Discovery of a Novel EGFR Resistance Mutation by Capture Based NGS Following AZD9291 Treatment

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**TECHNOLOGY:**

- Proprietary NEOliquid Assay:
  - DNA extracted from the aqueous phase of a pleural effusion sample
  - Hybrid capture
  - Next Generation Sequencing
  - Detection of genomic alterations

**The Assay:**

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

**CASE:** A 59 year old patient, diagnosed with a lung adenocarcinoma and EGFR exon 19 deletion

2014: Rebiopsy upon progress showed a **T790M resistance mutation**, treatment AZD9291.
2015: Progress with a pleural effusion which was analysed using NEOliquid.

NEOliquid identified the the pre-existing EGFR exon 19 (ELREA motif) deletion and EGFR T790M resistance mutation, as well as a previously undescribed **EGFR C797G resistance mutation**.

The mutated Cysteine in position 797 is essential for the drug AZD9291 to covalently bind to EGFR to potently inhibit the kinase activity.

NEOliquid identified three different EGFR mutations in one pleural effusion, demonstrating the patient’s progress over time and under treatment.

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