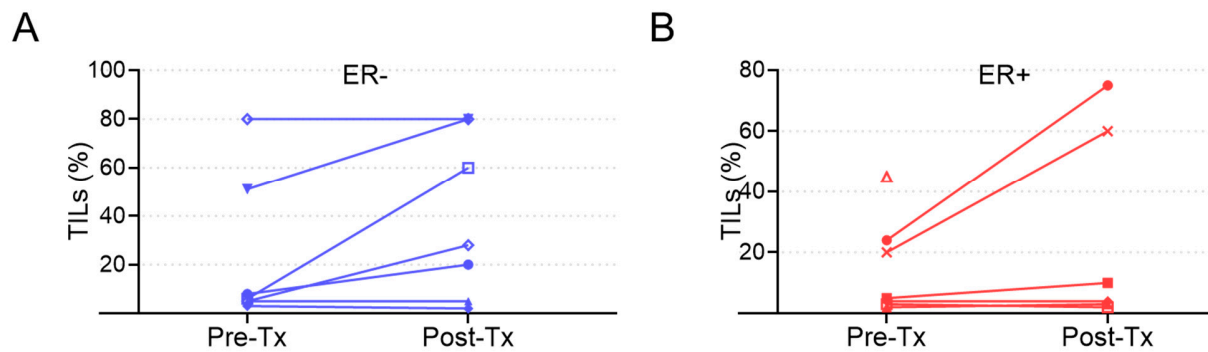
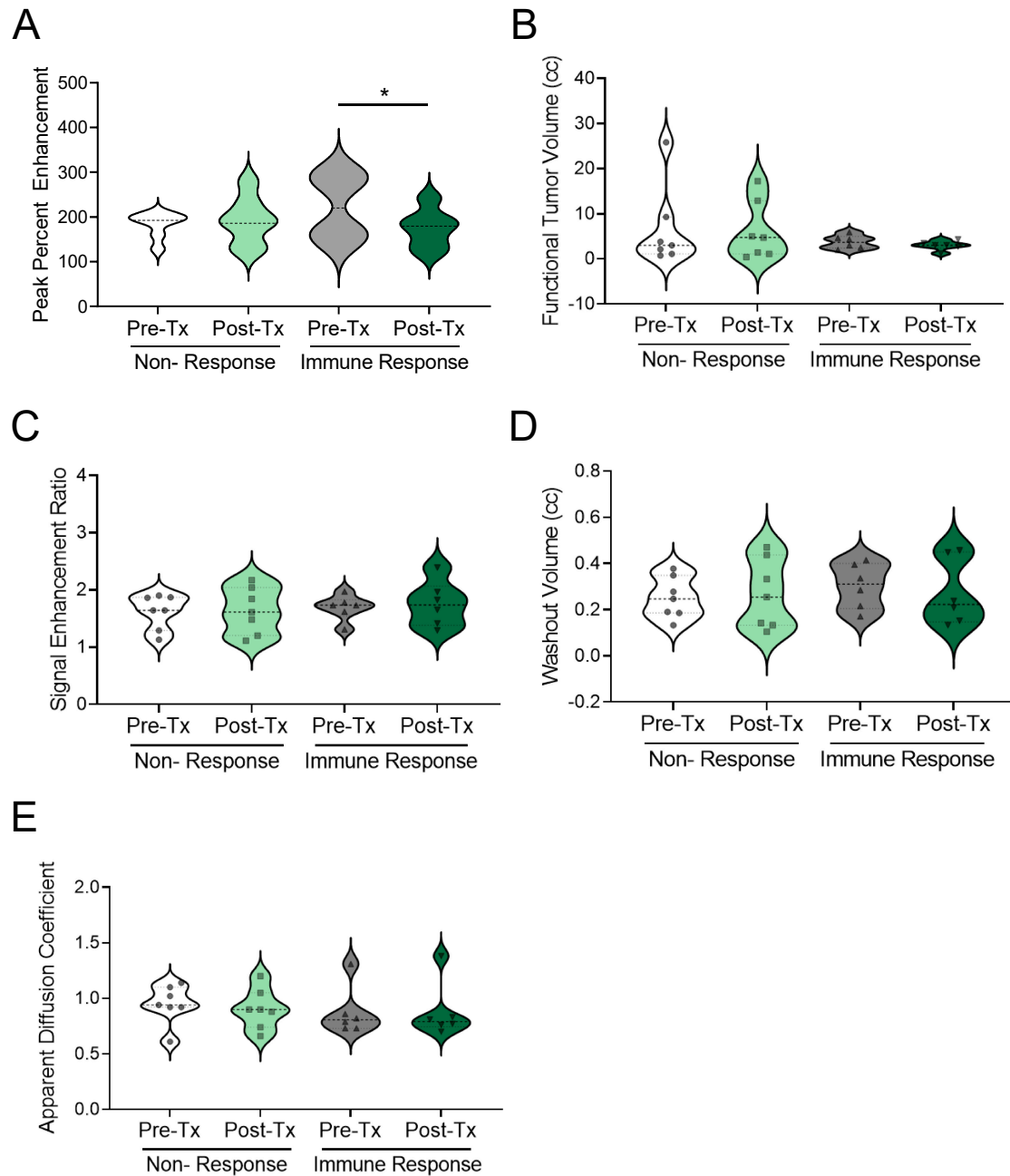


## SUPPLEMENTAL FIGURES



**Figure S1. Tumor-infiltrating lymphocyte (TIL) distribution by hormone receptor status before and after trastuzumab treatment.** **A.** Pre- and post-treatment TIL levels for patients with ER- breast cancer only. Post-treatment TILs were significantly higher than pre-treatment TILs (paired t-test,  $p < 0.05$ ). **B** Pre- and post-treatment TIL levels for patients with ER+ breast cancer only. One ER+ patient had pre-treatment tissue available only due to lack of research biopsy after a single dose of trastuzumab. Post-treatment TILs trended towards being higher than pre-treatment TILs ( $p = 0.08$ ).



**Figure S2. MRI features in groups with or without immune response.** Immune response was defined as an increase in TIL content by more than a decile. **A** Peak percent enhancement. Significant difference observed between Pre-Tx and Post-Tx within the immune response cohort (paired t-test,  $p = 0.02$ ). **B**. Functional tumor volume (FTV), **C**. signal enhancement ratio (SER), **D**. combined wash-out volume (WF), and **E**) apparent diffusion coefficient (ADC). Asterisk (\*) indicates  $p < 0.05$ .

**Table S1. Individual patient data for imaging feature correlation with stromal tumor-infiltrating lymphocytes (sTILs).** The stromal TILs are reported as deciles. Decile 1.0 = 0-9%, 2.0 = 10-19%, 3.0 = 20-29%, 4.0 = 30-39%, 5.0 = 40-49%, 6.0 = 50-59%, 7.0 = 60-69%, 8.0 = 70-79%, 9.0 = 80-89%, 10 = 90-99%. The functional tumor volume (FTV), combined wash-out volume percentage (WF), peak percent enhancement (PE), and signal enhancement ratio (SER) were all derived from the dynamic-contrast enhanced images. The apparent diffusion coefficient (ADC) was derived from a representative tumor plane from the diffusion-weighted imaging. Patient 8 did not have a post-trastuzumab tissue sample available for assessment.

Pt ID	sTILs (decile)		fTV (cc)		WF		PE (%)		SER		ADC (x10 <sup>-3</sup> mm <sup>2</sup> /sec)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	1	3.5	4.3	4.3	0.17	0.237	173	139	1.62	1.65	0.82	0.81
2	6	9	4.6	3	0.285	0.132	137	118	1.73	1.41	0.86	0.83
3	9	9	3	1.4	0.185	0.254	192	185	1.64	1.84	0.92	0.9
4	1.5	7	3	2.7	0.336	0.208	303	190	1.73	1.82	0.73	0.7
5	1.5	3	2.5	1.2	0.216	0.151	163	168	1.31	1.29	1.31	1.38
6	1	1	25.8	12.9	0.132	0.142	201	186	1.64	1.48	1.14	1.2
7	1	1	9.3	17.2	0.277	0.332	201	279	1.86	2.04	1.1	1.05
8	5.5		19.3	1.5	0.554	0.254	210	111	1.97	1.16	0.78	1.03
9	3	8.5	2	3.5	0.395	0.456	291	242	1.97	2.39	0.73	0.77
10	3	7	5.9	3	0.414	0.447	267	191	1.78	1.96	0.79	0.76
11	1	1	0.7	0.4	0.246	0.132	128	136	1.13	1.11	0.92	0.9
12	1	1	1.1	1.1	0.377	0.437	191	198	1.9	1.61	0.94	0.88
13	1	2	2.1	5	0.348	0.47	207	231	1.87	2.17	0.61	0.66
14	1	1	3.8	4.7	0.19	0.104	160	124	1.29	1.2	1.02	0.74
Median	1.5	2.5	3	3	0.285	0.254	201	186	1.73	1.61	0.92	0.88