Identifying FGFR2 fusions/rearrangements in cholangiocarcinoma patients using a novel cdFNA approach for a potentially irreversible FGFR2 inhibitor

Alison M. Schram,1 Milind Borda,2 Vaibhav Sahni,3 Suneeal Kamath,4 Richard Kim,5 Chinh-Yi Andy Liao,6 Do-Youn Oh,7 Manano Ponz-Sarvise,8 Jeffrey Yachnin,9 Scott A. Shel,10 Philippe Cassidy11, Efraf Dotan12, Vaia Florou13,5, Victor Modenio,14 Joon Oh Park15, David Ta16, Oleg Schmidt-Kittler,17 Charles Feret,18 Lipika Goyal,19 Vivek Subbiah20

1Memorial Sloan-Kettering Cancer Center, New York, USA; 2Memorial Sloan Kettering–Providence, Providence, Alabama, USA; 3University of Michigan, Ann Arbor, Michigan, USA; 4The Cleveland Clinic Taussig Cancer Institute, Cleveland, Ohio, USA; 5Lurie Children’s Hospital Survivorship and Research Institute, Turlock, Florida, USA; 6University of Chicago Medical Center, Chicago, Illinois, USA; 7University of Arizona, Tucson, Arizona, USA; 8Wayne State University, Detroit, Michigan, USA; 9University of California, San Francisco, California, USA; 10University of California, Los Angeles, California, USA; 11Memorial Sloan Kettering Cancer Center, New York, USA; 12Relay Therapeutics, Cambridge, Massachusetts, USA; 13Mount Sinai Health System, New York, USA; 14Royal Cancer Center, Madrid, Spain; 15Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea; 16National Cancer Centre, Singapore; 17Suneel Kamath, Karolinska Universitetssjukhuset Solna, Stockholm, Sweden; 18National Cancer Centre, Singapore; 19Memorial Sloan Kettering Cancer Center, New York, USA; 20University of Texas MD Anderson Cancer Center, Houston, Texas, USA.

BACKGROUND
Cholangiocarcinoma (CCA) is an aggressive malignancy with a dismal prognosis, typically presenting at an advanced stage with limited treatment options. Recent technical advances in liquid biopsy methods have increased the sensitivity of this method for detecting FGFR2 fusions/rearrangements in CCA patients. However, these methods have had limited success due to the limited availability of tissue samples.

METHODS

Patients with FGFR2 fusions or rearrangements, FGFR2-positive (n=17)

RESULTS

Percentage of FGFR2 fusions detected in tissue vs. liquid biopsies

FGFR2 fusions detected in tissue vs. liquid biopsies

FGFR2 alterations

- As shown in Figure 4, small nucleotide variants (SNVs) were the second most common FGFR2 alteration.
- FGFR2 fusion partners were predominantly located in chromosome 8 (36.9%) and chromosome 4 (25.0%).
- Few recurrent mutations have been described previously.
- This algorithm was applied to the QNS liquid biopsy.

Patient demographics

- Of the 73 patients who provided samples, 49 were male, the mean age was 56 years.
- All patients had biopsies and/or liquid biopsies.
- The majority of patients were treated at the University of Texas MD Anderson Cancer Center (69.9%).

Conclusions

- The fusion partner specific FGFR2 f/r calling algorithm is superior to the standard algorithm.
- FGFR2 fusions were detected in the majority of CCA patients.
- FGFR2 fusions were detected in the majority of CCA patients.

References

9. Gu Z, et al. Biomark. 2013;13:2611-2. The authors would like to thank the patients and their families, all study investigators, sub-investigators, and research staff at participating institutions. The authors gratefully acknowledge the contribution of Saad Qureshi to the development of the liquid biopsy analysis. Medical writing support was provided by Christie Eanes of BOLDERSCIENCE Inc. funded by Relay Therapeutics.