

Supplementary Materials

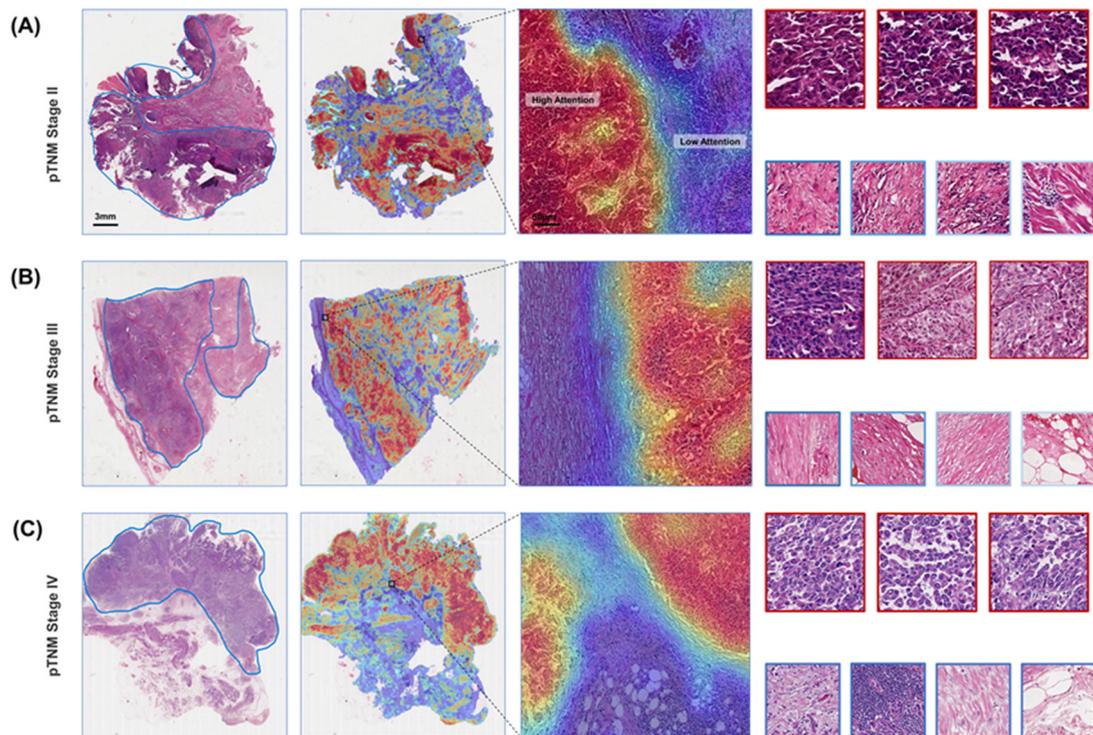
Supplementary Table S1

(a) Dataset distribution of patients and corresponding images in the diagnostic model (BlcaMIL)				
	Patients	Total images	Malignant images	Normal images
TCGA	412	926	887 (95.79%)	39 (4.21%)/740 *
RHWU	250	250	150 (60%)	100 (40%)

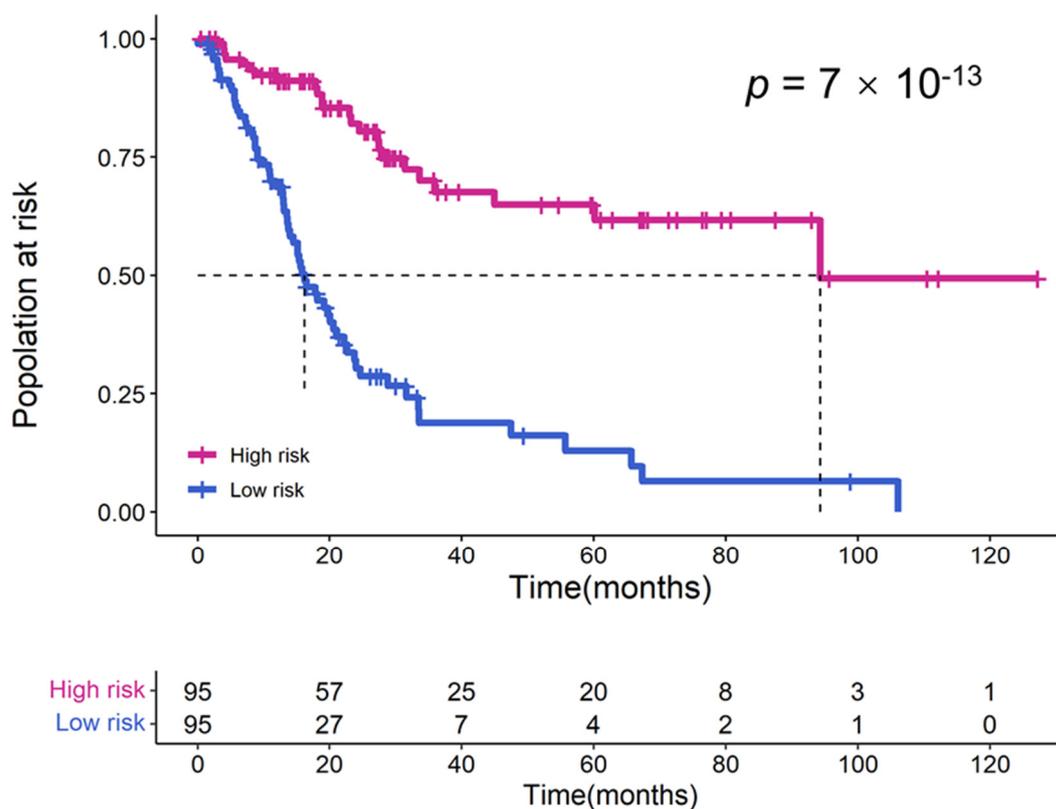
(b) Dataset distribution of patients and corresponding images in the prognostic model (MibcMLP)		
	Patients	Images
TCGA	326	326
RHWU	144	144

(c) Dataset distribution of images in the training, internal validation and external validation sets			
	Training set	Internal validation set	External validation set
BlcaMIL	1302	325	250
MibcMLP	190	136	144

* The number of normal images from TCGA after data argumentation.



Supplementary Figure S1. Heatmaps of diagnostic model (BlcaMIL) on WSI at different pathological stages in the RHWU cohort. (A–C), pathological original images, corresponding heatmaps and representative patches with pathological TNM stage II, III, and IV from the RHWU cohort, respectively.



Supplementary Figure S2. Prognostic value of MibcMLP-generated risk scores in training set. The p -value was evaluated by Log-Rank test.