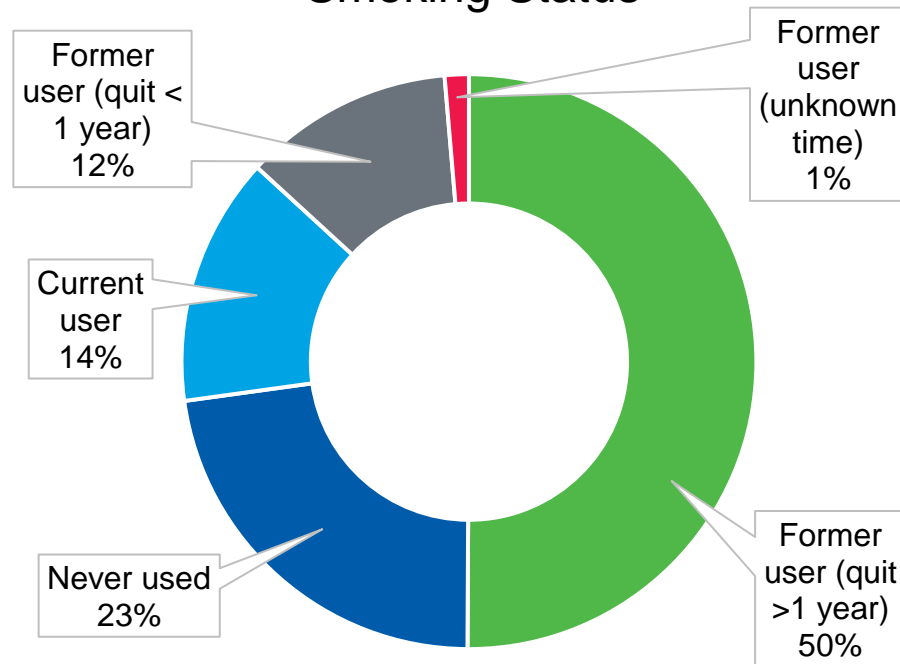


BPC NSCLC 2.0-public: Stage at Diagnosis and Smoking Status

Stage at Diagnosis

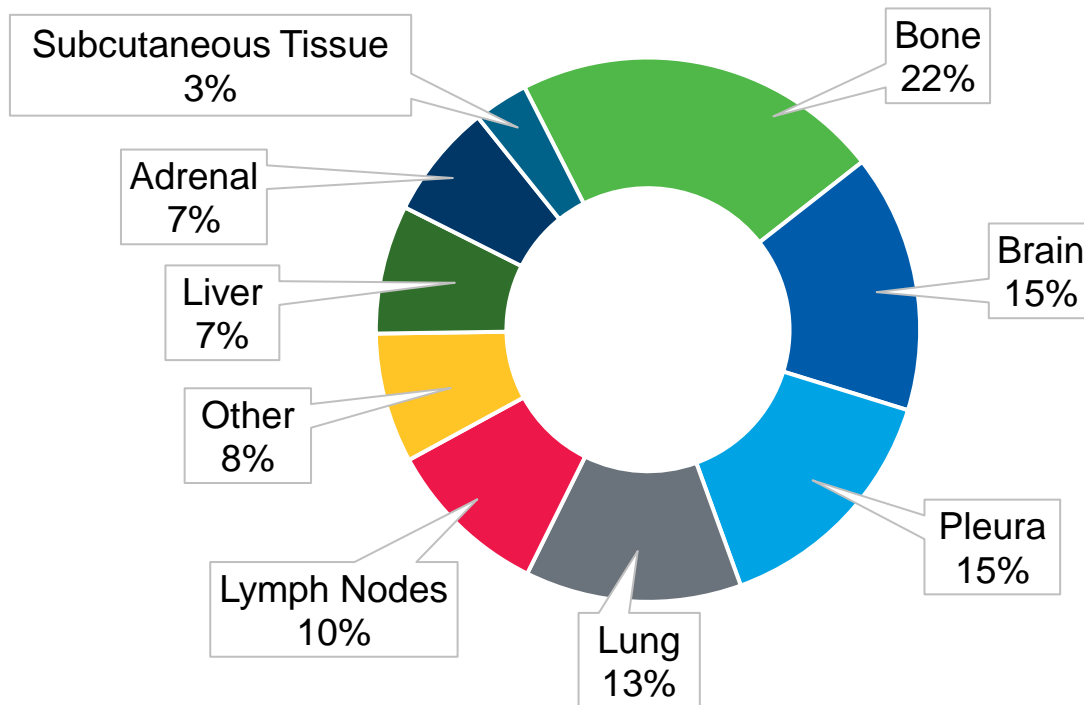


Smoking Status



BPC NSCLC 2.0-public: Sites of Metastases at Diagnosis

Location of Metastases (Stage IV patients)



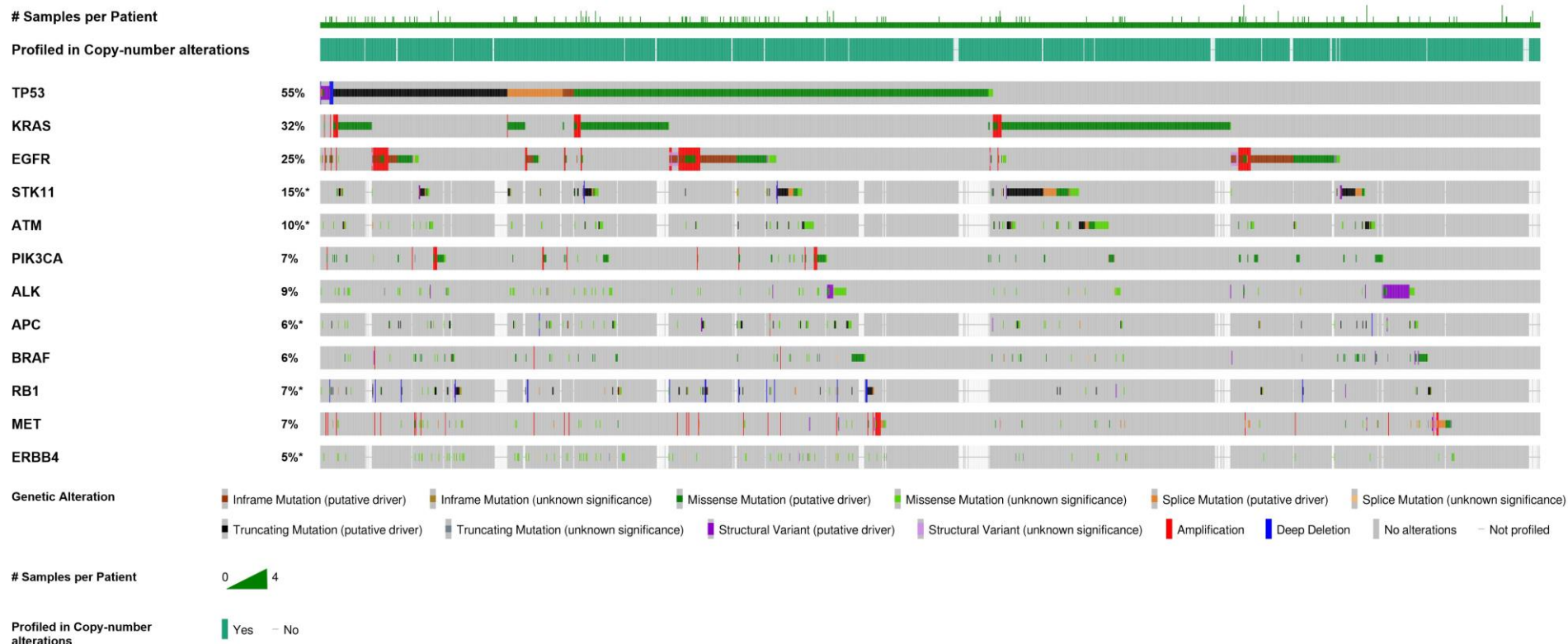
BPC NSCLC 2.0-public: Detailed Clinical Genomics

Mutated Genes (2004 profiled samples)			
Gene	# Mut	#	Freq
TP53	1,153	1,074	53.6%
KRAS	607	604	30.1%
LRP1B	30	20	25.6%
EGFR	591	481	24.0%
SPTA1	15	12	15.6%
STK11	276	263	14.4%
COL7A1	44	40	13.3%
KEAP1	249	235	13.3%
PRKDC	111	95	11.7%
KMT2D	224	186	10.5%
GRM3	9	8	10.4%
RBM10	146	139	10.4%

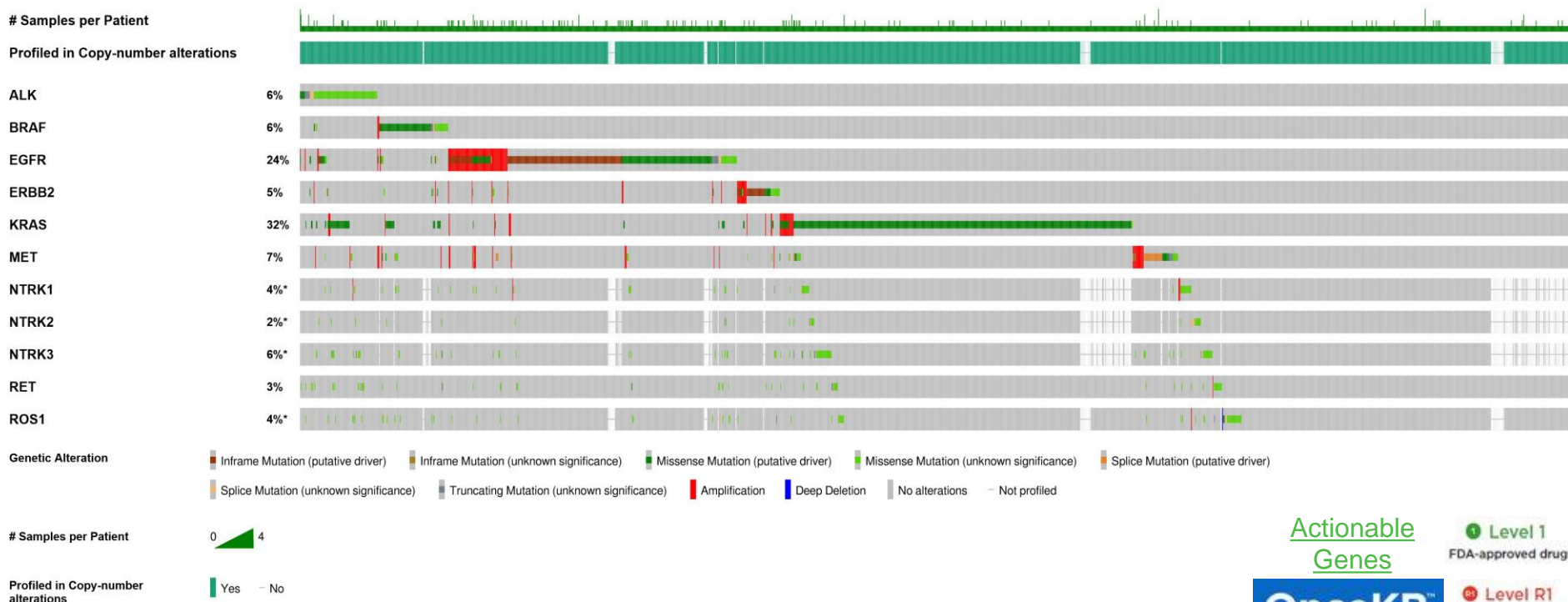
Structural Variant Genes (1908 profiled samples)			
Gene	# SV	#	Freq
NRG1	11	11	3.5%
ALK	67	61	3.2%
EML4	52	52	2.7%
STAT4	1	1	2.4%
EGFR	31	31	1.6%
RET	29	27	1.4%
ROS1	28	26	1.4%
KIF5B	19	19	1.0%
CD74	18	18	0.9%
MET	16	16	0.8%
TP53	15	15	0.8%

CNA Genes (1949 profiled samples)				
Gene	Cytoband	CNA	#	Freq
CDKN2A	9p21.3	HOMDEL	147	8.3%
CDKN2B	9p21.3	HOMDEL	135	7.6%
NKX2-1	14q13.3	AMP	95	5.3%
MDM2	12q15	AMP	95	5.3%
MTAP	9p21.3	HOMDEL	16	5.3%
EGFR	7p11.2	AMP	102	5.2%
GRM3	7q21.11-q...	AMP	3	3.9%
SPTA1	1q23.1	AMP	3	3.9%
ARFRP1	20q13.33	AMP	3	3.8%
FGF10	5p12	AMP	3	3.8%
TERT	5p15.33	AMP	63	3.7%
MYC	8q24.21	AMP	65	3.7%

Top 12 Mutated Genes NSCLC 2.0-public



Clinically Actionable Genes NSCLC 2.0-public



Actionable
Genes

Level 1
FDA-approved drugs

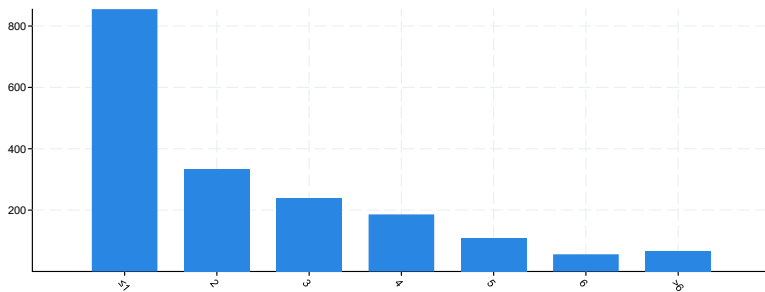
OncKB™

Level R1
Standard care

Chakravarty et al., JCO PO 2017

BPC NSCLC 2.0-public: Complete Treatment Histories

Number of cancer-directed drug regimens
curated for each patient



Cancer-directed Drug Regimens (Includes regimens
ever received for NSCLC irrespective of line or stage)

Regimen	# of patients
Carboplatin, Pemetrexed	615
Cisplatin, Pemetrexed	285
Carboplatin, Paclitaxel	207
Bevacizumab, Carboplatin, Pemetrexed	168

Treatments by Patient

Treatment	# ▼
Pemetrexed Disodium	813
Carboplatin	795
Cisplatin	388
Investigational Drug	341
Nivolumab	279
Bevacizumab	225
Paclitaxel	218
Pembrolizumab	204
Erlotinib Hydrochloride	199
Gemcitabine Hydrochloride	195
Docetaxel	191

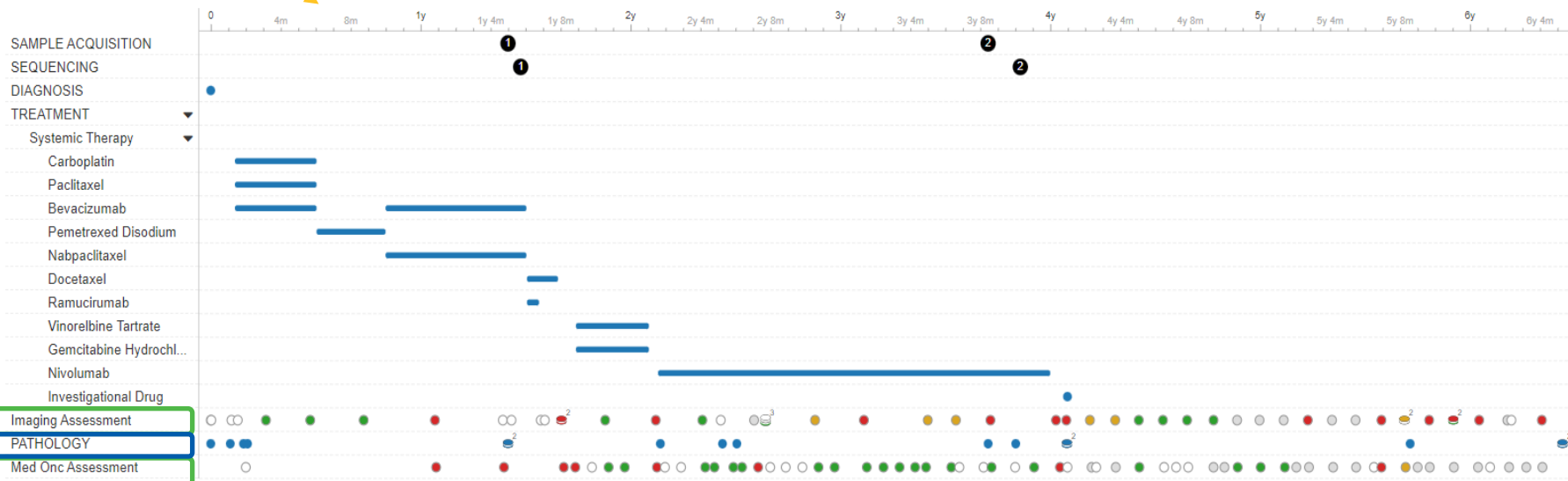
Treatments by Sample (pre- and post-)

Treatment	Pre / Post	# ▼
Pemetrexed Disodium	Pre	667
Pemetrexed Disodium	Post	235
Carboplatin	Pre	663
Carboplatin	Post	223
Investigational Drug	Pre	303
Investigational Drug	Post	83
Nivolumab	Pre	263
Nivolumab	Post	40
Cisplatin	Pre	255
Cisplatin	Post	166

- Individual regimens can be calculated from the raw data found [here](#) on Synapse
- Treatment history for non-index cancers can be found [here](#) on Synapse

BPC NSCLC 2.0-public: Comprehensive Patient View

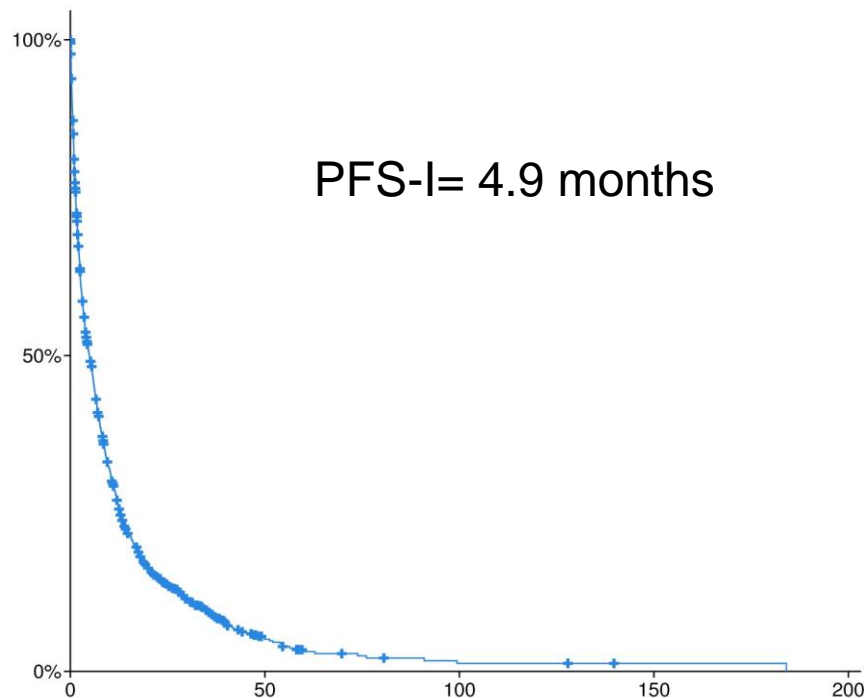
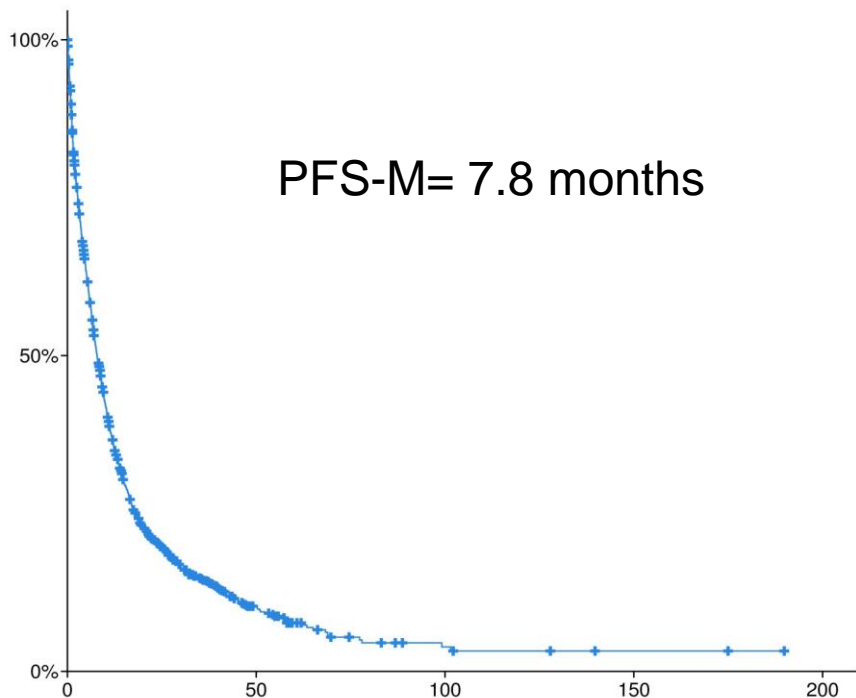
Sample Patient



Pathology Reports

Disease Status by Medical Oncology Note and by Imaging

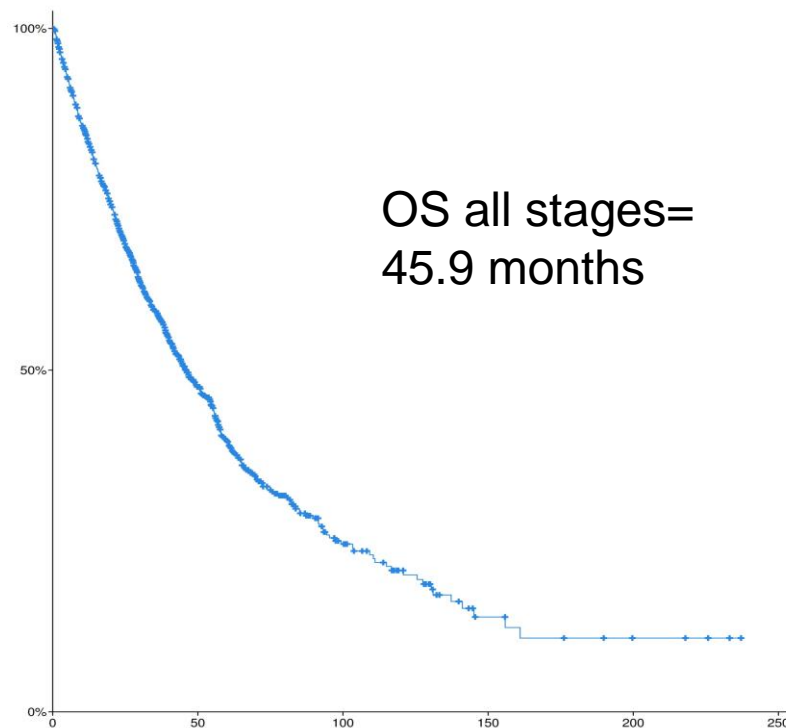
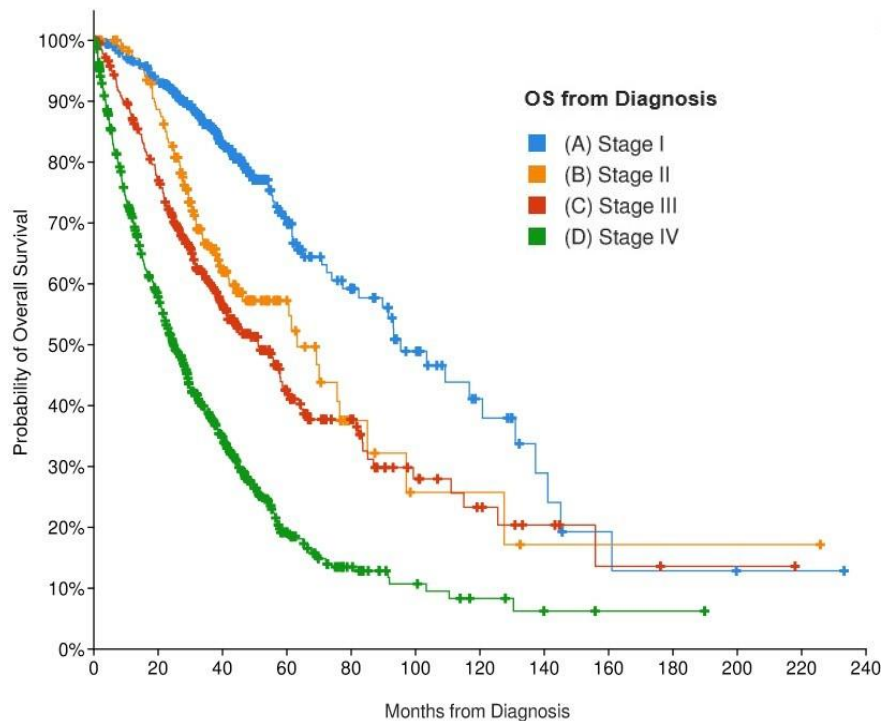
BPC NSCLC 2.0-public: High Quality Clinical Data



- PFS-M and PSF-I are available by regimen for those regimens containing greater than 10 patients

* Not adjusted
for delayed entry

BPC NSCLC 2.0-public: OS by Stage



* Not adjusted for delayed entry

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