**510(k) SUBSTANTIAL EQUIVALENCE DETERMINATION**
**DECISION SUMMARY**
**ASSAY ONLY TEMPLATE**


**A. 510(k) Number:**

K061360

**B. Purpose for Submission:**

Marketing product in U.S.

**C. Measurand:**

Estrogen Receptor on formalin-fixed paraffin-embedded breast cancer specimens

**D. Type of Test:**

Immunohistochemical

**E. Applicant:**

Lab Vision Corporation

**F. Proprietary and Established Names:**

NeoMarkers Rabbit Monoclonal Anti-Human Estrogen Receptor Antibody (Clone SP1)

**G. Regulatory Information:**

1. Regulation section:

   21 CFR §864.1860 Immunohistochemistry reagents and kits

2. Classification:

   Class II

3. Product code:

   MYA

4. Panel:

   Pathology 88

## H. Intended Use:

1. Intended use(s):

   Neomarkers Rabbit Monoclonal Anti-Human Estrogen Receptor Antibody (Clone SP1) is an immunohistochemical (IHC) assay intended for laboratory use for the qualitative detection of estrogen receptor (ER) antigen by light microscopy in sections of formalin fixed, paraffin embedded normal and neoplastic tissues on a Lab Vision automated slide stainer.

2. Indication(s) for use:

   It is indicated as an aid in assessing the likelihood of response to therapy as well as in the prognosis and management of breast cancer patients

3. Special conditions for use statement(s):

   N/A

4. Special instrument requirements:

   Lab Vision Autostainer

## I. Device Description:

The NeoMarkers Rabbit Monoclonal Anti-Human Estrogen Receptor (ER) (Clone SP1) Antibody is a semiquantitative immunohistochemical assay to identify ER expression in normal and neoplastic tissues routinely processed and paraffin-embedded. The antibodies are available as ready-to-use and concentrated and are optimized for use on the Lab Vision Autostainer.

NeoMarkers Rabbit Monoclonal Anti-Human ER Antibody (Ready-to-use) contains rabbit anti-human monoclonal antibody pre diluted in 0.05 mol/L Tris-HCL, pH 7.6 containing stabilizing protein and 0.015 mol/L sodium azide. The specific antibody concentration is approximately 1.6 μg/mL.

NeoMarkers Rabbit Monoclonal Anti-Human ER Antibody (Concentrate) contains 1 mL (or 0.1 mL, 0.5 mL) concentrated tissue culture supernatant containing rabbit anti-human monoclonal antibody directed against PR antigen, with 0.05% sodium azide as a preservative. The specific antibody concentration is approximately 160 μg/mL.

**J. Substantial Equivalence Information:**

1.  Predicate device name(s):

    Ventana Anti-Estrogen Receptor (6F11) Primary Antibody

2.  Predicate 510(k) number(s):

    k984567

3.  Comparison with predicate:

| Similarities | | |
|---|---|---|
| Item | Device | Predicate |
| Antibody type | Monoclonal | Monoclonal |
| Intended use | Semi-quantitative detection of ER | Semi-quantitative detection of ER |
| Technology | Immunohistochemistry | Immunohistochemistry |
| Tissue Type | Formalin-fixed, paraffin embedded breast tissue | Formalin-fixed, paraffin embedded breast tissue |
| **Differences** | | |
| Item | Device | Predicate |
| Antibody origin | Rabbit | Mouse |
| Clone (ER) | SP1 | 6F11 |

**K. Standard/Guidance Document Referenced (if applicable):**

"Guidance for Industry:  Guidance for Submission of Immunohistochemistry Applications to the FDA"

**L. Test Principle:**

NeoMarkers Rabbit Monoclonal Anti-Human ER Antibody, specifically binds to estrogen receptor antigen located in the nuclear region of a variety of normal and neoplastic tissues.  Immunohistochemical staining is performed on routinely processed, paraffin-embedded specimens.  Immunohistochemistry is a well established, widely accepted laboratory methodology.  The specific antibody is localized by a biotin conjugated secondary antibody formulation that recognizes rabbit immunoglobulins.  This step is followed by the addition of an avidin/streptavidin enzyme conjugate that binds to the biotin present on the secondary antibody.  The specific antibody-secondary antibody-avidin/streptavidin enzyme

complex is then visualized with a precipitating enzyme reaction product, which is readily detected by light microscopy.

**M. Performance Characteristics (if/when applicable):**

1. Analytical performance:

   a. *Precision/Reproducibility:*

      Intra-run Reproducibility

      Ten serial sections were cut from each of three breast carcinoma blocks for a total of 30 slides. The slides were stained on the autostainer and staining intensity was evaluated. Each slide showed acceptable reproducibility to others in the test and there was no variation in staining intensity.

      Inter-run Reproducibility

      Ten serial sections were cut from each of three breast carcinoma blocks for a total of 30 slides. One slide from each block was stained on the autostainer for each of 10 days. Each slide showed acceptable reproducibility over the 10 days. One block showed greater than one degree of staining intensity variation on one day. The other slides showed no variation in staining intensity.

      Inter-method Reproducibility

      Ten different breast carcinoma blocks of varying positivity were stained using the manual method and the automated stainer to determine reproducibility between the different methods. There was acceptable reproducibility between the two methods.

   b. *Linearity/assay reportable range:*

      N/A

   c. *Traceability, Stability, Expected values (controls, calibrators, or methods):*

      Positive and negative controls should be performed with each staining run. The pathologist is responsible for assuring that the assay is performing properly.

   d. *Detection limit:*

      N/A

e. *Analytical specificity:*

A total of 87 formalin-fixed and paraffin-embedded tissues covering a wide range of normal human tissue types were tested with the ER antibody. The antibody demonstrated negative immunoreactivity with most tissues. Positive immunoreactivity was noted with some normal tissues which are typically positive, like uterus, ovary and ductal epithelial cells of the breast.

f. *Assay cut-off:*

A positive staining result is defined as more than 10% of tumor cells with stained nuclei of any intensity.

2. Comparison studies:

a. *Method comparison with predicate device:*

Comparison of the Neomarkers PR antibodies was performed with the predicate device using breast carcinoma tissue arrays.

A total of 249 tissues were tested. There was 90.8% (226/249) total agreement (95% CI, 86.5-94.1%) between NeoMarkers ER antibody and the predicate device. The positive percent agreement was 91.1% (102/112)(95% CI, 84.2-95.6%). The negative percent agreement was 90.5% (124/137)(95% CI, 84.32-94.8%).

In addition, Cano et.al[1] investigated the ER status on 40 paraffin sections from breast cancer patients using the NeoMarkers ER antibody in comparison to the predicate device. Total agreement was observed: sensitivity was 100% (24/24), specificity was 100% (16/16), and accuracy was 100% (40/40).

[1]Cano, G. et. al. Estimation of hormone receptor status in fine-needle aspirates and paraffin-embedded sections from breast cancer using the novel rabbit monoclonal antibodies SP1 and SP2. Diagn. Cytopathol. 29(4):207-211, 2003.

b. *Matrix comparison:*

N/A

3. Clinical studies:

a. *Clinical Sensitivity:*

N/A

*b. Clinical specificity:*

N/A

c. Other clinical supportive data (when a. and b. are not applicable):


4. Clinical cut-off:

N/A

5. Expected values/Reference range:

N/A

**N. Proposed Labeling:**

The labeling is sufficient and it satisfies the requirements of 21 CFR Part 809.10.

**O. Conclusion:**


The submitted information in this premarket notification is complete and supports a substantial equivalence decision.