

Supplementary Table S1 – Part A (Study metadata and assay details)

Abbreviations: ctDNA, circulating tumour DNA; CTCs, circulating tumour cells; TEPs, tumour-educated platelets; WGS, whole-genome sequencing; NGS, next-generation sequencing; ddPCR, digital droplet PCR. This Word version is split into two tables (Part A and Part B) to improve readability and allow automatic page wrapping.

RowID	FirstAuthor	Year	Country/Setting	Biomarker class	Assay/Platform	Targets / Panel	N (cases/controls)	Stage focus
1	Shan	2016		ctDNA – methylation	PCR/targeted	6-gene panel		Early & mixed
2	Uehiro	2016	Japan	ctDNA – methylation	MethyLight dPCR	Epigenetic markers	92/92	Early & mixed
3	Zhang	2021	China	ctDNA – methylation	NGS model	Feature-derived		Early & mixed
4	Liu	2018		ctDNA – methylation	NGS	Targeted CpGs		Mixed
5	Moss	2020	UK	ctDNA – methylation	NGS	bd-cfDNA signature	196/186	Early & mixed
6	Widschwendter	2017	UK/Austria	ctDNA – methylation	Genome-wide	EFC#93	749/1014 (mixed)	Early
7	Bie	2023		ctDNA – methylation + fragmentomics	NGS/WGS	Integrated model		Mixed
8	Cristiano	2019		cfDNA fragmentomics	WGS	Genome-wide	236/245	Mixed
9	Stanley	2024		ctDNA – methylation	NGS	Cell-type features		Early
10	Gao	2025		ctDNA – methylation	ddPCR/NGS	Custom markers		Early
11	Theeuwes	2025		ctDNA – methylation	NGS	Quantitative model		Mixed
12	Liu	2025		cfDNA fragmentomics	WGS	Fragment features		Mixed
13	Wang	2023	China	PBMC methylation	Targeted bisulfite	PBMC features	427/395	Early & mixed
14	Liu	2021		ctDNA – methylation	WGS	Methylome		Early & mixed
15	Garcia-Murillas	2015		ctDNA – mutations (tumour-informed)	dPCR	Patient-specific		Early (surveillance)
16	McDonald	2019		ctDNA – mutations (tumour-informed)	NGS personalized	Patient-specific		Early/locally advanced
17	Coombes	2019	UK	ctDNA – mutations (tumour-informed)	NGS/ddPCR	Patient-specific	49	Early (surveillance)
18	Garcia-Murillas	2019		ctDNA – mutations (tumour-informed)	NGS/ddPCR	Patient-specific	170	Early (post-op/adjuvant)
19	Magbanua	2021		ctDNA – mutations	NGS/ddPCR	Tumour-informed		Early (neoadjuvant)
20	Parsons	2020	USA	ctDNA – MRD	NGS	Personalized	100+	Early (adjuvant/MRD)
21	Nguyen	2025		ctDNA – MRD	NGS	Personalized		Early
22	Saura	2023		ctDNA – mutations	NGS	Variants		Postpartum
23	Garcia-Murillas	2024		ctDNA – tumour-informed	WGS	Genome-wide		Early
24	Guo	2024		cfDNA fragmentomics	WGS + ML	Fragment features		Mixed
25	Hannafon	2016	USA	Exosomal miRNA	RT-qPCR/NGS	miR-21, miR-1246	~50/50	Early & mixed

RowID	FirstAuthor	Year	Country/Setting	Biomarker class	Assay/Platform	Targets / Panel	N (cases/controls)	Stage focus
26	Zhai	2018	China	Exosomal miRNA	Electrochemical (Au nanoflare)	miR-1246	46/28	Early & mixed
27	Lyng	2016	Ireland	Circulating miRNA	RT-qPCR	9-miRNA panel	142/144	Early & mixed
28	Yu	2018		Circulating miRNA	RT-qPCR/NGS	ER+ signature		Early (ER+)
29	Li	2020		Circulating miRNA	RT-qPCR	Multi-miRNA		Early & mixed
30	Adam-Artigues	2021	Spain	Circulating miRNA	RT-qPCR	2-miRNA	~151	Stage I focus
31	Zou	2022	China	Serum miRNA panel	RT-qPCR	8-miRNA	~600	Early & mixed
32	Chiorino	2023	Italy	Circulating miRNA ratios	RT-qPCR (ratios)	Panel of ratios	125/125	Screen-detected
33	Jang	2021	Korea	Circulating miRNA (pre-miRNA)	RT-qPCR	miR-1246, miR-206, miR-24, miR-373	226/146	Early & mixed
34	Khaliefa	2023		Plasma miRNA/lncRNA	RT-qPCR	Combo		Early & mixed
35	Janni	2016		CTCs	CellSearch	Enumeration	3173 pooled	Early
36	Jueckstock	2016	Germany	CTCs/DTCs	MICC / IF	Cytokeratin+	1221	Early (adjuvant)
37	Sparano	2018	USA	CTCs	CellSearch	≥1 CTC/7.5 mL	547	Post-adjuvant (late)
38	Rossi	2025	Italy	CTCs	DEPArray / EpCAM-independent	Enumeration	48	Early (10-year)
39	Crook	2022	India/UK	CTCs (functional + ICC)	BrAD-CTC test	GATA3, GCDFP15, EpCAM, PanCK, CD45	548/9632; 141 suspected	Early & mixed
40	Thomas-Bonafos	2024		CTCs	CellSearch	Enumeration		Early (pre-NAC)
41	Best	2015	USA	TEPs	RNA-seq	Platelet mRNA		Mixed
42	Liefwaard	2023	NL/AT/USA	TEPs	RNA-seq	Signatures	266/212 + 37/36	I–IV
43	Xie	2024	China	TEPs	RNA-seq	TEP RNA		Early & mixed

Supplementary Table S1 – Part B (Performance metrics and bibliographic identifiers)

Abbreviations: ctDNA, circulating tumour DNA; CTCs, circulating tumour cells; TEPs, tumour-educated platelets; WGS, whole-genome sequencing; NGS, next-generation sequencing; ddPCR, digital droplet PCR. This Word version is split into two tables (Part A and Part B) to improve readability and allow automatic page wrapping.

RowID	FirstAuthor	Imaging co-test?	Sensitivity (%)	Specificity (%)	AUC	PMID	DOI	Verification status
1	Shan	No						Needs verification
2	Uehiro	No				27993161.0	10.1186/s13058-016-0788-z	Verified
3	Zhang	No					10.1038/s41523-021-00316-7	Needs verification
4	Liu	No						Needs verification
5	Moss	No	80	97			10.1016/j.annonc.2019.11.014	Partially verified
6	Widschwendter	No				28969684.0	10.1186/s13073-017-0499-9	Verified
7	Bie	No						Needs verification
8	Cristiano	No					10.1038/s41586-019-1272-6	Verified
9	Stanley	No						Needs verification
10	Gao	Optional						Needs verification
11	Theeuwes	No						Needs verification
12	Liu	No						Needs verification
13	Wang	No					10.1038/s41467-023-40389-5	Verified
14	Liu	No						Needs verification
15	Garcia-Murillas	Imaging f/u				26311728.0	10.1126/scitranslmed.aab0021	Verified
16	McDonald	No				31391323.0	10.1126/scitranslmed.aax7392	Verified
17	Coombes	Imaging f/u					10.1158/1078-0432.CCR-18-3663	Needs verification
18	Garcia-Murillas	Yes				31194225.0	10.1016/S1470-2045(19)30162-5	Verified
19	Magbanua	Yes						Needs verification
20	Parsons	Yes					10.1158/1078-0432.CCR-19-2500	Needs verification
21	Nguyen	Yes						Needs verification
22	Saura	No						Needs verification
23	Garcia-Murillas	Yes						Needs verification
24	Guo	No						Needs verification
25	Hannafon	No				27608715.0	10.1186/s13058-016-0753-x	Verified
26	Zhai	No	100	92.9		30350935.0	10.1021/acsami.8b12725	Verified
27	Lyng	Mammography				27839676.0	10.1016/j.clbc.2016.09.012	Verified
28	Yu	No						Needs verification
29	Li	No						Needs verification

RowID	FirstAuthor	Imaging co-test?	Sensitivity (%)	Specificity (%)	AUC	PMID	DOI	Verification status
30	Adam-Artigues	No				34200463.0	10.3390/cancers13112848	Verified
31	Zou	No	72.2	91.5	0.915		10.1038/s41416-021-01593-6	Verified
32	Chiorino	Mammography					10.1038/s41598-023-38886-0	Needs verification
33	Jang	No	98	96	0.992	33414912.0	10.3892/mco.2020.2202	Verified
34	Khaliefa	No						Needs verification
35	Janni	No					10.1158/1078-0432.CCR-15-1603	Verified
36	Jueckstock	No					10.1186/s12885-016-2454-3	Needs verification
37	Sparano	No				30054636.0	10.1001/jamaoncol.2018.2574	Verified
38	Rossi	No					10.3390/biomedicines13061278	Needs verification
39	Crook	Yes	92.1; 94.6	100; 93.1			10.3390/cancers14143341	Partially verified
40	Thomas-Bonafos	No						Needs verification
41	Best	No				26525104.0	10.1016/j.ccell.2015.09.018	Verified
42	Lief aard	No			0.55		10.1038/s41416-023-02174-5	Partially verified
43	Xie	No					10.1038/s41598-024-57455-3	Needs verification