

Figure S1. Histopathology and IHC analysis of the primary breast lesion and metastatic lung deposits via core needle biopsy. (A-D) Primary breast lesion and (E-J) metastatic lung deposits. (A) H&E staining showing invasive cancer of no special type (ductal cancer), Tumor formed nests and irregular tubules with moderate nuclear pleomorphism and mitotic activity. (B) IHC for ER demonstrating strong nuclear positivity in ~80% of tumor cells. (C) IHC for PR showing strong nuclear positivity in ~70% of tumor cells. (D) IHC for HER2 revealing negative (no membrane staining) in tumor cells. (E) H&E staining of metastatic breast carcinoma in lung tissue. Tumor cells form irregular nests surrounded by alveolar lung parenchyma. (F) IHC for ER demonstrating weak nuclear positivity in ~50% of tumor cells. (G) IHC for PR demonstrating moderate nuclear positivity in ~10% of tumor cells. (H) IHC for HER2 revealing negative (no membrane staining) in tumor cells. (I) GATA binding protein 3 nuclear expression confirming breast origin (strong diffuse positivity). (J) Transcription termination factor 1 immunostaining highlighting alveolar pneumocytes but negative in metastatic tumor cells (magnification, x200; scale bars, 100  $\mu$ m). H&E, hematoxylin and eosin; IHC, immunohistochemistry; ER, estrogen receptor; PR, progesterone receptor; HER2, human epidermal growth factor receptor 2.

