



Simultaneous Tissue and Liquid Next-generation Sequencing after First-line EGFR Tyrosine Kinase Inhibitors Resistance in Advanced Non-small Cell Lung Cancer

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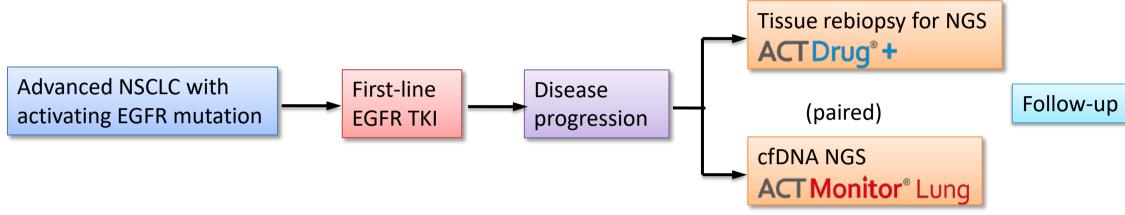
Poster #365

Background

T790M testing is recommended after resistance to first or second-generation EGFR tyrosine kinase inhibitors (TKIs). However, the role of simultaneous tissue and liquid next-generation sequencing (NGS) after first-line EGFR TKI resistance is still unclear.

Method

We prospectively enrolled patients with resistance with first-line EGFR TKI. Paired tissue rebiopsy NGS and blood cell-free DNA (cfDNA) NGS were performed simultaneously.

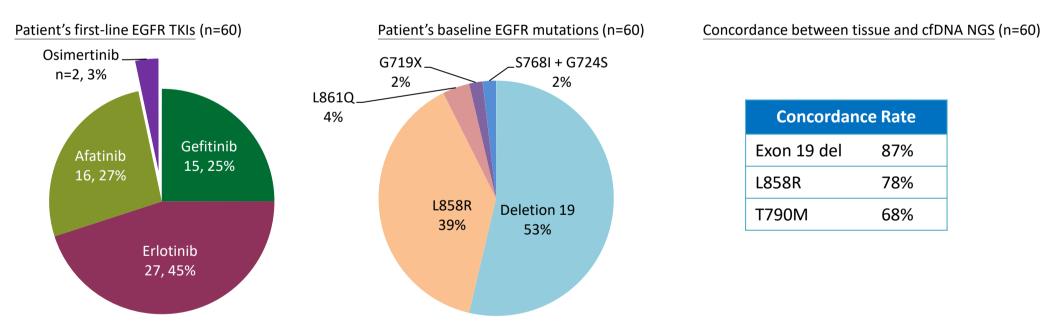


Result

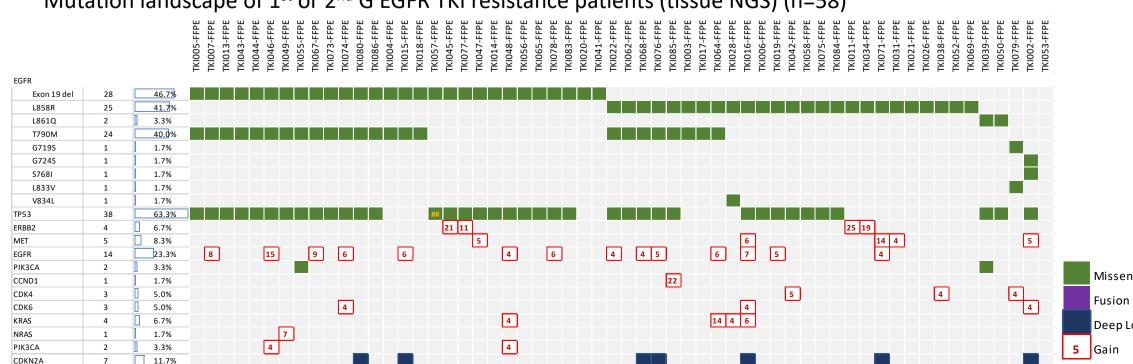
86 patients were enrolled, but 26 of them did not have adequate tissue for NGS. Among the 26 patients, 5 had T790M from cfDNA. Total 60 patients had pairs of tissue and cfDNA NGS were further analyzed.

78%

68%



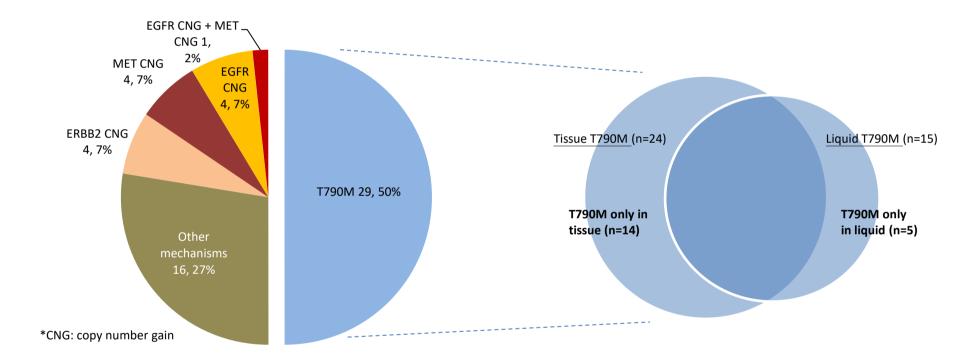
Mutation landscape of 1st or 2nd G EGFR TKI resistance patients (tissue NGS) (n=58)



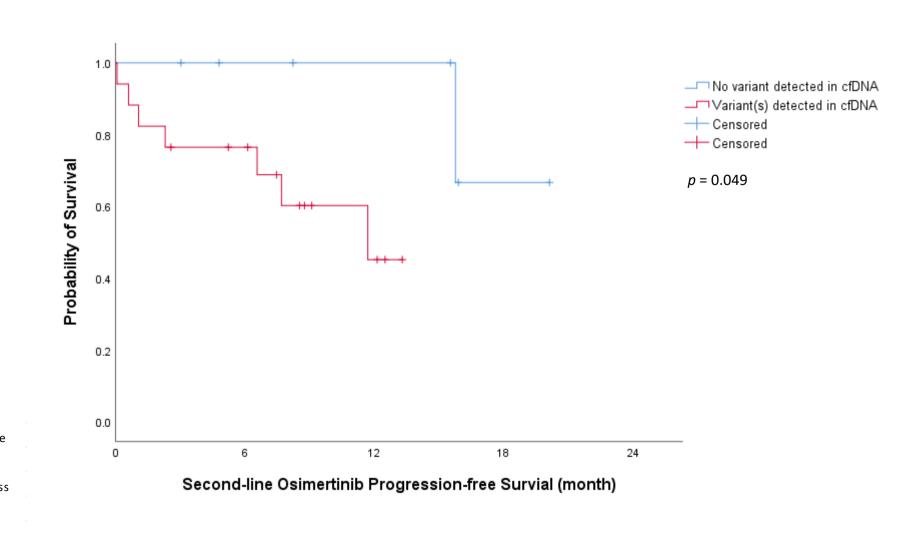
Mutation landscape of 1st or 2nd G EGFR TKI resistance patients (cfDNA NGS) (n=58)



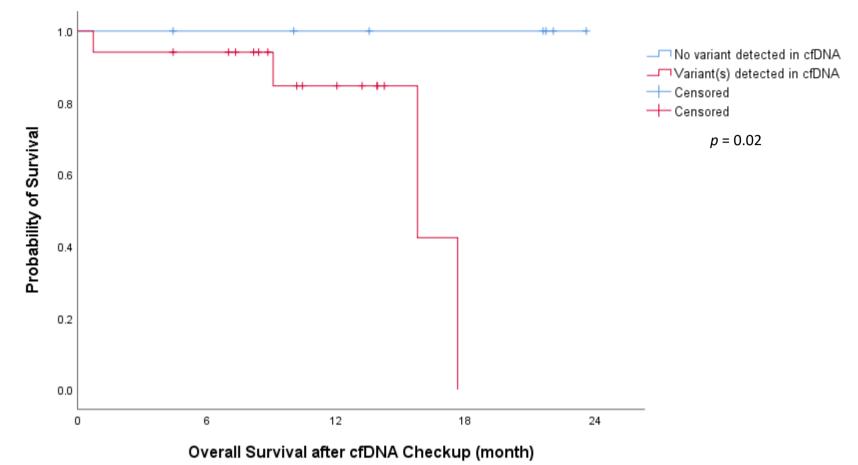
First-line 1st or 2nd generation EGFR TKI resistant mechanisms (n=58)



24 of 29 patients with T790M received second-line osimertinib (n=24)



24 of 29 patients with T790M received second-line osimertinib (n=24) (cont'd)



Conclusion

- > Simultaneous tissue rebiopsy NGS and liquid NGS at first-line first or second generation EGFR TKI progression detect more T790M mutation than tissue NGS or liquid NGS only.
- > At first-line first or second generation EGFR TKI progression, patients with "no variant detected" in cfDNA NGS may have longer second-line osimertinib PFS and longer OS after cfDNA checkup.
- > EGFR, HER2 and MET amplification might contribute to the vast majority of resistance in T790M negative patients.
- > NGS at EGFR TKI progression provides more information for sequential anticancer therapy.

Disclosure

- ✓ This study is sponsored by ACTGenomics.
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Reference

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