



Figure S1 Flowchart of patient selection.

**Table S1** Clinical characteristics of the training and testing cohorts in the task of predicting tumor and non-tumor patients

Characteristics	Training cohort				Testing cohort			
	All	Non-breast tumors	Breast tumors	P	All	Non-breast tumors	Breast tumors	P
Age, years	39.84±10.41	43.62±9.35	38.24±10.44	<0.001	40.10±11.14	43.76±10.80	38.54±10.96	0.012
Diameter, mm				<0.001				0.01
≤5	31 (5.01)	18 (9.78)	13 (2.99)		12 (7.79)	5 (10.87)	7 (6.48)	
5–10	168 (27.14)	65 (35.33)	103 (23.68)		41 (26.62)	19 (41.30)	22 (20.37)	
>10	420 (67.85)	101 (54.89)	319 (73.33)		101 (65.58)	22 (47.83)	79 (73.15)	
Location				0.896				0.975
Upper inner quadrant	143 (23.10)	42 (22.83)	101 (23.22)		33 (21.43)	10 (21.74)	23 (21.30)	
Lower inner quadrant	101 (16.32)	27 (14.67)	74 (17.01)		21 (13.64)	6 (13.04)	15 (13.89)	
Outer upper quadrant	267 (43.13)	82 (44.57)	185 (42.53)		73 (47.40)	21 (45.65)	52 (48.15)	
Outer lower quadrant	108 (17.45)	33 (17.93)	75 (17.24)		27 (17.53)	9 (19.57)	18 (16.67)	
Focus				0.097				0.623
Unifocal	303 (48.95)	100 (54.35)	203 (46.67)		74 (48.05)	24 (52.17)	50 (46.30)	
Multifocal	316 (51.05)	84 (45.65)	232 (53.33)		80 (51.95)	22 (47.83)	58 (53.70)	
BI-RADS				<0.001				0.004
2	30 (4.85)	28 (15.22)	2 (0.46)		5 (3.25)	5 (10.87)	0	
3	348 (56.22)	88 (47.83)	260 (59.77)		87 (56.49)	24 (52.17)	63 (58.33)	
4A	191 (30.86)	52 (28.26)	139 (31.95)		49 (31.82)	15 (32.61)	34 (31.48)	
4B	50 (8.08)	16 (8.70)	34 (7.82)		13 (8.44)	2 (4.35)	11 (10.19)	

Data are presented as mean ± SD or n (%).

**Table S2** Clinical characteristics of the training and testing cohorts in the task of predicting adenosis and other type of lesions

Characteristics	Training cohort				Testing cohort			
	All	Other type of lesions	Adenosis	P	All	Other type of lesions	Adenosis	P
Age, years	43.91±9.64	44.37±10.37	43.58±9.10	0.581	42.59±9.63	43.76±10.80	38.54±10.96	0.002
Diameter, mm				0.844				0.25
≤5	19 (10.33)	7 (8.97)	12 (11.32)		4 (8.70)	3 (17.65)	1 (3.45)	
5–10	67 (36.41)	28 (35.90)	39 (36.79)		13 (28.26)	4 (23.53)	9 (31.03)	
>10	98 (53.26)	43 (55.13)	55 (51.89)		29 (63.04)	10 (58.82)	19 (65.52)	
Location				0.17				0.452
Upper inner quadrant	42 (22.83)	17 (21.79)	25 (23.58)		10 (21.74)	5 (29.41)	5 (17.24)	
Lower inner quadrant	22 (11.96)	5 (6.41)	17 (16.04)		11 (23.91)	4 (23.53)	7 (24.14)	
Outer upper quadrant	86 (46.74)	42 (53.85)	44 (41.51)		17 (36.96)	4 (23.53)	13 (44.83)	
Outer lower quadrant	34 (18.48)	14 (17.95)	20 (18.87)		8 (17.39)	4 (23.53)	4 (13.79)	
Focus				0.008				1.0
Unifocal	100 (54.35)	33 (42.31)	67 (63.21)		25 (54.35)	9 (52.94)	16 (55.17)	
Multifocal	84 (45.65)	45 (57.69)	39 (36.79)		21 (45.65)	8 (47.06)	13 (44.83)	
BI-RADS				0.773				0.322
2	26 (14.13)	11 (14.10)	15 (14.15)		7 (15.22)	4 (23.53)	3 (10.34)	
3	84 (45.65)	36 (46.15)	48 (45.28)		24 (52.17)	7 (41.18)	17 (58.62)	
4A	57 (30.98)	22 (28.21)	35 (33.02)		13 (28.26)	6 (35.29)	7 (24.14)	
4B	17 (9.24)	9 (11.54)	8 (7.55)		2 (4.35)	0	2 (6.90)	

Data are presented as mean ± SD or n (%).