

Next Generation Diagnostic Approaches: From Arrays to Next Gen Sequencing – Will Data Points Lead Us to the Cure?

Moderator: Colin Hill, Chief Executive Officer President & Chairman, GNS Healthcare

Panelists:

- Michael J. Pellini, MD, President & Chief Executive Officer, Foundation Medicine, Inc
- Donald Bergstrom, MD, PhD, Associate VP and Global Head, Translational and Experimental Medicine, Sanofi Oncology
- Brad Gray, President and Chief Executive Officer, NanoString
- Frank Diehl, PhD, Chief Scientific Officer and Managing Director, Inostics GmbH

The logo features the words "CANCER" and "PROGRESS" in a bold, black, sans-serif font. "CANCER" is positioned above "PROGRESS". Below "PROGRESS" is the tagline "by Defined Health" in a smaller, italicized, black font. The entire text is overlaid on a large, light blue, irregular oval shape that is tilted diagonally.

CANCER
PROGRESS
by Defined Health

Foundation Medicine's Vision

At Foundation Medicine, we are leading a transformation in cancer care, where each patient's treatment is informed by a deep understanding of the molecular changes that contribute to their disease.

Case Presentation: FMI vs 'Limited' Testing

- June, 2010: 53 y.o. female diagnosed with metastatic inflammatory breast cancer (IBC) involving liver and bone
- Initial therapies: docetaxel, carboplatin and trastuzumab – achieved some improvement
- Disease progression within 12 months
- April - November, 2011: Numerous additional drug regimens attempted
- November, 2011: Progression of disease

Conventional testing seeks molecular information known to be associated with cancer in specific organ only



DefinedHealth
unconventional insight



FoundationOne® - Profiling the Genome

FOUNDATIONONE Patient Name: [Redacted] Report Date: 23 April 2012 Disease: Inflammatory Breast Carcinoma

ABOUT THE TEST:
FoundationOne™ is a next-generation sequencing (NGS) based assay which identifies genomic alterations within hundreds of cancer-related genes.

PATIENT RESULTS

1 genomic alterations	98 - 9
3 Pathways associated with potential clinical benefit	eg - ERBB2, EGFR, PIK3CA
3 Pathways associated with lack of response	eg - ERBB2, EGFR, PIK3CA
1 clinical trial	98 - 9

TUMOR TYPE: INFLAMMATORY BREAST CARCINOMA

Genomic Alterations Identified
ERBB2 amplification
EGFR L858R
PIK3CA H1047R

THERAPEUTIC IMPLICATIONS

Genomic Alteration Detected	FDA Approved Therapies (in patient's tumor type)	FDA Approved Therapies (in another tumor type)	Potential Clinical Trials
ERBB2 Amplification	Lapatinib, Pertuzumab, Trastuzumab	None	Yes, see clinical trials section
EGFR L858R	None	Erlotinib, Gefitinib	Yes, see clinical trials section
PIK3CA H1047R	None	Everolimus, Temsirolimus	Yes, see clinical trials section

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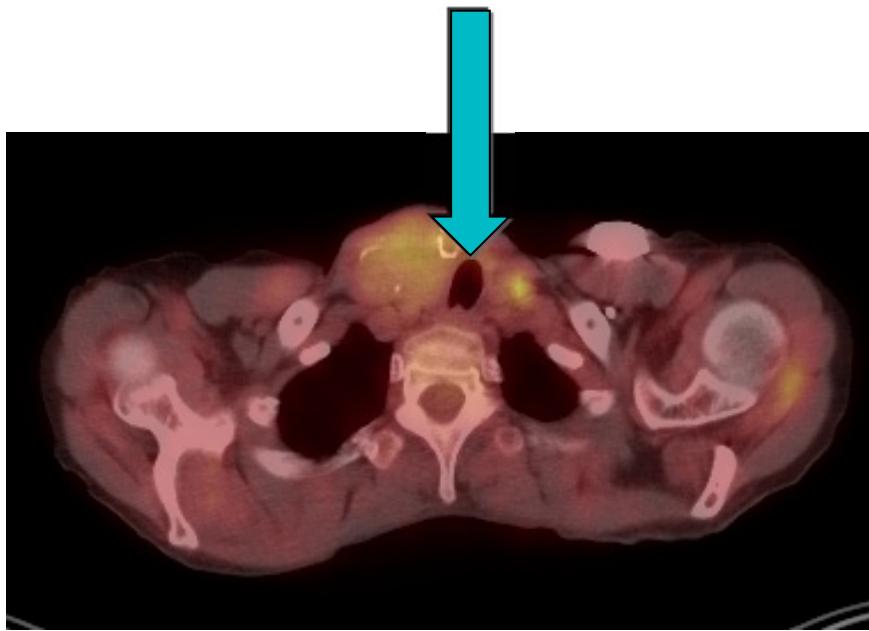
“Common” Mutation Identified

- EGFR Exon 21 L858R point mutation identified
 - Associated with unprecedented sensitivity to EGFR-TKIs such as gefitinib (Iressa) and erlotinib (Tarceva)
- Present in 10% of **lung** adenocarcinomas
- **NOT** reported with reproducible frequency in other tumor types → **NO** clinical testing done
- Broad based, highly sensitive NGS test (FoundationOne) identifies a transforming lesion in this advanced IBC

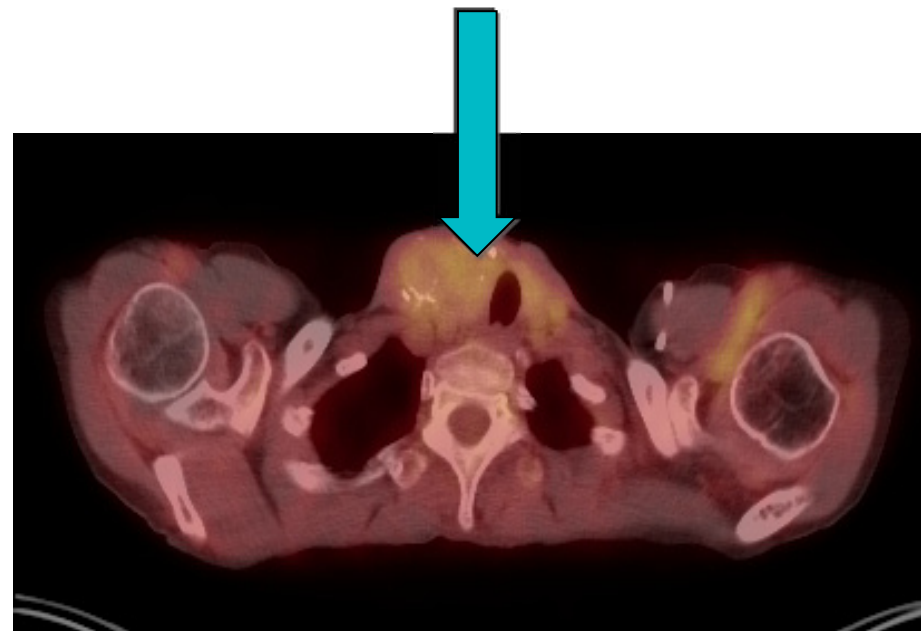


Response Assessment after Starting Erlotinib

Left Supraclavicular Lesion: PET-CT



Sept, 2012



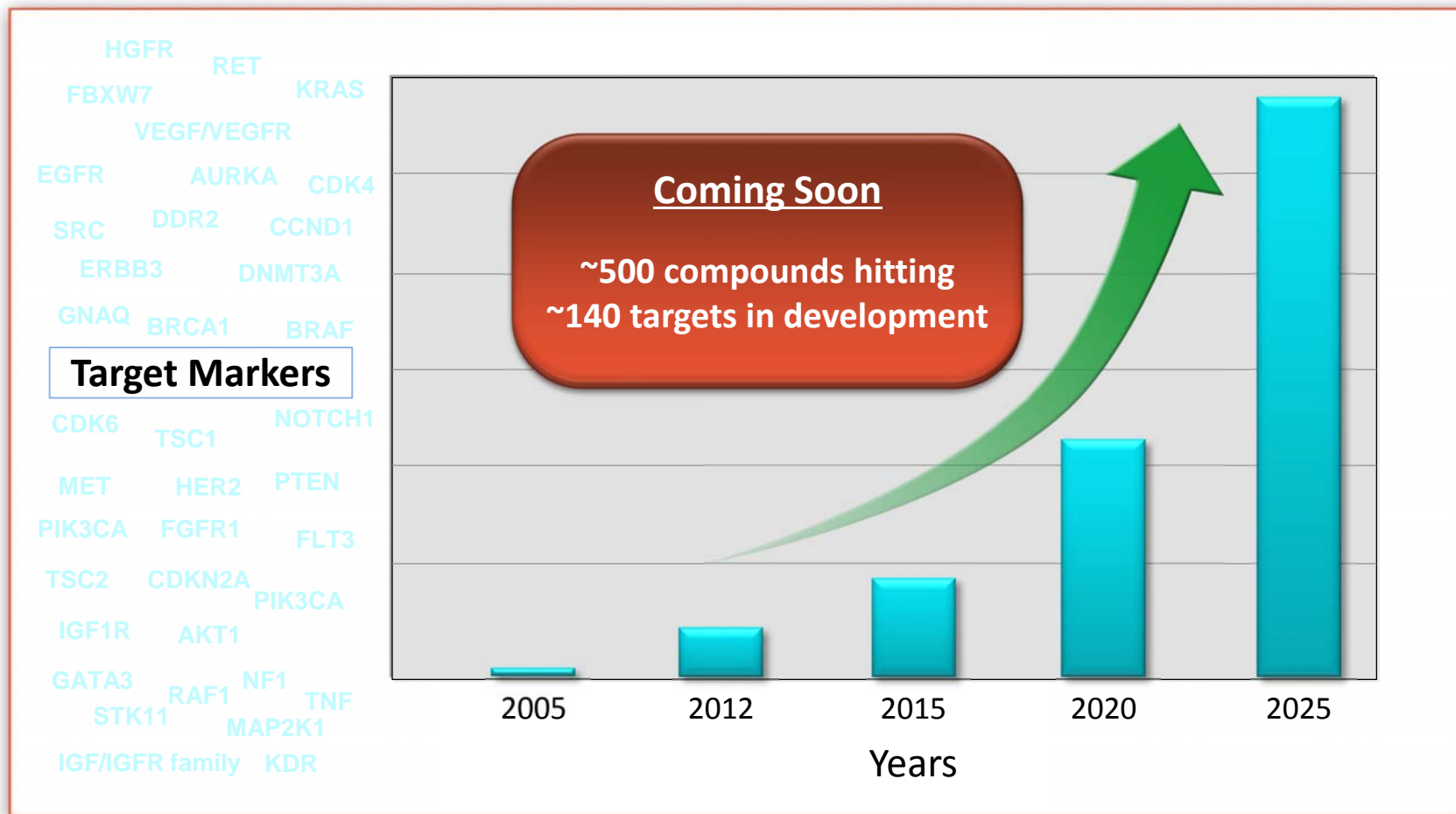
Nov, 2012

Takeaways

- FoundationOne identified alteration that would never have been tested for in a patient with breast cancer
- Molecular information led to therapy with FDA-approved agent (off label)
- Erlotinib commenced → symptomatic and radiographic improvement: response ongoing (12/2012)

Cancer Diagnostic Market is Rapidly Evolving

Molecular profiling is driving many new targeted cancer therapeutics



Subset of analyzed targets listed; data from BioCentury Online Intelligence Database

'Translating' each Cancer's Genome

Cancer Cells

Cancer Genes

Gene Alterations

