	• Sampling of predictive marker assay validation, verification, and revalidation/verification studies
	• What is your laboratory's course of action when negative HER2 and/or negative ER by IHC results are obtained and the fixation was not appropriate? • How did you validate/verify the most recently added predictive marker on your test menu?

***REVISED** 08/24/2023*

ANP.22969 Report Elements **Phase II**

For immunohistochemical (IHC) and in situ hybridization (ISH) tests that provide independent predictive information, the patient report includes information on specimen processing, the antibody clone/probe, and the scoring method used.

NOTE: The laboratory performing the gross examination of the specimen must record the cold ischemia time and the length of time in fixative. If the grossing laboratory refers IHC or ISH studies, this information must be provided to the laboratory(ies) performing these studies.

For IHC and ISH studies used to provide predictive information independent of diagnosis or other histopathologic findings (eg, estrogen receptors and HER2 in breast carcinoma, PD-L1 and lung adenocarcinoma predictive immunostains), the laboratory must include the following information in the patient report:

1. *The type of specimen fixation and processing (eg, formalin-fixed paraffin-embedded sections, air-dried imprints, etc.)*
2. *For IHC studies, the antibody clone and general form of detection system used (eg, LSAB, polymer, proprietary kit, vendor name, etc.; information on the type of equipment used is not necessary)*
3. *For ISH studies, the probe and, if applicable, the detection system used (ie, LSAB, polymer, proprietary kit, vendor name, etc.; information on the type of equipment used is not necessary)*
4. *Criteria used to determine a positive vs. negative result, and/or scoring system (eg, percent of stained cells, staining pattern)*
5. *Laboratory interpretation of predictive marker testing (IHC or ISH) is reported according to the manufacturer's instructions, or when available, following the structure, format, and criteria set forth in the current CAP guidelines relating to predictive marker testing (eg, ASCO/CAP HER2 and ER testing in breast cancer and CAP/ASCP/ASCO HER2 in gastroesophageal carcinoma)*
6. *Limitations relating to suboptimal preanalytical factors that may impact results, such as prolonged cold ischemia time, unknown ischemia time, or over- or under-fixation.*

Evidence of Compliance:

- ✓ Report template containing all required elements **AND**
- ✓ Copies of patient reports confirming inclusion of the required elements **AND**
- ✓ Established guidelines used by the laboratory

REFERENCES

1) Fisher ER, *et al.* Solving the dilemma of the immunohistochemical and other methods used for scoring ER and PR receptors in patients with invasive breast cancer. *Cancer.* 2005;103:164-73
2) Collins LC, *et al*. Bimodal frequency distribution of estrogen receptor immunohistochemical staining results in breast cancer: an analysis of 825 cases. *Am J Clin Pathol.* 2005;123:16-20
3) Allred DC, *et al.* ER expression is not bimodal in breast cancer. *Am J Clin Pathol.* 2005;124:474-5
4) Wolff AC, Somerfield MR, Dowsett M, et al. Human Epidermal Growth Factor Receptor 2 Testing in Breast Cancer: American Society of Clinical Oncology/College of American Pathologist Guideline Update. *Arch Pathol Lab Med.* Published online June 7, 2023. doi: 10.5858/arpa.2023-0905-SA
5) Allison KH, Hammond EH, Dowsett M, et al. Estrogen and Progesterone Receptor Testing in Breast Cancer: American Society of Clinical Oncology/College of American Pathologists Guideline Update *Arch Pathol Lab Med.* 2020; 144(5):545-63.
6) Bartley AN, Washington MK, Ventura CB, et al. HER2 Testing and Clinical Decision Making in Gastroesophageal Adenocarcinoma: Guideline from the College of American Pathologists, American Society for Clinical Pathology, and American Society of Clinical Oncology. *Arch Pathol Lab Med.* 2016:140(12):1345-1363.