

Supplementary Material

Table S1. Patients' information.

Malignant (total 33 patients, 35 biopsies)		Benign (total 26 patients, 26 biopsies)	
Number	Diagnosis	Number	Diagnosis
M01	IDC	B01	FADS
M02	IDC	B02	FAD
M03	DCIS	B03	FAD
M04	IDC	B04	FAD
M05	IDC	B05	FAD
M06	IDC	B06	FADS
M07	IDC	B07	FADS
M08	IDC	B08	FADS
M09	IDC	B09	FADS
M10	IDC	B10	FADS
M11	IDC	B11	FAD
M12	DCIS	B12	FADS
M13	IDC	B13	FAD
M14	IDC	B14	FADS
M15	IDC	B15	FAD
M16	IDC	B16	FAD
M17	IDC	B17	FAD
M18	IDC	B18	FAD
M19	IDC (2 biopsies)	B19	FAD
M20	IDC (2 biopsies)	B20	FAD
M21	IDC	B21	SA
M22	IDC	B22	FAD
M23	DCIS	B23	FAD
M24	IDC	B24	FAD
M25	IDC	B25	FAD

M26	IDC	B26	FAD
M27	IDC		
M28	IDC		
M29	IDC		
M30	IDC		
M31	IDC		
M32	IDC		
M33	IDC		

Abbreviations:

IDC: invasive ductal carcinoma

DCIS: ductal carcinoma in situ

FAD: fibroadenoma

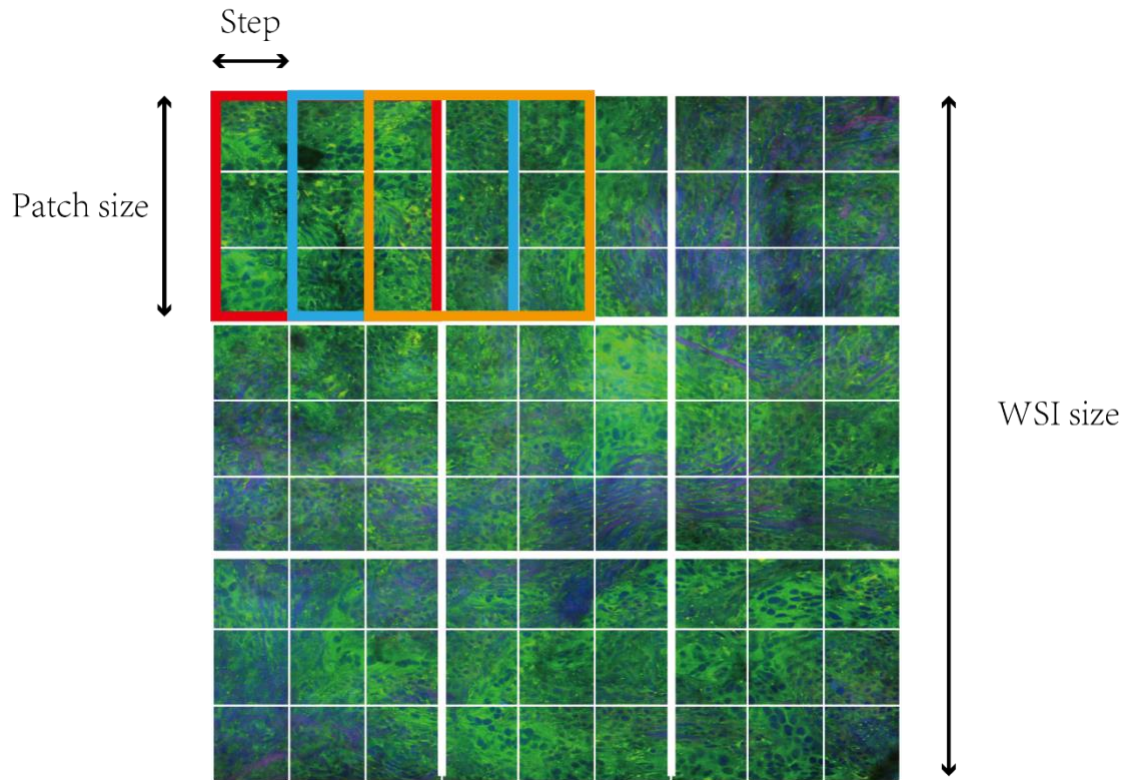
SA: breast sclerosing adenosis

FADS: fibroadenosis

Table S2. Details for the MIL-CNN model optimization procedure.

Class	Value
Criteria	Focal loss
Optimizer	Adam
β_1	0.9
β_2	0.999
Learning rate	0.001
Weight decay	0.0001
Epochs	200
Batch size	32
Number of top tiles	15

Figure S1. The averaging method for generating intact heatmap of SRS image. WSI size here is 1350×1350 pixels, patch size is 450×450 pixels, step size is 150 pixels.



1	2	3	3	3	3	3	2	1
2	4	6	6	6	6	6	4	2
3	6	9	9	9	9	9	6	3
3	6	9	9	9	9	9	6	3
3	6	9	9	9	9	9	6	3
3	6	9	9	9	9	9	6	3
3	6	9	9	9	9	9	6	3
2	4	6	6	6	6	6	4	2
1	2	3	3	3	3	3	2	1