

**Supplementary Table S3.** Possible causes of underestimation of the AI Models in TMA cores with a high NCP ( $\geq 60\%$ )

Possible causes	Core counts	Percentage (%)
Nuclear spindling	27	19.9
Nuclear degeneration (pyknosis)	22	16.2
Abundant cytoplasm	6	4.4
Mixed <sup>a</sup>	4	2.9
Cauterization	3	2.2
Unremarkable	74	54.4
Total	136	100

AI, artificial intelligence; TMA, tissue microarrays; NCP, neoplastic cell percentage.

<sup>a</sup>Three cores showed both features of nuclear degeneration (pyknosis) and spindling. One core showed both features of abundant cytoplasm and nuclear spindling.