

# The Development of a Biomarker Database: Creating a Clinical Decision **Support Tool for Oncology Nurses and Advanced Practice Providers**

Kathryn E. Slane, MSN, AGPCNP-BC, AOCNP1, Erin Dickman, MS, RN, OCN2, Caressa Valdueza, MSN, AGNP-BC, AOCNP3, Kristin M. Daly, MSN, ANP-BC, AOCNP1

### Background

Precision medicine continues to be an area of focus and growth in oncology. With the ever-expanding world of biomarker testing and variant assessment, oncology nurses and advanced practice providers (APPs) are in need of educational resources and clinical decision support tools (CDS) to help provide current and evidence-based care to oncology patients.

A baseline survey of 700 ONS members conducted in early 2020 showed 45% described their overall genetic/genomic knowledge as poor and 44% described their ability to discuss oncology genetics and genomics with cancer patients as low.



## Methods

The Biomarker Database development started in April 2021. Subject matter experts were recruited through a volunteer application via the ONS Communities platform. Group discussions among experts and focus groups affirmed content to be included about each biomarker and cancer type based on current evidence. Once content was written, it went through a double peer review by additional experts and content consensus was reached by the panel.

- **1.** Washington University School of Medicine
- 2. Oncology Nursing Society
- 3. Weill Cornell Medicine



## HER2 (ERBB2)

Gastroesophageal Malignancies Gastric Adenoncarcinoma, GEJ Adenocarcinoma, Esophageal Adenocarcinoma

HER2 is a protein tyrosine kinase cell membrane receptor encoded by the ERBB2 gene in chromosome 17. Phosphorylation or activation of HER2 initiates the signaling pathway for cell differentiation, growth, and antiapoptosis. Overexpression or amplification of HER2 promotes pathologic tumor growth [1,2].

Implications for Patient Care

HER2 overexpression is a predictive biomarker and indicates potential response to HER2 targeted therapy [3].

**Targeted Therapies** 

Indicated for use in combination with chemotherapy for HER2 overexpressing metastatic gastric and GEJ adenocarcinoma in the first-line setting [4].

Patient Education

Indicated for HER2-positive locally advanced and metastatic gastric and GEJ cancers treated previously with trastuzumab [5].

☑ Patient Education

Unresectable locally advanced, recurrent, or metastatic disease [1]; a tissue sample is needed for analysis. Testing technologies that may be used include IHC, FISH, or NGS [6].

Testing

**Additional** Considerations Tumors that do not exhibit HER2 overexpression do not benefit from HER2 targeted therapies.

HER2 amplification in esophageal SCC is low [7]; 7%–38% of patients with gastroesophageal cancer exhibit HER2 amplification [3]. Patients with intestinal type gastric adenocarcinoma (32%) are more likely to have HER2 amplification as compared to those with diffuse type (6%) [2].

HER2 overexpression is found more frequently among GEJ cancers than gastric cancers [3].

☑ Clinical trials for GEJ adenocarcinoma and HER2

#### Trastuzumab (Herceptin®).

#### HER2/neu receptor antagonist

#### Fam-trastuzumab deruxtecan (Enhertus®).

#### HER2-directed antibody and topoisomerase inhibitor conjugate

### Results

The Biomarker Database was launched on June 8, 2022. Since launch the site has seen an overwhelming positive response from oncology nurses with over 2,000 unique users accessing the database and over 10,000 views between June 1, 2022 – September 1, 2022.

### Summary

The Biomarker Database is a user friendly, content filled, first-of-its-kind CDS developed for oncology nurses and APPs.

As the tool is rolled out, end-users will be surveyed to measure usability, satisfaction, relevance to practice, and reported practice outcomes, to further focus and adjust the CDS.

### Recommendations

We recommend oncology nurses and APPs use the Biomarker Database for personal education and growth, when educating patients on biomarker testing results, and when discussing appropriate treatments and referrals based on biomarkers.

### Free access with registered ONS account – membership not required

#### References

Oncology Nursing Society, (2020, February). Genomics Survey. Findings not published. Schneider, F., Kempfer, S. S., & Backes, V. (2021). Training of advanced practice nurses in oncology for the best care: a systematic review. Revista da Escola de Enfermagem da USP, 55, e03700. https://doi.org/10.1590/S1980-220X2019043403700

Spross, J. A., & Heaney, C. A. (2000). Shaping advanced nursing practice in the new millennium. Seminars in oncology nursing, 16(1), 12–24. https://doi.org/10.1016/s0749-2081(00)80004-2



#### Access the ONS biomarker database:

