Five hundred ninety two cervical cases referred to Caris Life Sciences from 2009 through 2014 were evaluated; diagnoses were collected from referring physicians and classified at intake based on pathology and clinical history. Specific testing was performed per physician request and included a combination of sequencing (next-generation sequencing), protein expression (immunohistochemistry) and gene amplification (FISH or CISH).

### Methods

We interrogated a database of theranostic biomarkers from the CARIS REPOS. 592 specimens in the cervical cancer library were evaluated by a combination of sequencing (NGS), gene amplification (ISH), and protein expression (IHC).

### Results

- **NGS sequencing** in 224 specimens identified mutational hotspots corresponding to PIK3CA (26%), BRCA2 (21%), BRCA1 (10%), KRAS (10%), PTEN (10%), and FBXW7 (10%). Gene amplification of EGFR (11%, 32/295) was also observed. IHC studies were noteworthy for the following frequencies:
  - TGFβR mutation 10%
  - FBXW7 (10%)
  - Gene amplification of EGFR (11%, 20/174) and HER2 (10%, 19/174) were also observed. IHC studies were noteworthy for the following frequencies:
  - TGFβR mutation 10%
  - FBXW7 (10%)
  - Gene amplification of EGFR (11%, 20/174) and HER2 (10%, 19/174)

### Background

The results from a Gynecologic Oncology Group protocol 240, that provided a proof of concept that high throughput sequencing in cervical cancer identified targetable alterations, is a regulatory milestone that fulfills a high unmet clinical need. Our data support the inclusion of theranostic biomarkers in advanced cervical cancer constitutes a regulatory milestone that fulfills a high unmet clinical need. Our data support the inclusion of theranostic biomarkers in advanced cervical cancer.

### Conclusion

The greatest benefit from angiogenesis blockade and non-platinum chemotherapy, predictive biomarkers are emerging field through which developing technologies and capabilities in the theranostics field may help guide therapy in clinical trials for patients who have progressed on anti-angiogenesis therapy or who are considered otherwise incurable. Poly-ADP-ribose polymerase inhibition, EGFR- and HER2-directed therapy, immunotherapy, hormonal therapy, and non-platinum chemotherapy may be suitable for study in clinical trials.