

Oncotype	prognosis	Albain	Lancet Oncol	2010	Retro-prospective biomarker analysis	FFPE archived	SWOG-8814 (ER+, LN-, post-menopausal, tam vs CA-1)	927	367	yes	Adjuvant	ETx, CTx	DFS/OS at 10 years	DFS Entire Period HR=2.64(1.33-5.27) p<0.006 DFS at 5 Yrs HR=5.5(2.32-12.28) p<0.0002 DFS vs ETx vs ET+CTx RS<18 log rank p=0.97 HR=1.02 RS 18-30 log rank p=0.48 HR=0.72 RS>30 log rank p=0.033 HR=0.95	OS Entire Period HR=4.4(2.1-9.97) p<0.0006 OS for ETx vs ET+CTx RS<18 log rank p=0.69 RS 18-30 log rank p=0.85 RS>30 log rank p=0.027	1.00	0.00	0.12	1.00	0.00	II, IIIa	B	Recurrence Score significantly prognostic for DMFS and OS in ER+ LN- pts treated with tam. No benefit was observed for CTx in low RS patients, but a significant benefit was observed in patients with high RS (>25).
Oncotype	prognosis	Dowsett	J Clin Oncol	2010	Retro-prospective biomarker analysis	FFPE archived	TransATAC (ER+, post-menopausal, treated with anastrozole and/or tamoxifen)	4160	1231	yes	Adjuvant	ETx	DR at 9 years	DR 50 point chg HR=3.92 (95% CI 2.08-7.39) p<0.001 Chg in Likelihood Ratio=13.5	DR for 50 pt chg in the LN+ population HR=4.47 (95%CI 1.64-7.88); P=0.002	1.00	0.00		0.71	0.25	I, II	B	RS significantly prognostic for DRFS in both LN- and LN+ treated with tam or anastrozole. No interaction with treatment group. RS is significantly prognostic beyond Adjuvant! Online.
Oncotype	prognosis	Paik	N Engl J Med	2004	Retro-prospective biomarker analysis	FFPE archived	NSABP B-14 (ER+, LN-, tam treated)	2617	675	yes	Adjuvant	ETx	DMFS at 10 years	Difference in risk of recurrence between low and high groups at 10 years: Low=6.8%(4.0-9.6) Int=14.3%(8.1-20.3) High=30.5%(23.6-37.4) p<0.001	Multivariate Cox model for risk of distant recurrence compared to age, tumor size, grade, HER2, ER, RS HR=2.81(1.70-4.64) p<0.001	1.00	0.00	0.08	0.00	1.00	I, II	B	Risk of distant recurrence at 10 years significantly different between low and high risk groups. Continuous RS was a significant predictor of both DMFS and OS.
Oncotype	predictive	Paik	J Clin Oncol	2006	Retro-prospective biomarker analysis	FFPE archived	NSABP B-20 (ER+, LN-, CTx vs no CTx)	2299	670	yes	Adjuvant	ETx, CTx	DMFS, OS at 10 years	Treatment x continuous RS for DMFS at 10 Yrs. p=0.038	KM Est of DMFS at 10 Yrs: Low: Tam 96.8(93.7-99.9); Tam+CTx 95.6(92.7-98.6) Int: Tam 90.9%(82.5-99.4); Tam+CTx 89.1(82.4-95.9) High: Tam 60.5%(46.2-74.8); Tam+CTx 68.1(62.0-74.2)	1.00	0.00	Not Stated	0.00	1.00	I, II	B	Interaction of RS by treatment was significant for ETx compared to ETx plus CTx, with patients with RS >30 deriving benefit from CTx, while patients with low RS tumors <18 derived no benefit.
PAM50	predictive	Cheang	Clin Cancer Res	2012	Retro-prospective biomarker analysis	FFPE archived	NCIC.CTSG MA.5 (pre-menopausal, CMF vs CE)	716	476	yes	Adjuvant	CTx	RFS, OS	ROR-5 risk categories (RS) at 5 Yrs: low=7.5% (94%) moderate=59% (80%) high=51% (53%) log rank p<0.0001	Multivariate Cox model for RFS (OS) for CE/DMF: HER2 HR=5.6(3.4-9.3) (0.42(0.16-1.0)) Basal HR=1.12(0.60-2.08) (1.32(0.71-2.46)) LumB HR=0.76(0.47-1.24) (0.83(0.46-1.50)) LumA HR=1.14(0.70-1.88) (1.21(0.51-3.27))	0.66	0.34	0.20	1.00	0.00	II, IIIa	D	ROR-based intrinsic subtypes were significantly prognostic for RFS and OS.
PAM50	prognosis	Chia	Clin Cancer Res	2012	Retro-prospective biomarker analysis	FFPE archived	MA.12: Stage I-III tumors	672	398	yes	Adjuvant	ETx, CTx	DFS at 12 years	Multivariate Cox model for DFS (OS) at 5 Yrs: Basal vs LumA HR=1.5(1.0-2.2) (2.1(0.91-5.20)) HER2 vs LumA HR=2.2(1.29-3.80) (2.7(1.18-6.40)) LumB vs LumA HR=1.9(1.16-3.39) (2.4(1.25-4.63)) p<0.02	KM of DFS at 12 Yrs for Tam vs Placebo: Tam=86.1% Placebo=74.3% HR=0.52(0.32-0.89) p<0.009	0.75	0.11	0.07	0.75	0.25	I, IIIa	B	Classification into intrinsic subtypes by the PAM50 assay was prognostic for both disease-free survival (DFS; P=0.0003) and overall survival (OS; P=0.0002). Test methodology was research PCR versus commercial.
PAM50	prognosis	Dowsett	J Clin Oncol	2013	Retro-prospective biomarker analysis	FFPE archived	TransATAC (ER+, post-menopausal, treated with anastrozole and/or tamoxifen)	2006	940	yes	Adjuvant	ETx	DR at 10 years	Chg in Likelihood ratio for DRFS: All Pts ROR*+CTS vs CTS=34.3 p<0.001 LN- ROR*+CTS vs CTS=23.7 p<0.001 LN+ ROR*+CTS vs CTS=24.8 p<0.001 HER2, LN- ROR*+CTS vs CTS=23.4 p<0.001	Chg in Likelihood ratio for DRFS: All Pts ROR*+CTS vs CTS=34.3 p<0.001 LN- ROR*+CTS vs CTS=23.7 p<0.001 LN+ ROR*+CTS vs CTS=24.8 p<0.001 HER2, LN- ROR*+CTS vs CTS=23.4 p<0.001	1.00	0.00	0.64	0.27	0.73	I, II	B	Continuous ROR is prognostic added significant prognostic information beyond clinical factors in all patients. ROR risk groups prognostic for DR out to 10 years.
PAM50	prognosis	Gnant	Ann Oncol	2014	Retro-prospective biomarker analysis	FFPE archived	ABCSGB (ER+ ESBC treated with tam)	3901	1478	yes	Adjuvant	ETx	DRFS at 10 years	Chg in likelihood ratio for DRFS at 10 Yrs: All Pts ROR*+CLP vs CLP=5.69 p<0.0001 LN-, HER2- ROR*+CLP vs CLP=21.69 p<0.0001 LN+, HER2- ROR*+CLP vs CLP=27.65 p<0.0001	All Pts. KM est of survival of DRFS to 10 Yrs: Low=96.7%(94.6-98.0) Int=91.3%(88.1-93.8) High=79.9%(75.7-83.9)	1.00	0.00	0.95	0.39	0.71	I, II	B	Both continuous ROR score and ROR-based risk groups add prognostic information for 10 year DRFS above standard clinical factors for all subgroups except HER2-.
PAM50	prognosis	Gnant	Ann Oncol	2015	Retro-prospective biomarker analysis	FFPE archived	ABCSGB, TransATAC (ER+, post-menopausal, treated with anastrozole and/or tamoxifen)	9598	2197	yes	Adjuvant	ETx	DR at 10 years	Cont ROR Chg in likelihood ratio for DR at 10 Yrs: N1 ROR*+CTS vs CTS=17.53 p<0.0001 N2-3 ROR*+CTS vs CTS=14.16 p<0.0002 LN- ROR*+CTS vs CTS=45.18 p<0.0001 N1-3 ROR*+CTS vs CTS=32.45 p<0.0001	ROR Risk Grps Chg in likelihood ratio for DR at 10 Yrs: N1 ROR*+CTS vs CTS=11.32 p<0.0035 N2-3 ROR*+CTS vs CTS=13.15 p<0.0014 LN- ROR*+CTS vs CTS=32.19 p<0.0001 N1-3 ROR*+CTS vs CTS=21.05 p<0.0001 IS Risk Grps Chg in likelihood ratio for DR at 10 Yrs: N1 ROR*+CTS vs CTS=12.16 p<0.0005 N2-3 ROR*+CTS vs CTS=8.58 p<0.0034 LN- ROR*+CTS vs CTS=26.10 p<0.0001 N1-3 ROR*+CTS vs CTS=20.48 p<0.0001	1.00	0.00	Not Stated	0.25	0.75	I, III	B	PAM 50 ROR, risk groups, and intrinsic subtypes add prognostic information to clinical information for node positive pts.
PAM50	prognosis	Liu	Breast Cancer Res Treat	2015	Retro-prospective biomarker analysis	FFPE archived	MA.21 (pre-menopausal, high-risk LN- or LN+ (AC1 vs CE) vs EC1)	2104	1094	yes	Adjuvant	CTx	RFS at 12 years	Univariate RFS for categorical ROR: HR=1.27(0.83-1.95) p=0.28 Multivariate RFS for categorical ROR: HR=1.98(0.93-7.45) p=0.311	Multivariate Cox model for RFS: LumB vs LumA HR=1.48(0.92-2.37) p=0.106 HER2 vs LumA HR=2.08(1.60-4.48) p<0.001 Basal vs LumA HR=1.07(0.63-1.83) p=0.802	0.58	0.42	0.12	0.70	0.30	II, IIIa	B	Continuous ROR was significantly associated with RFS; categorical ROR was neither predictive nor prognostic for RFS.