ER Positive Breast Cancer PDX Models

WuXi AppTec Research Service Division, Oncology & Immunology Unit

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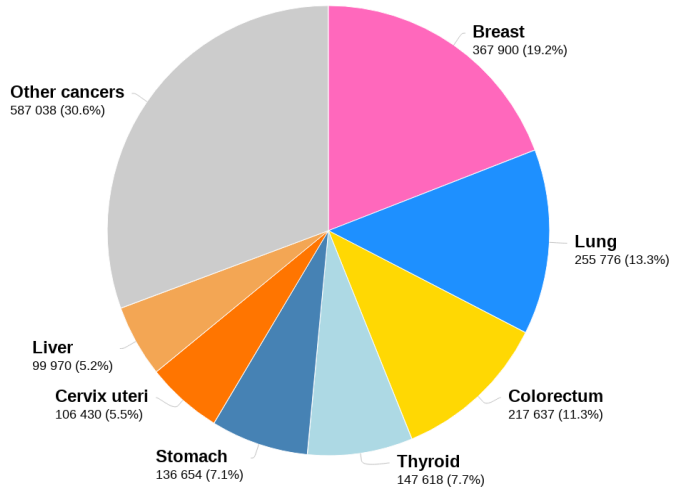
OncoWuXi Newsletter

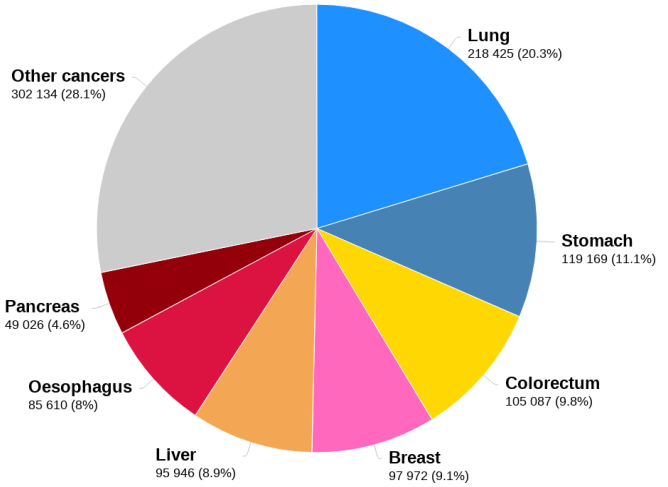
Overview

- Breast cancer is the most frequently diagnosed cancer globally and is the leading cause of cancer-related death in woman.
- A central component of the treatment of breast cancer is full knowledge of extent of disease and biologic features. These factors are determined by examination of excised tissue and are provided in a written pathology report.
- The college of American Pathologists (CAP) has developed pathology reporting protocols to promote complete and standardized reporting of malignant specimens. The checklists are available through the CAP website at www.cap.org.

Estimated number of new cases in 2018, China, all cancers, females, all ages



Estimated number of deaths in 2018, China, all cancers, females, all ages

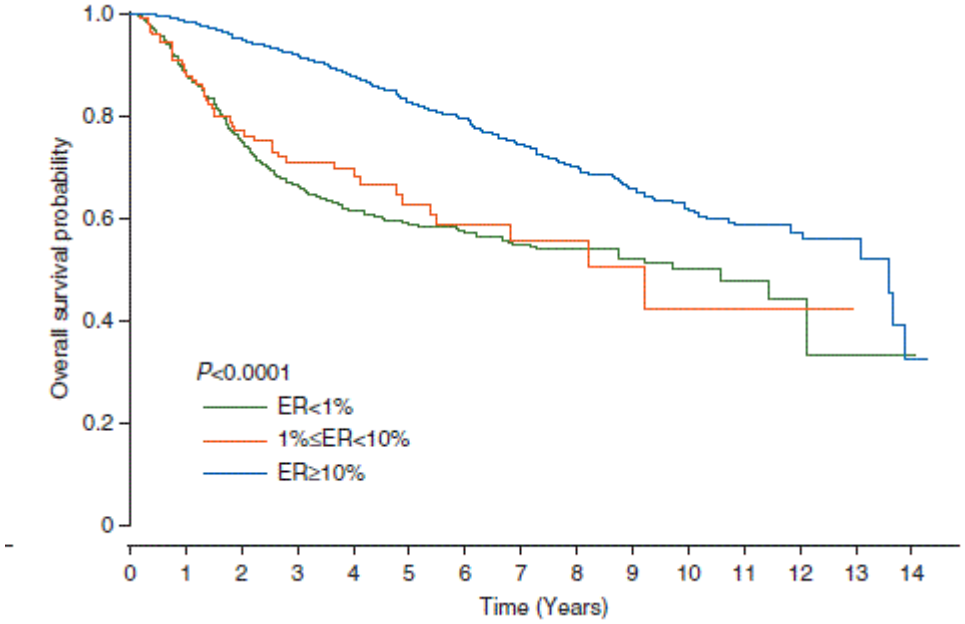


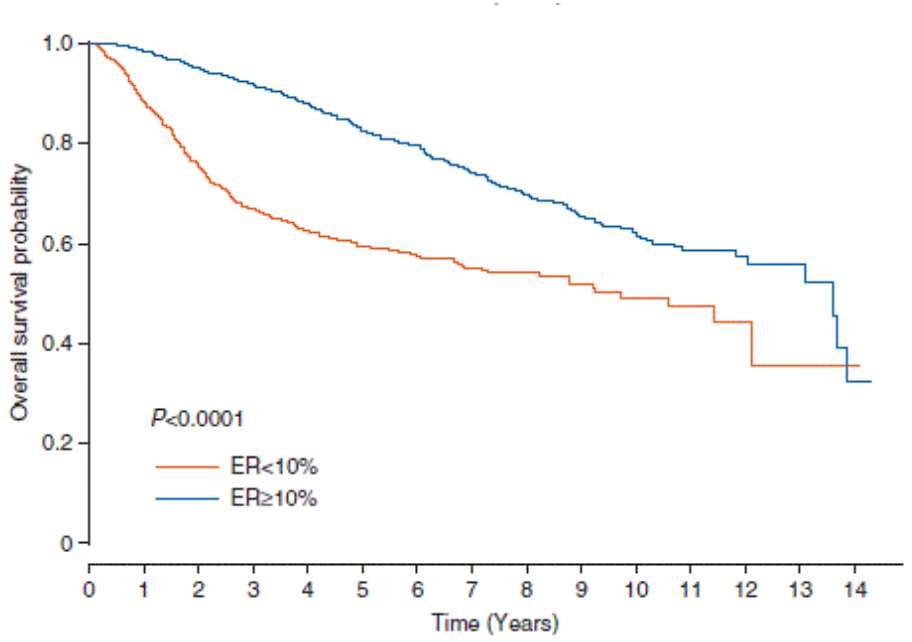
Overview

- ER status should be determined for all samples of ductal carcinoma in situ (DCIS), and ER and PR tumor status should be determined for all samples of invasive breast cancer.
- ER and PR tumors status is normally determined by immunohistochemistry (IHC) testing. There have been several reports indicating that the reliability of ER and PR determinations can vary from one lab to another. These inter-laboratory differences may be attributable to the diverse methodologies and diverse interpretation schema used to evaluate tumor hormonal status.
- Recommendations in April 2010 ASCO/CAP Estrogen (ER) and Progesterone Receptor (PgR) Guideline defines positive for each test as 1% of tumor cells showing nuclear staining with antibody directed against either ER or PR.

Overview

- Although 1% has been used as cut-off for estrogen receptor (ER) positivity, several studies have reported that tumors with ER<1% have characteristics similar to those with 1%<ER<10%.
- It may be more clinically relevant to define triple-negative breast cancer as HER2-negative breast cancer with<10%, rather than<1%, of ER and/or progesterone receptor expression.

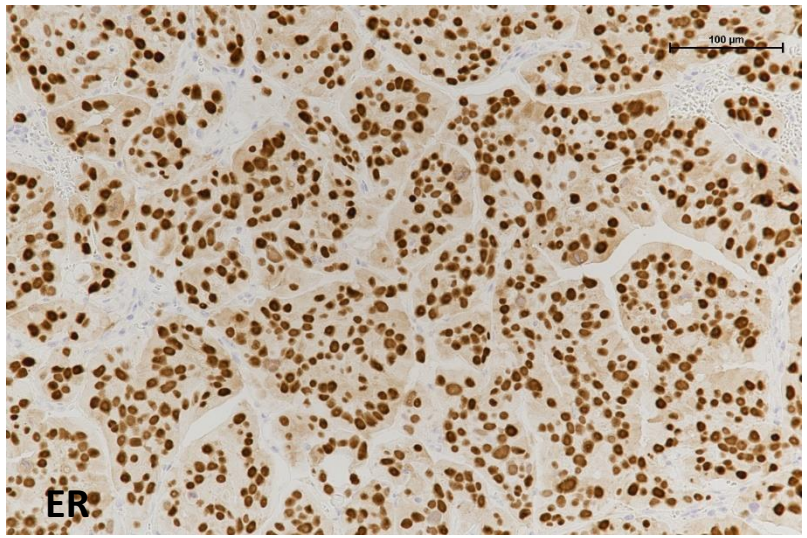


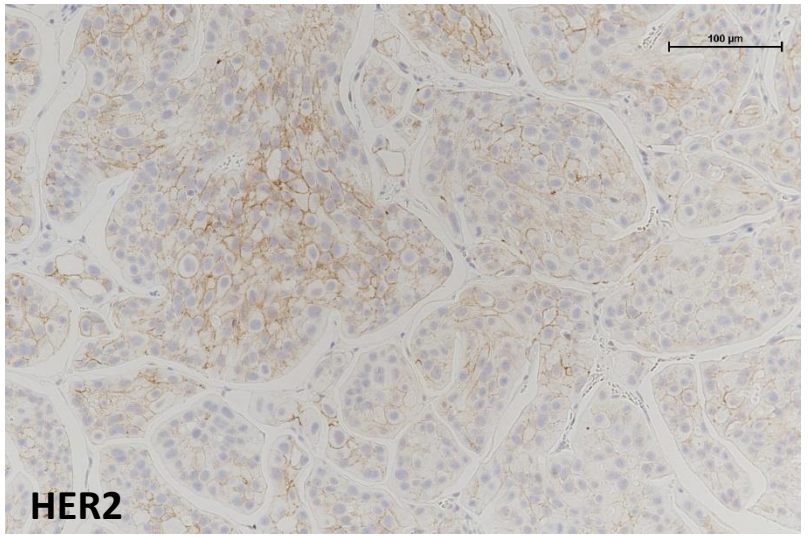


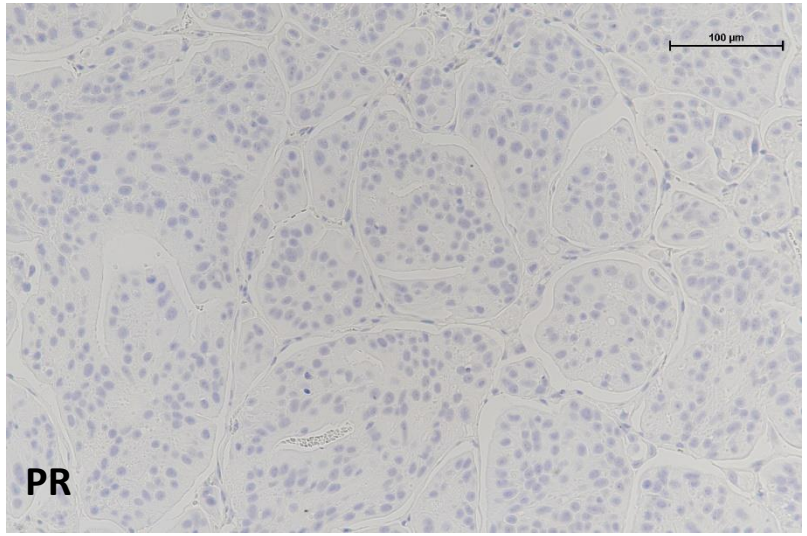
Summary

Model ID	Pathological diagnosis	Pathological diagnosis (PDX)	Molecular diagnosis Clinical	Tumor Grade	Tumor Stage	Gene profiling
BR-05-0380	Infiltrating carcinoma	ER 3+; PR 0; Her2 2+	ER(90%+);PR(-);HER2(2+); Ki-67(30%+)	II	NA	√
BR-05-0436E	Ductal carcinoma	ER 95%; PR 60 5; Her2 1+	ER+, PR+,HER2-	III	NA	√

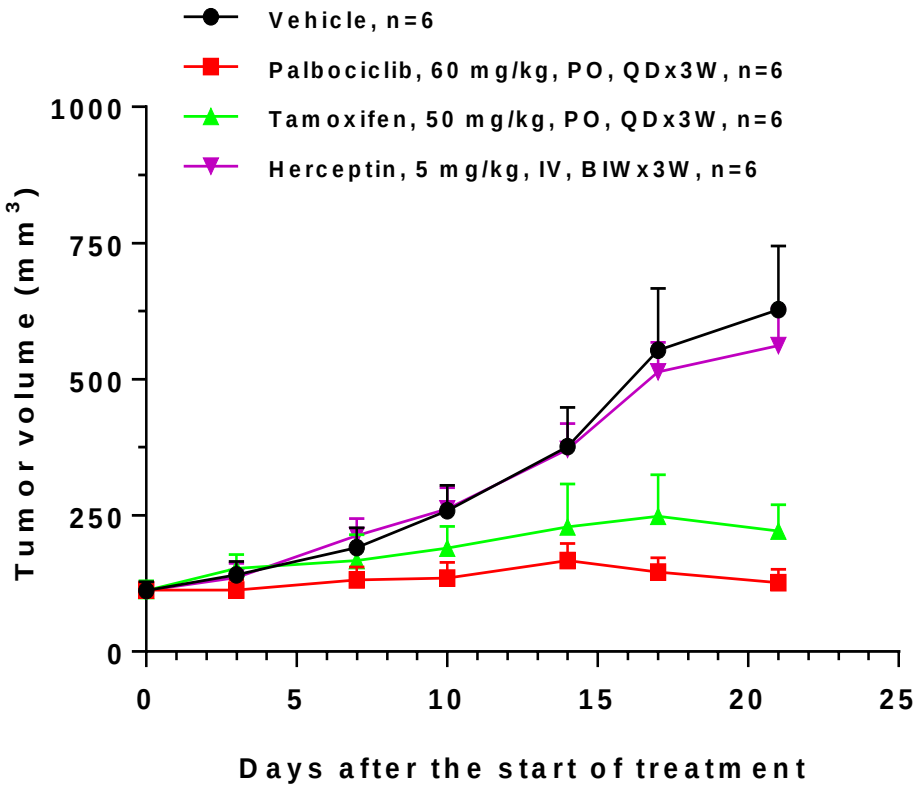
BR-05-0380_P1 IHC Staining 20X

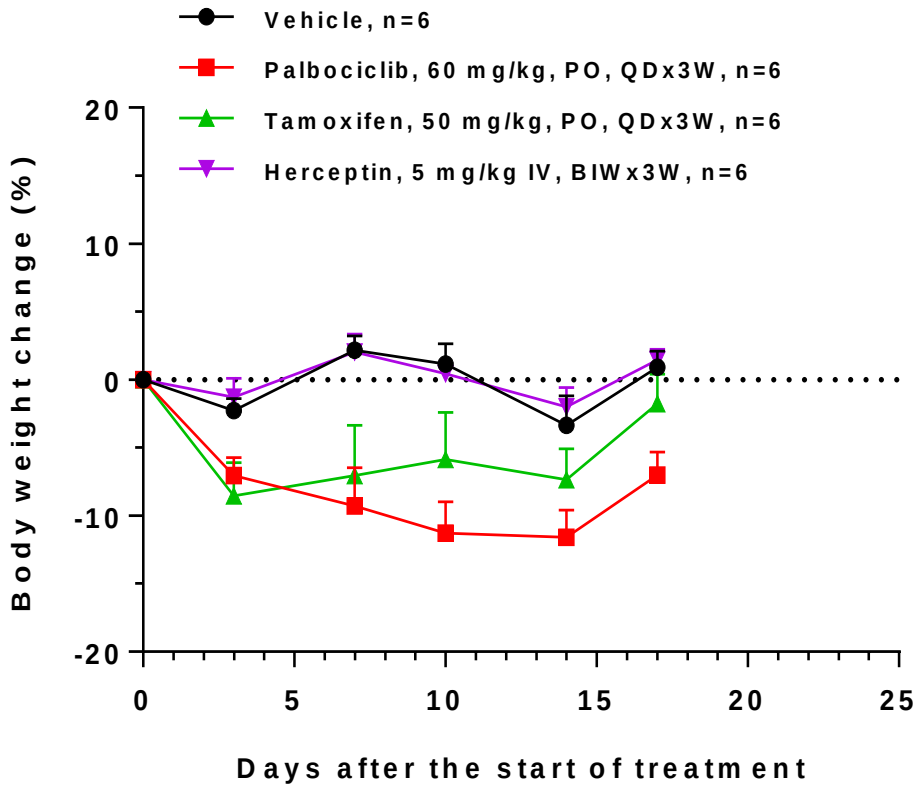




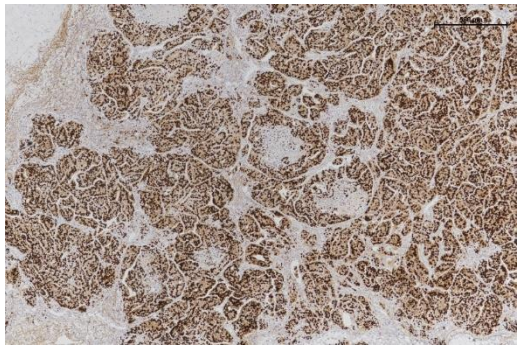


Tamoxifen, Herceptin and Palbociclib in BR-05-0380_P3





ER Staining in BR-05-0380 efficacy study



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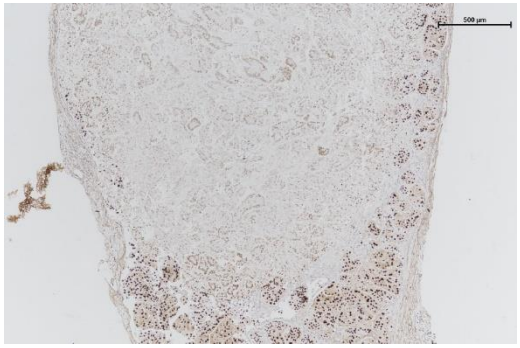

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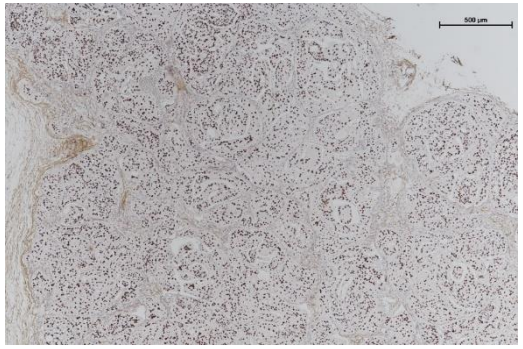
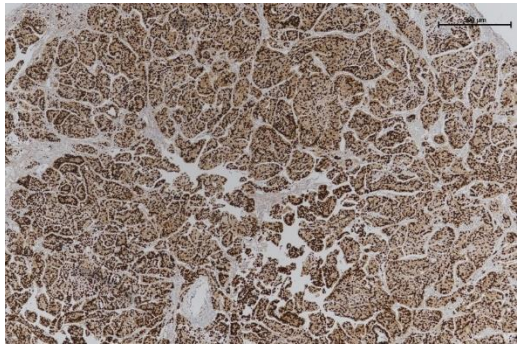
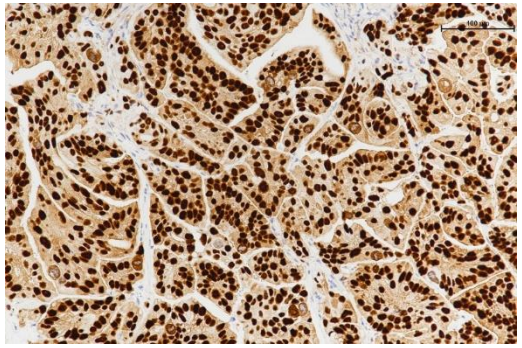


Tamoxifen 40X



Herceptin 40X



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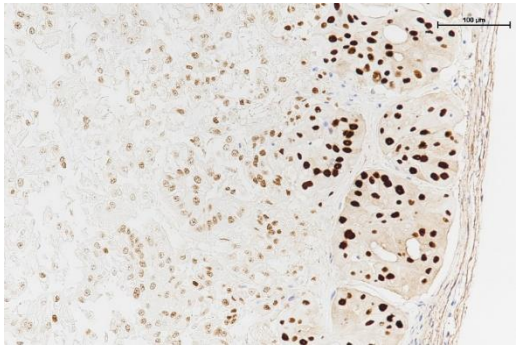

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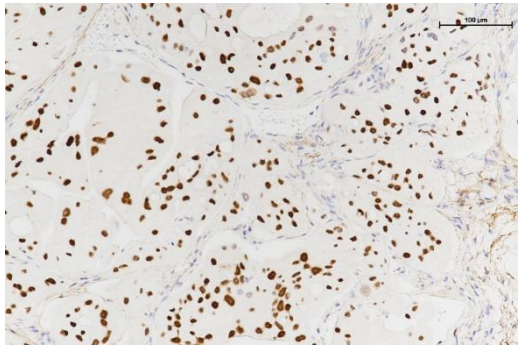
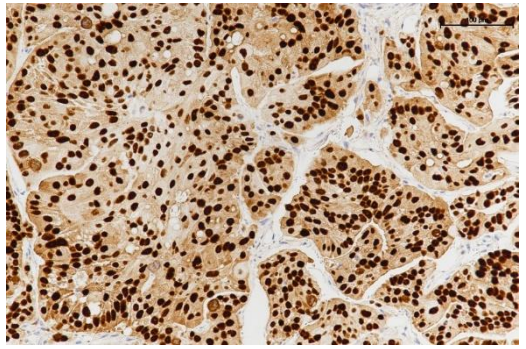
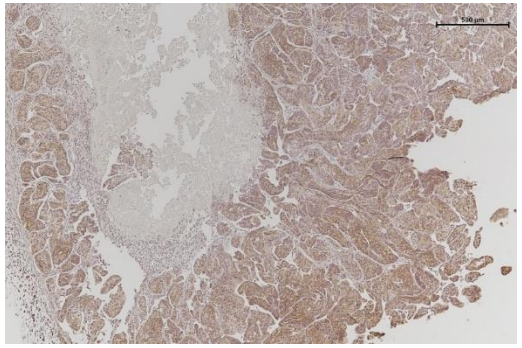


Tamoxifen 200X



Herceptin 200X

HER2 Staining in BR-05-0380 efficacy study



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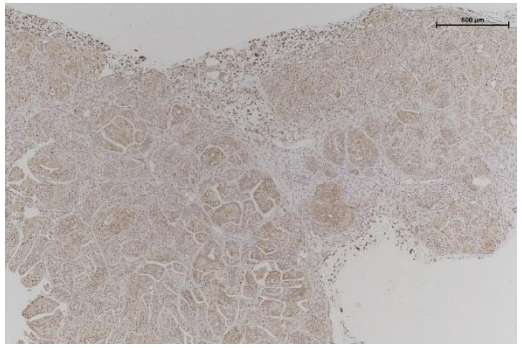

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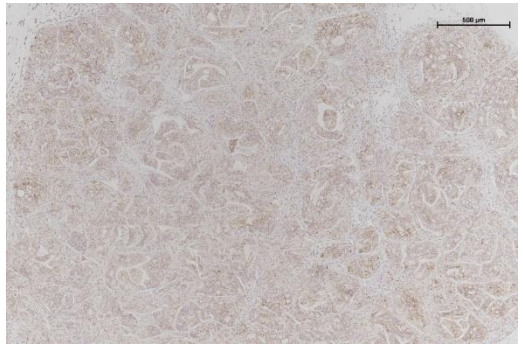

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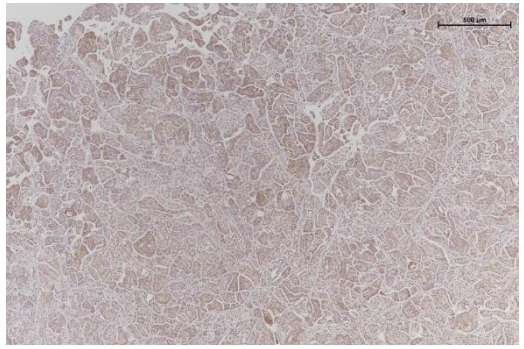

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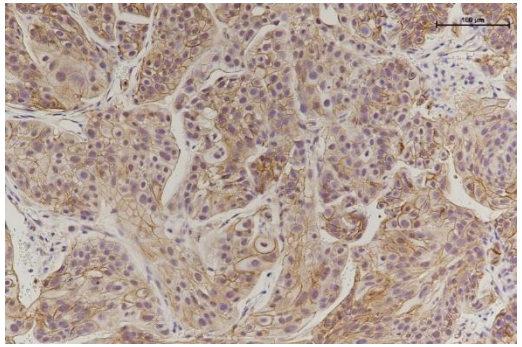

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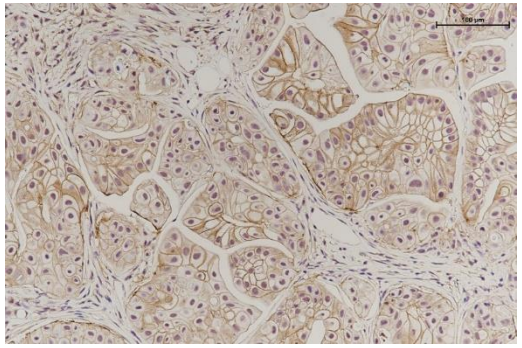

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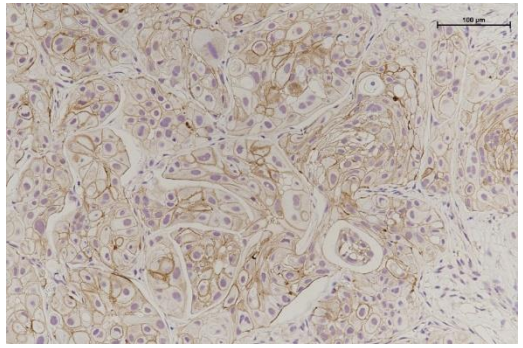
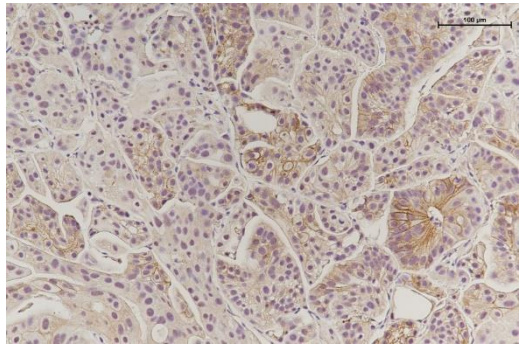
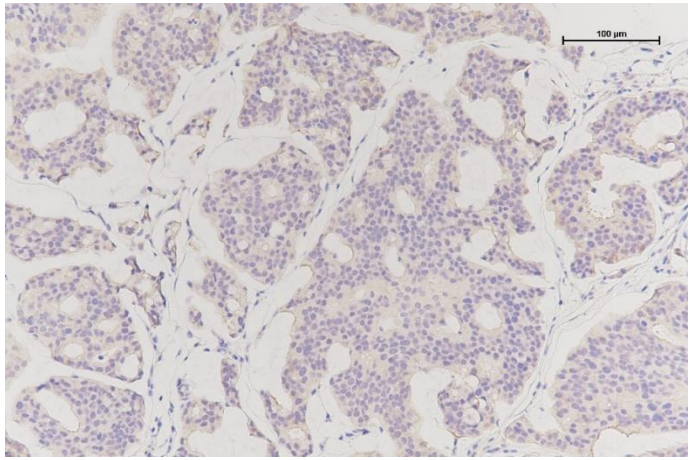


Tamoxifen 200X

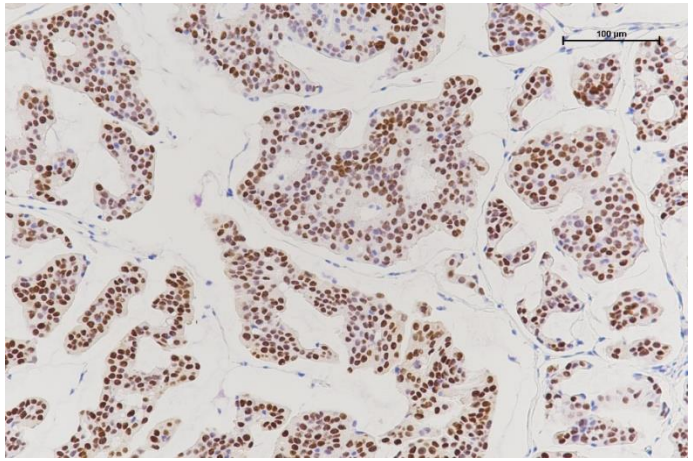


Herceptin 200X

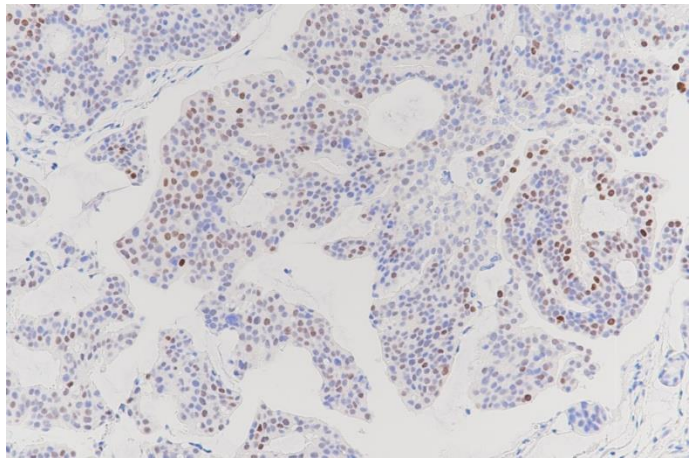
BR-05-0436E_P4 IHC Staining 20X



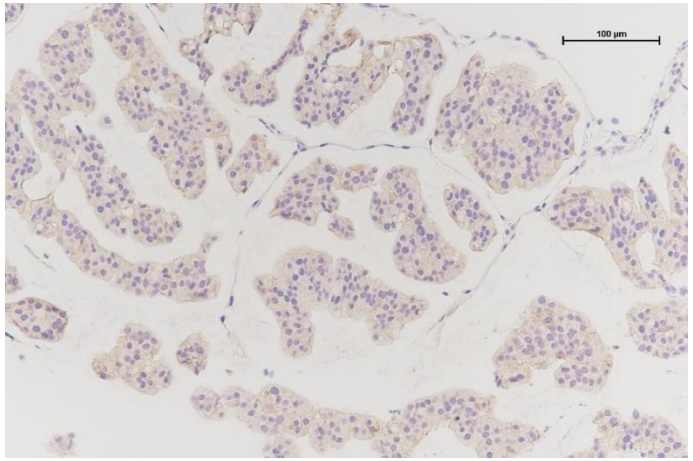
BR-05-0436E P1 HER2



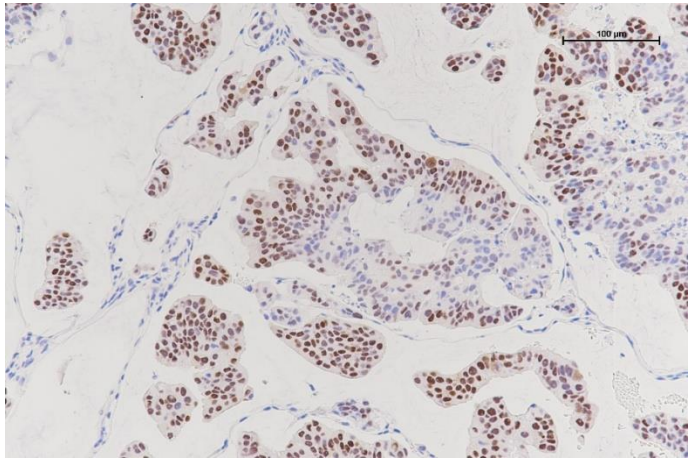
BR-05-0436E P1 ER



BR-05-0436E P1 PR



BR-05-0436E P4 HER2



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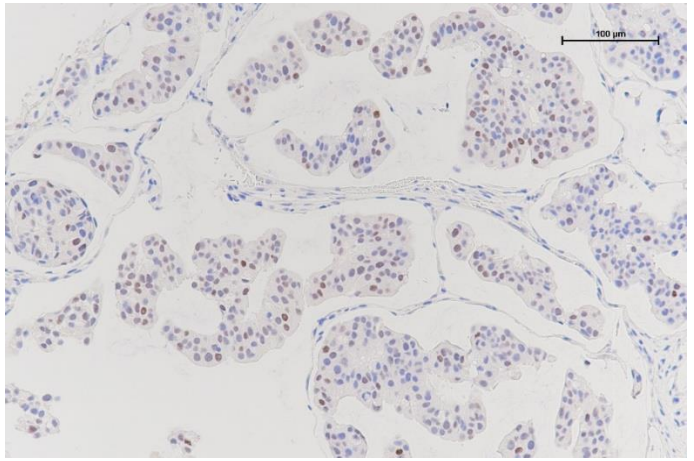
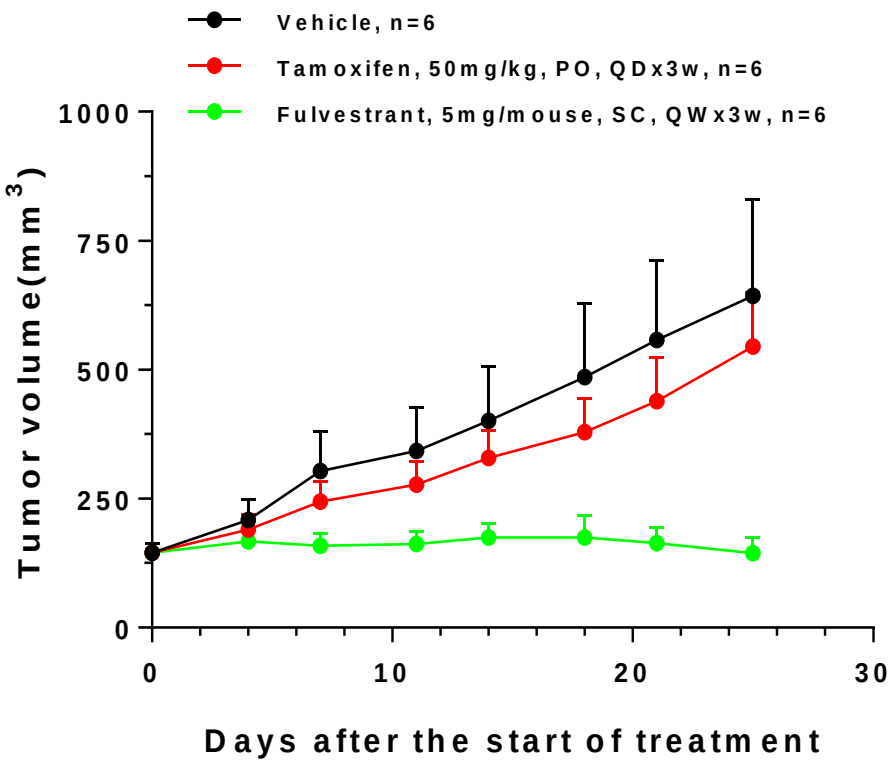
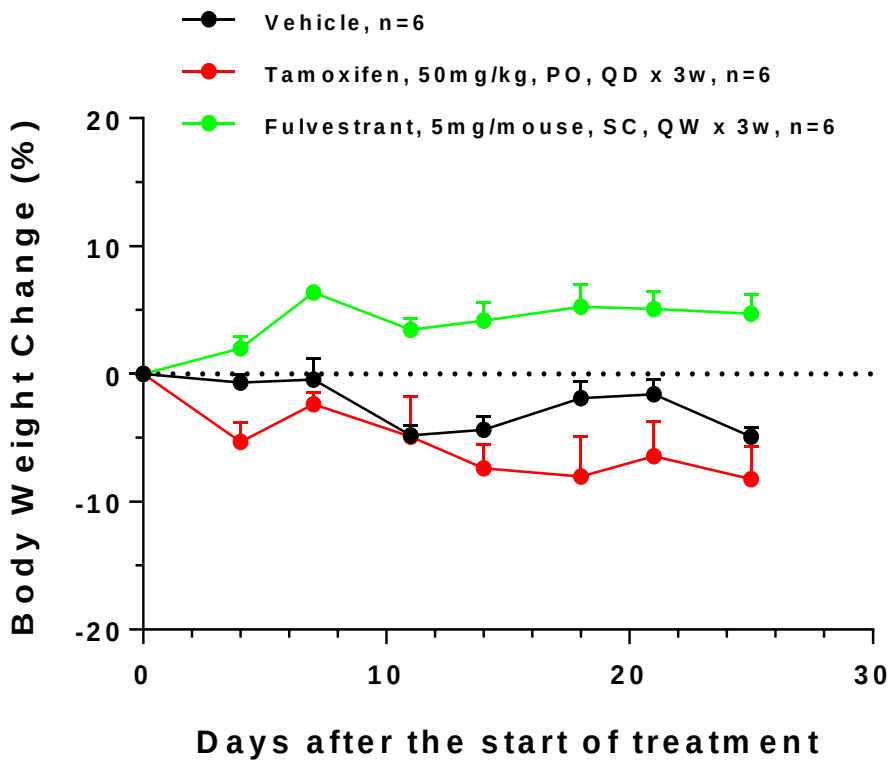
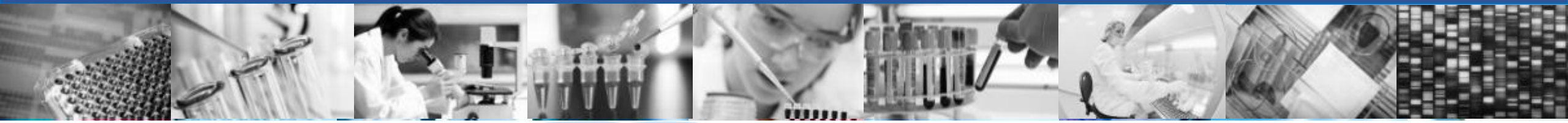


BR-05-0436E P4 PR

Tamoxifen and Fulvestrant in BR-05-0436E_P6







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