



**Supplementary Fig. S4.** (A–H) Examples of tissue microarray (TMA) cores with high neoplastic cell percentage ( $\geq 60\%$ ) underestimated by artificial intelligence (AI) models. (A, B) Spindle-shaped nuclei misclassified as stromal cells (B, arrow). (C, D) Degenerated cells with pyknotic nuclei misclassified

as mostly immune cells (D, arrow). (E, F) Tumor cells with abundant cytoplasm misclassified as stromal cells (F, arrow). (G, H) Misclassification of tumor cells as stromal cells due to cauterization (H, arrow). (B, D, F, H) Cells classified by an AI model: red, tumor cells; blue, stromal cells; yellow, immune cells.