Supplementary information

Hematoxylin and eosin protocol. The tissue samples were fixed with 4% paraformaldehyde solution at room temperature for 24 h, then paraffin-embedded (FFPE) and cut into 4-μm thick sections after deparaffinization and rehydration. The sections were stained with hematoxylin solution for 5 min at room temperature followed by 5 dips in 1% acid ethanol and then rinsed in distilled water. After which, the sections were stained with eosin solution for 3 min at room temperature, followed by dehydration with graded alcohol and clearing in xylene. The mounted slides were then examined using EVOS M7000 Imaging System.

Immunohistochemistry (IHC) protocol. FFPE samples were prepared and cut into 4-μm-thick sections. The sections were dried, deparaffinized and dehydrated in a graded ethanol series. The antigen was retrieved by a high-pressure method using alkaline pH (pH 8.0) for 1 min, and then washed with PBS 3 times. After which, the tissue sections were treated with 1% hydrogen peroxide for 10 min to block endogenous tissue peroxidase activity and non-specific protein binding. The slides were incubated with primary antibodies including D2-40, WT-1, AE1/AE3, calretinin, caudal-type homeobox transcription factor 2, paired-box gene 8, human bone marrow endothelial cell marker-1 (MC), OCT3/4, special AT-rich sequence-binding protein 2, P63, P40, cytokeratin (CK), thyroid transcription factor 1, GATA3, estrogen receptor, human epidermal growth factor receptor 2, progesterone receptor, chromogranin A, synaptophysin, MELAN-A, CEA, CK7, CK18, Ki67, programmed cell death ligand 1 (PD-L1) and PD-L1 (22C3) overnight at 4˚C. All antibodies for IHC were used in the form of a working solution following the manufacturer's instructions and antibody details are listed in Table SI. followed by incubation with secondary antibodies (Dako REAL EnVision Detection System, Peroxidase/DAB, rabbit/mouse, HRP Kit; cat. no. K5007; DAKO; Agilent Technologies, Inc.) at room temperature for 30 min. Finally, the sections were developed with 3,3'-diaminobenzidine and then counterstained with hematoxylin at room temperature for 5 sec, prior to assessment using the EVOS M7000 Imaging System (Thermo Fisher Scientific, Inc.).

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Figure S1. Histology (H&E staining; magnification, x25, x100 and x200) and immunohistochemistry results (magnification, x200). CEA, carcinoembryonic antigen; CR, calretinin; PD-L1, programmed death ligand 1; TTF1, transcription termination factor 1; WT-1, Wilms' tumor-1 protein.