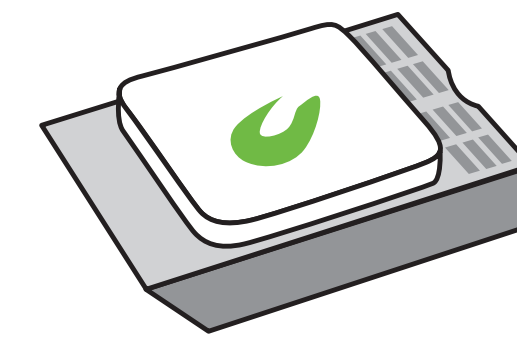


Successful AZD9291 Therapy Based on NEOliquid Detection of Circulating T790M in a Liquid Biopsy Sample

Roopika Menon¹, Oliver Gautschi², Frauke Leenders¹, Stefan Aebi², Klaus Strobel², Joachim Diebold², Bernhard Schwizer², Johannes M. Heuckmann¹, Christian Gloeckner¹, Petra Schneider¹, Lukas C. Heukamp¹
¹NEO New Oncology AG, Cologne, Germany; ²Tumorzentrum, Luzerner Kantonsspital, Luzern, Switzerland

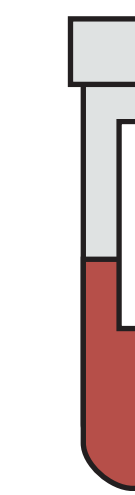
BACKGROUND:

Tumor Biopsies:



- An invasive procedure that might carry risk for patients
- Costly and time consuming
- Cannot monitor changes over time
- Might not be a true representation of tumor heterogeneity
- Allows for an accurate estimation of tumor content

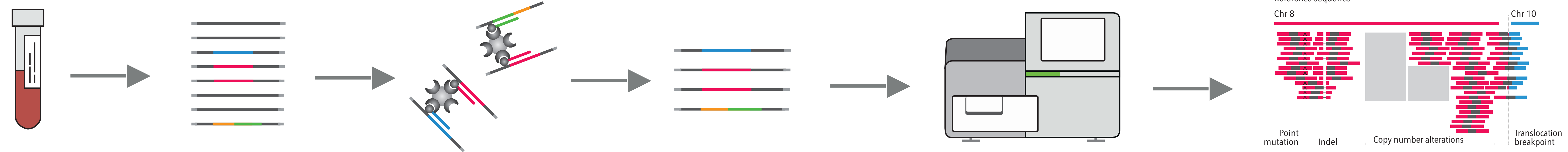
Liquid Biopsies:



- Risk free and cost effective
- Minimally invasive and allows for repeated withdrawals to monitor changes in real time
- Allows the monitoring of genomic changes occurring due to selection pressure
- Might allow to capture the entire heterogeneity of the tumor
- Might lead to negative results due to insufficient tumor DNA

TECHNOLOGY:

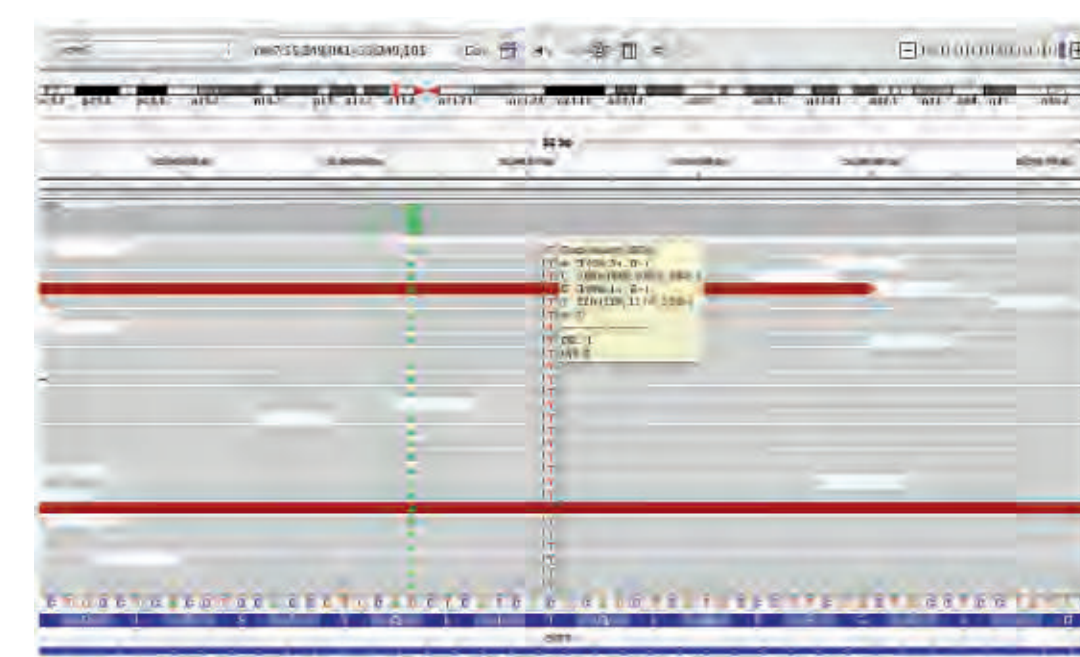
Proprietary NEOliquid Assay:



- hybrid capture based NGS technology
- detects point mutations, InDels, copy number alterations and gene fusions in one sample
- provides nucleotide resolution for every breakpoint
- identifies even novel fusion partners
- comprehensive testing of 39 genes

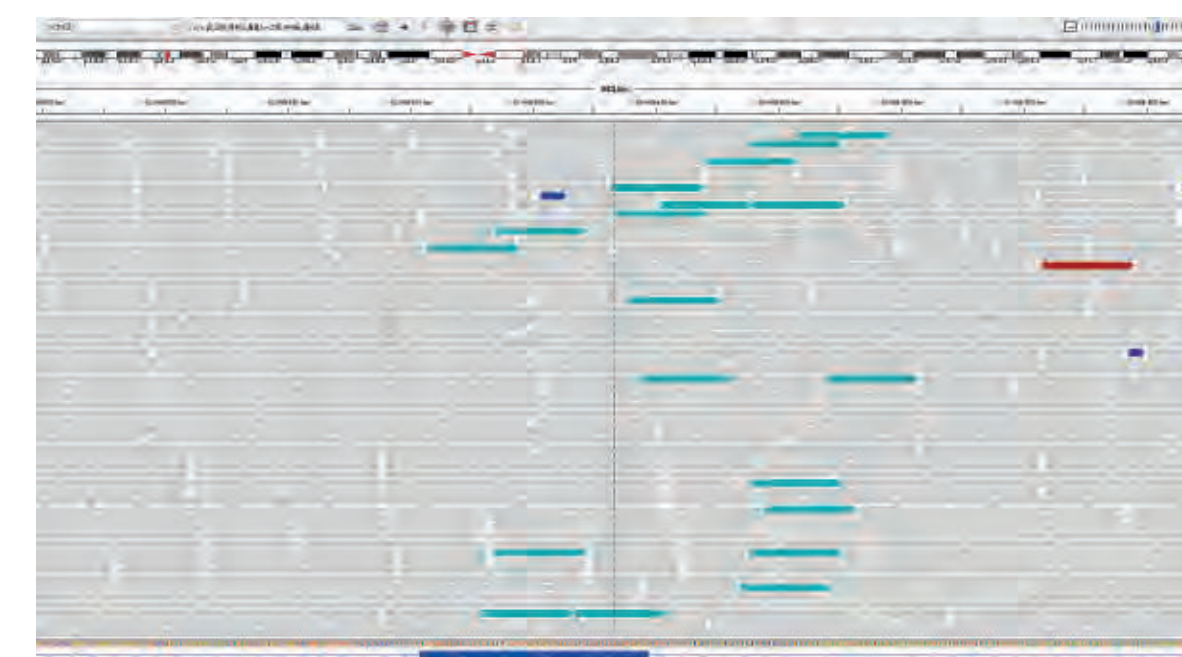
Spectrum of Genomic Alterations Detected by NEOliquid:

Mutations



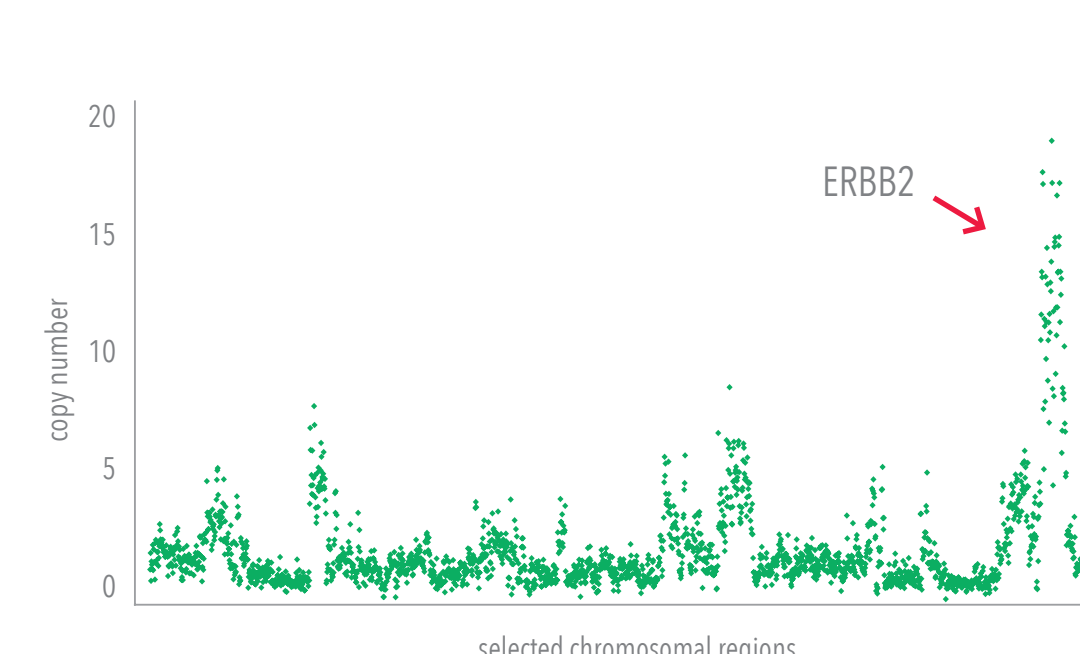
EGFR T790M

Gene Fusions



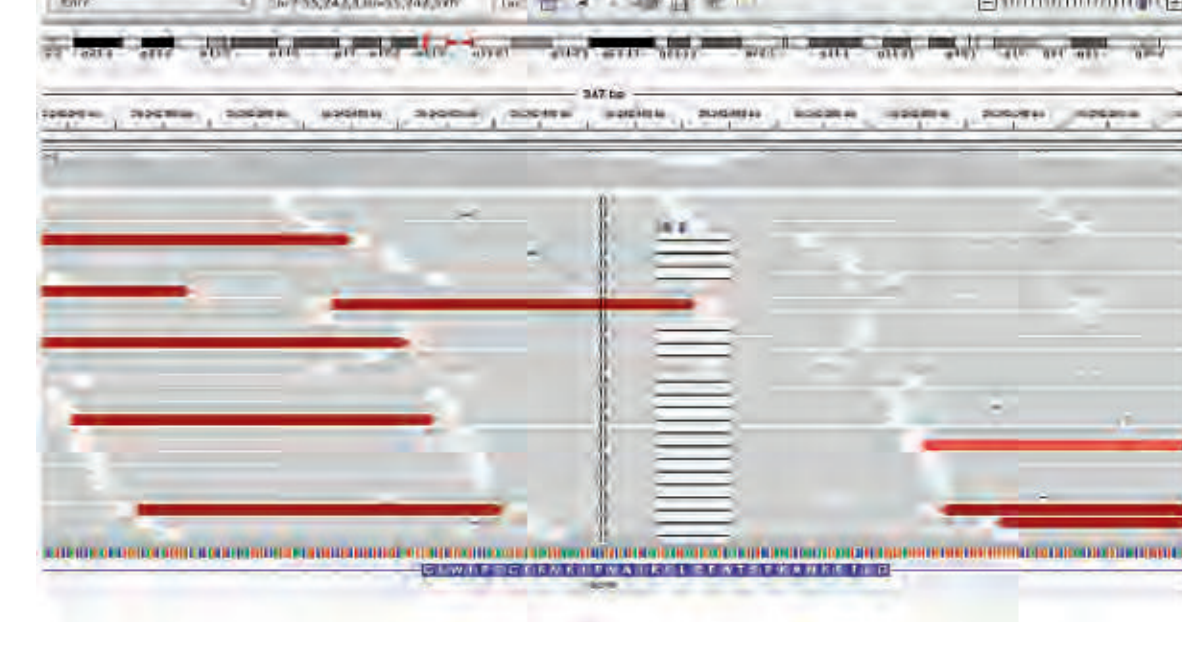
EML4-ALK

Somatic Copy Number Alterations



ERBB2 amplification

Deletions

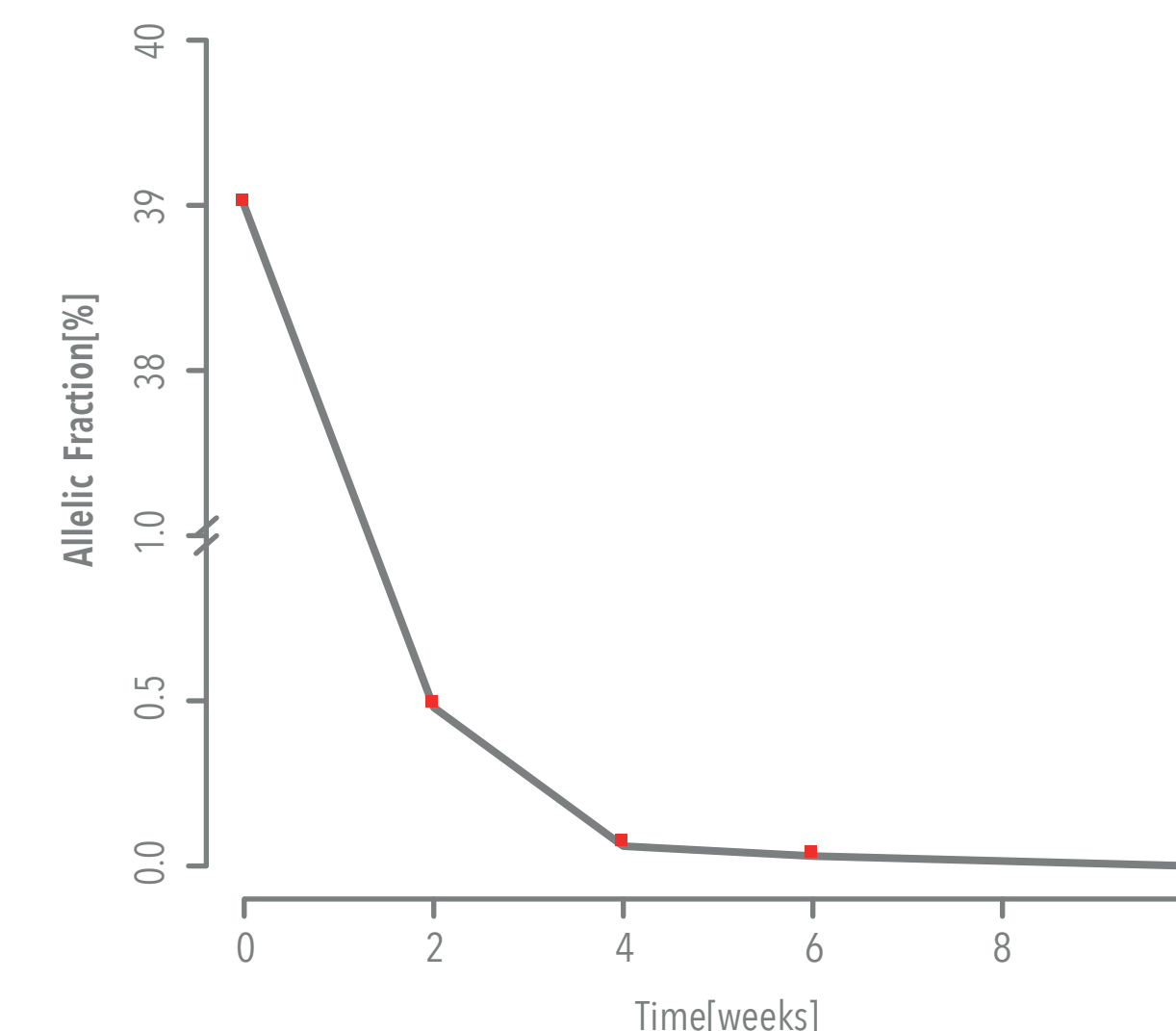


EGFR Exon 19 Deletion

CASE:

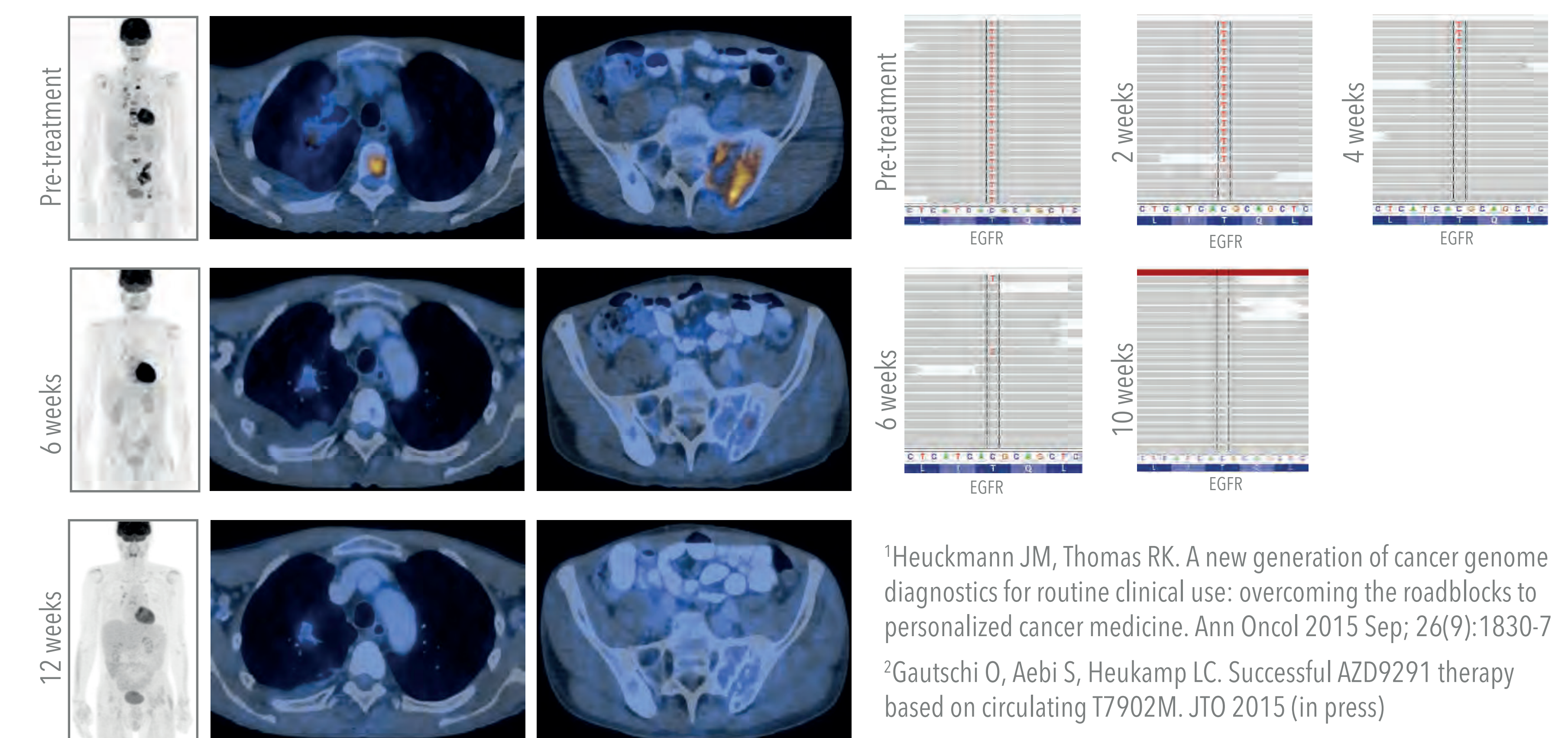
A 53 year old non-smoker, with metastatic lung adenocarcinoma and an EGFR exon 19 deletion diagnosed in 2012. Patient has been treated with several TKIs, chemotherapy, neurosurgery and brain surgery.²

- **No therapeutically relevant alterations detected** in tumor rebiopsies
- **NEOliquid assay** detected the resistance mutation **EGFR T790M**
- Patient was **successfully treated** with AZD9291 inhibitor



Allelic frequency of EGFR T790M decreases dramatically upon treatment with AZD9291inhibitor

Decrease in tumor volume correlates with decrease in allele frequency of the EGFR T790M mutation in plasma



¹Heuckmann JM, Thomas RK. A new generation of cancer genome diagnostics for routine clinical use: overcoming the roadblocks to personalized cancer medicine. *Ann Oncol* 2015 Sep; 26(9):1830-7

²Gautschi O, Aebi S, Heukamp LC. Successful AZD9291 therapy based on circulating T7902M. *JTO* 2015 (in press)