

《乳癌抗癌藥物治療指引》

Chemotherapy as Primary or Adjuvant Therapy (HER2-POSTIVE)

Preferred Regimens

★ Trastuzumab may be used in fixed dose 600 mg SC

AC followed by Paclitaxel with Trastuzumab

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Doxorubicin	60	1	Q3W	4	1
Cyclophosphamide	600	1	Q3W	4	
Followed by					
Trastuzumab ★	4 → 2 mg/kg	1	QW	12	
Paclitaxel	80	1	QW	12	
Followed by					
Trastuzumab ★	2 (6) mg/kg	1	QW (Q3W)	40 (13)	

AC followed by Paclitaxel with Trastuzumab ± Pertuzumab

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Doxorubicin	60	1	Q3W	4	6
Cyclophosphamide	600	1	Q3W	4	
Followed by					
Trastuzumab ★	8 → 6 mg/kg	1	Q3W	17	
Pertuzumab (optional)	840 → 420 mg	1	Q3W	17	
Paclitaxel	80	1, 8, 15	Q3W	4	

Dose-dense AC followed by Paclitaxel with Trastuzumab

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Doxorubicin	60	1	Q2W	4	2
Cyclophosphamide	600	1	Q2W	4	
Followed by					
Trastuzumab [★]	4 → 2 mg/kg	1, 8	Q2W	4	
Paclitaxel	175	1	Q2W	4	
Followed by					
Trastuzumab [★]	2 (6) mg/kg	1	QW (Q3W)	44 (14)	

TCH

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Trastuzumab [★]	4 → 2 mg/kg	1, 8, 15	Q3W	6	3
Docetaxel	75	1	Q3W	6	
Carboplatin	6 AUC	1	Q3W	6	
Followed by					
Trastuzumab [★]	6 mg/kg	1	Q3W	11	

TCH ± Pertuzumab

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Trastuzumab [★]	8 → 6 mg/kg	1	Q3W	17	4
Pertuzumab (optional)	840 → 420 mg	1	Q3W	17	
Docetaxel	75	1	Q3W	6	
Carboplatin	AUC 6	1	Q3W	6	

Trastuzumab + Pertuzumab + Neratinib

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Trastuzumab [★]	8 → 6 mg/kg	1	Q3W	17	7
Pertuzumab (optional)	840 → 420 mg	1	Q3W	17	
Followed by Neratinib (optional)	240 mg PO QD			1 year	8

T-DM1

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
T-DM1	3.6 mg/kg	1	Q3W	14	7

Other Regimens**AC followed by Docetaxel with Trastuzumab**

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Doxorubicin	60	1	Q3W	4	3
Cyclophosphamide	600	1	Q3W	4	
Followed by Trastuzumab [★]	4 → 2 mg/kg	1, 8, 15	Q3W	4	
Docetaxel	80-100	1	Q3W	4	
Followed by Trastuzumab [★]	6 mg/kg	1	Q3W	13	

AC followed by Docetaxel with Trastuzumab + Pertuzumab

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Doxorubicin	60	1	Q3W	4	3
Cyclophosphamide	600	1	Q3W	4	
Followed by					
Trastuzumab [★]	8 → 6 mg/kg	1	Q3W	17	
Pertuzumab (optional)	840 → 420 mg	1	Q3W	17	
Docetaxel	80-100	1	Q3W	4	

Paclitaxel + Trastuzumab (APT trial)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Trastuzumab [★]	4 → 2 mg/kg	1	QW	12	5
Paclitaxel	80	1	QW	12	
Followed by					
Trastuzumab [★]	2 (6) mg/kg	1	QW (Q3W)	40 (13)	

TC + Trastuzumab

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Trastuzumab [★]	4 → 2 (8 → 6) mg/kg	1, 8, 15 (1)	Q3W	4	6
Docetaxel	75	1	Q3W	4	
Cyclophosphamide	600	1	Q3W	4	
Followed by					
Trastuzumab [★]	6 mg/kg	1	Q3W	13	

Paclitaxel + Trastuzumab + Pertuzumab

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Trastuzumab *	8 → 6 mg/kg	1	Q3W	4	11
Pertuzumab (optional)	840 → 420 mg	1	Q3W	4	
Paclitaxel	80	1, 8, 15	Q3W	4	

Neratinib (adjuvant setting only)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Neratinib	120 mg PO	1-7	Q4W	1	9
	160 mg PO	8-14			
	Followed by 240 mg PO	15-28			
Neratinib	240 mg PO	1-28	Q4W	12?	

T-DM1 (adjuvant setting only)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
T-DM1	3.6 mg/kg	1	Q3W	17	10

Paclitaxel + Carboplatin + Trastuzumab + Pertuzumab

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Trastuzumab *	8 → 6 mg/kg	1	Q3W	17	12
Pertuzumab	840 → 420 mg	1	Q3W	17	
Paclitaxel	80	1, 8	Q3W	9	
Carboplatin	AUC 6 (AUC 3)	1 (1, 8)	Q3W	9	

參考文獻

1. Romond EH, Perez EZ, Bryant J, et al. Trastuzumab plus adjuvant chemotherapy for operable HER2 positive breast cancer. *N Engl J Med* 2005;353:1673-1684.
2. Dang C, Fomier M, Sugarman S, et al. The safety of dose-dense doxorubicin and cyclophosphamide followed by paclitaxel with trastuzumab in HER2/neu over expressed/amplified breast cancer. *J Clin Oncol.* 2008;26(8):1216-1222.
3. Slamon D, Eiermann W, Robert N, et al. Adjuvant trastuzumab in HER2-positive breast cancer. *N Engl J Med* 2011;365:1273-1283.
4. Schneeweiss A, Chia S, Hickish T et al. Pertuzumab plus trastuzumab in combination with standard neoadjuvant anthracycline-containing and anthracycline-free chemotherapy regimens in patients with HER2-positive early breast cancer: a randomized phase II cardiac safety study (TRYPHAENA). *Ann Oncol* 2013; 24: 2278-2284.
5. Tolaney S, Barry W, Dang C, et al. Adjuvant paclitaxel and trastuzumab for node-negative HER2-positive breast cancer. *N Engl J Med* 2015;372:134-141.
6. Jones SE, Colleas R, Paul D, et al. Adjuvant docetaxel and cyclophosphamide plus trastuzumab in patients with HER2-amplified early stage breast cancer: a singlegroup, open-label, phase 2 study. *Lancet Oncol* 2013;14:1121-8.
7. Minckwitz G, Huang C, Mano M, et al. Trastuzumab emtansine for residual invasive HER2-positive breast cancer. *N Engl J Med* 2019;380:617-628.
8. Miguel Martin, Frankie A Holmes, Bent Ejlersen, et al. Neratinib after trastuzumab-based adjuvant therapy in HER2-positive breast cancer (ExteNET): 5-year analysis of a randomised, double-blind, placebo-controlled, phase 3 trial. *Lancet Oncol* 2017;18: 1688–700.
9. Chan A, Delaloge S, Holmes FA, et al. Neratinib after trastuzumab-based adjuvant therapy in patients with HER2-positive breast cancer (ExteNET): a multicentre, randomised, double-blind, placebo-controlled, phase 3 trial. *Lancet Oncol* 2016;17:367-377.
10. Tolaney SM, Tayob N, Dang C, et al. Adjuvant trastuzumab emtansine versus paclitaxel in combination with trastuzumab for stage I HER2-positive breast cancer (ATEMPT): A randomized clinical trial. *J Clin Oncol* 2021;39:2375-2385.
11. Nitz UA, Gluz O, Christgen M, et al. De-escalation strategies in HER2-positive early breast cancer (EBC): final analysis of the

- WSG-ADAPT HER2+/HR- phase II trial: efficacy, safety, and predictive markers for 12 weeks of neoadjuvant dual blockade with trastuzumab and pertuzumab $\pm$ weekly paclitaxel. Ann Oncol 2017;28:2768-27723.
12. van Ramshorst MS, van der Voort A, van Werkhoven ED, et al. Neoadjuvant chemotherapy with or without anthracyclines in the presence of dual HER2 blockade for HER2-positive breast cancer (TRAIN-2): a multicentre, open-label, randomised, phase 3 trial. Lancet Oncol 2018;19:1630-1640.

Chemotherapy as Primary or Adjuvant Therapy (HER2-NEGATIVE)

Preferred Regimens

Dose-dense AC followed by Paclitaxel

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Doxorubicin	60	1	Q2W	4	1
Cyclophosphamide	600	1	Q2W	4	
Followed by Paclitaxel	175	1	Q2W	4	

Dose-dense AC followed by weekly Paclitaxel

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Doxorubicin	60	1	Q2W	4	1
Cyclophosphamide	600	1	Q2W	4	
Followed by Paclitaxel	80	1	QW	12	

TC

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Docetaxel	75	1	Q3W	4	2
Cyclophosphamide	600	1	Q3W	4	

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Capecitabine	1000-1250 PO BID	1-14	Q3W	6-8	18

(If triple-negative breast cancer and residual disease after preoperative therapy with taxane, alkylator, and anthracycline based chemotherapy)

For germline BRCA1/2 mutations

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Olaparib	300 mg PO BID		Q4W	For 1 year	23

For High-risk triple-negative breast cancer (TNBC)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Pembrolizumab	200 mg	1	Q3W	4	22
Paclitaxel	80	1, 8, 15	Q3W	4	
Carboplatin	AUC 5	1	Q3W	4	
Followed by					
Pembrolizumab	200 mg	1	Q3W	4	22
Doxorubicin*	60*	1	Q3W	4	
Cyclophosphamide	600	1	Q3W	4	
Followed by					
Pembrolizumab	200 mg	1	Q3W	9	

*may be transferred to Epirubicin 90 mg/m²

Useful in certain circumstances

Dose-dense AC

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Doxorubicin	60	1	Q2W	4	1
Cyclophosphamide	600	1	Q2W	4	

AC

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Doxorubicin	60	1	Q3W	4	3
Cyclophosphamide	600	1	Q3W	4	

TAC

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Docetaxel	75	1	Q3W	6	4
Doxorubicin	60	1	Q3W	6	
Cyclophosphamide	500	1	Q3W	6	

TEC

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Docetaxel	75	1	Q3W	6	14
Epirubicin	75	1	Q3W	6	
Cyclophosphamide	500	1	Q3W	6	

FAC

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
5-FU	500	1, 8 or 1, 4	Q3W	6	5, 6
Doxorubicin	50	1	Q3W	6	
Cyclophosphamide	500	1	Q3W	6	

CEF

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Cyclophosphamide	500	1, 8	Q3W	6	7
Epirubicin	80	1, 8	Q3W	6	
5-FU	500	1, 8	Q3W	6	

CMF

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Cyclophosphamide	100 PO	1-14	Q4W	6	8
Methotrexate	40	1, 8	Q4W	6	
5-FU	600	1, 8	Q4W	6	

AC followed by Docetaxel

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Doxorubicin	60	1	Q3W	4	9
Cyclophosphamide	600	1	Q3W	4	
Followed by Docetaxel	80-100	1	Q3W	4	

AC followed by Paclitaxel

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Doxorubicin	60	1	Q3W	4	10
Cyclophosphamide	600	1	Q3W	4	
Followed by Paclitaxel	175	1	Q3W	4	

AC followed by weekly Paclitaxel

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Doxorubicin	60	1	Q3W	4	10
Cyclophosphamide	600	1	Q3W	4	
Followed by Paclitaxel	80	1	QW	4	

EC

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Epirubicin	90-100	1	Q3W	4	11
Cyclophosphamide	600	1	Q3W	4	

FEC followed by Docetaxel

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
5-FU	500	1	Q3W	3	12
Epirubicin	100	1	Q3W	3	
Cyclophosphamide	500	1	Q3W	3	
Followed by Docetaxel	100	1	Q3W	3	

FEC followed by weekly Paclitaxel

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
5-FU	600	1	Q3W	4	13
Epirubicin	90	1	Q3W	4	
Cyclophosphamide	600	1	Q3W	4	
Followed by 3 Weeks no treatment Followed by Paclitaxel	100	1	QW	8	

FLC

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
5-FU	500	1	Q3W	6	17
Lipo-Doxorubicin	35-40	1	Q3W	6	
Cyclophosphamide	500	1	Q3W	6	

Cisplatin + Docetaxel (Triple negative)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Cisplatin	60	1			15, 16
Docetaxel	60	1			

Carboplatin + Docetaxel (Triple negative)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Cisplatin	AUC 6	1	Q3W		19, 20
Docetaxel	75	1	Q3W		

Weekly Paclitaxel + Carboplatin

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Paclitaxel	80	1, 8, 15	Q3W	4	21
Carboplatin	AUC 6	1	Q3W	4	

Weekly Paclitaxel + weekly Carboplatin (Triple negative)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Paclitaxel	80	1, 8, 15	Q3W	6	24, 25
Carboplatin	AUC 1.5-2	1, 8, 15	Q3W	6	

Weekly Paclitaxel + weekly Carboplatin (Triple negative)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Paclitaxel	80	1, 8, 15	Q3W	6	24, 25
Carboplatin	AUC 1.5-2	1, 8, 15	Q3W	6	

Capecitabine (maintenance therapy for TNBC after adjuvant chemotherapy)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Capecitabine	650 PO BID	1-28	Q4W	1 year	26

參考文獻

1. Citron ML, Berry DA, et al. Randomized Trial of Dose-Dense Versus Conventionally Scheduled and Sequential Versus Concurrent Combination Chemotherapy as Postoperative Adjuvant Treatment of Node-Positive Primary Breast Cancer: First Report of Intergroup Trial C9741/Cancer and Leukemia Group B Trial 9741. J Clin Oncol 2003;21:1431-1439.
2. Jones S, Holmes F, O'Shaughnessey J, et al. Docetaxel With Cyclophosphamide Is Associated With an Overall Survival Benefit Compared With Doxorubicin and Cyclophosphamide: 7-Year Follow-Up of US Oncology Research Trial 9735. J Clin Oncol 2009;27:1177-1183.
3. Fisher B, Brown AM, Dimitrov NV, et al. Two months of doxorubicin-cyclophosphamide with and without interval reinduction therapy compared with 6 months of cyclophosphamide, methotrexate, and fluorouracil in positive-node breast cancer patients with tamoxifen-nonresponsive tumors: results from the National Surgical Adjuvant Breast and Bowel Project B-15. J Clin Oncol 1990;8:1483-1496.
4. Martin, Pienkowsky T, Mackey L, et al. Adjuvant docetaxel for node-positive breast cancer. N Engl J Med 2005;352:22.
5. Buzdar AU, Kau SW, Smith TL, Hortobagyi GN. Ten-year results of. FAC adjuvant chemotherapy trial in breast cancer. Am J Clin Oncol. 1989;12:123-128.

6. Assikis V, Buzdar A, Yang Y, et al. A Phase III Trial of Sequential Adjuvant Chemotherapy for Operable Breast Carcinoma. Final Analysis with 10-Year Follow-Up. *Cancer* 2003;97:2716-23.
7. Levine MN, Bramwell VH, Pritchard KI, et al. Randomized trial of intensive cyclophosphamide, epirubicin, and fluorouracil chemotherapy compared with cyclophosphamide, methotrexate, and fluorouracil in premenopausal women with node-positive breast cancer. National Cancer Institute of Canada Clinical Trials Group. *J Clin Oncol* 1998;16:2651-8.
8. Bonadonna G, Brusamolino E, Valagussa P, et al. Combination chemotherapy as an adjuvant treatment in operable breast cancer. *N Engl J Med*. 1976;294(8):405-410.
9. von Minckwitz G1, Raab G, Caputo A, et al. Doxorubicin with cyclophosphamide followed by docetaxel every 21 days compared with doxorubicin and docetaxel every 14 days as preoperative treatment in operable breast cancer: the GEPARDUO study of the German Breast Group. *J Clin Oncol* 2005;23(12):2676-85.
10. Sparano JA, Wang M, Martino S, et al. Weekly Paclitaxel in the Adjuvant Treatment of Breast Cancer. *N Engl J Med* 2008;258:1663-1671.
11. Piccart MJ, Di Leo A, Beauduin M, et al. Phase III Trial Comparing Two Dose Levels of Epirubicin Combined With Cyclophosphamide With Cyclophosphamide, Methotrexate, and Fluorouracil in Node-Positive Breast Cancer. *J Clin Oncol* 2001;19:3103-3110.
12. Roche H, Fumoleau P, Spielmann M, et al. Sequential adjuvant epirubicin-based and docetaxel chemotherapy for node-positive breast cancer patients: the FNCLCC PACS 01 Trial. *J Clin Oncol* 2006; 24:5664-5671.
13. Martin M, Rodriguez-Lescure A, Ruiz A, et al. Randomized phase 3 trial of fluorouracil, epirubicin, and cyclophosphamide alone or followed by paclitaxel for early breast cancer. *J Natl Cancer Inst* 2008;100:805-814.
14. Bayo J, Prieto B, Rivera F. Comparison of Doctors' and Breast Cancer Patients' Perceptions of Docetaxel, Epirubicin, and Cyclophosphamide (TEC) Toxicity. *Breast J* 2016; 22: 293–302.
15. Y. Fan, B. H. Xu*, P. Yuan, F. Ma, et al. Docetaxel–cisplatin might be superior to docetaxel–capecitabine in the first-line treatment of metastatic triple-negative breast cancer. *Annals of Oncology* 24: 1219–1225, 2013.
16. Park SH, et al. Docetaxel plus cisplatin is effective for patients with metastatic breast cancer resistant to previous anthracycline

- treatment: a phase II clinical trial. BMC Cancer. 2005; 5: 21.
17. Rau KM, Lin YC, Chen YY, et al. Pegylated liposomal doxorubicin (Lipo-Dox®) combined with cyclophosphamide and 5-fluorouracil is effective and safe as salvage chemotherapy in taxane-treated metastatic breast cancer: an open-label, multi-center, non-comparative phase II study. BMC Cancer. 2015; 15: 423.
 18. Masuda N, Lee SJ, Ohtani S, et al. Adjuvant capecitabine for breast cancer after preoperative chemotherapy. N Engl J Med 2017;376:2147-2159.
 19. Sharma P, López-Tarruella S, García-Saenz JA, et al. Pathological Response and Survival in Triple-Negative Breast Cancer Following Neoadjuvant Carboplatin plus Docetaxel. Clin Cancer Res December 1 2018 (24) (23) 5820-5829.
 20. Perez EA, Suman VJ, Fitch TR, et al. A Phase II Trial of Docetaxel and Carboplatin as First-Line Chemotherapy for Metastatic Breast Cancer: NCCTG Study N9932. Oncology 2005;69:117–121.
 21. Loibl S, O'Shaughnessy J, et al. Addition of the PARP inhibitor veliparib plus carboplatin or carboplatin alone to standard neoadjuvant chemotherapy in triple-negative breast cancer (BrighTNess): a randomised, phase 3 trial. Lancet Oncol 2018; 19: 497–509.
 22. Schmid P, Cortes J, Puzstai L, et al. Pembrolizumab for early triple-negative breast cancer. N Engl J Med, 2020;382(9):810-821.
 23. Tutt ANJ, Garber JE, Kaufman B, et al. Adjuvant Olaparib for Patients with BRCA1- or BRCA2-Mutated Breast Cancer. N Engl J Med. 2021 Jun 3.
 24. Yu KD, Ye FG, He M, et al. Effect of adjuvant paclitaxel and carboplatin on survival in women with triple-negative breast cancer: A phase 3 randomized clinical trial. JAMA Oncol 2020;6:1390-1396.
 25. von Minckwitz G, Schneeweiss A, Loibl S, et al. Neoadjuvant carboplatin in patients with triple-negative and HER2-positive early breast cancer (GeparSixto; GBG 66): a randomised phase 2 trial. Lancet Oncol 2014;15:747-756.
 26. Wang X, Wang SS, Huang H, et al. Effect of Capecitabine Maintenance Therapy Using Lower Dosage and Higher Frequency vs Observation on Disease-Free Survival Among Patients With Early-Stage Triple-Negative Breast Cancer Who Had Received Standard Treatment: The SYSUCC-001 Randomized Clinical Trial. JAMA. 2021;325(1):50-58.

Adjuvant Endocrine Therapy

Anti-estrogen

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Tamoxifen	20-40 mg PO QD				1

Aromatase inhibitor

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Exemestane	25 mg PO QD				2

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Anastrozole	1 mg PO QD				3

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Letrozole	2.5 mg PO QD				4

Ovarian suppression or ablation

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Goserelin Acetate	3.6 mg SC	1	Q4W		5

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Leuprolide Acetate	3.75 mg SC	1	Q4W		6

參考文獻

1. Product Information: tamoxifen citrate oral tablets, tamoxifen citrate oral tablets. Watson Laboratories (per manufacturer), Corona, CA, 2011.
2. Product Information: AROMASIN(R) oral tablets, exemestane oral tablets. Pharmacia & Upjohn Company (per FDA), New York, NY, 2013.
3. Product Information: ARIMIDEX(R) oral tablet, anastrozole oral tablet. AstraZeneca Pharmaceuticals LP, Wilmington, DE, 2009.
4. Product Information: Femara oral tablets, letrozole oral tablets. Novartis Pharmaceuticals Corporation, East Hanover, NJ, 2010.
5. Product Information: ZOLADEX(R) implant 3.6mg, goserelin acetate implant implant 3.6mg. AstraZeneca, Wilmington, DE, 2009.
6. Boccardo F, Rubagotti A, Amoroso D, et al: Endocrinological and clinical evaluation of two depot formulations of leuprolide acetate in pre- and perimenopausal breast cancer patients. Cancer Chemother Pharmacol 1999; 43:461-466

Chemotherapy for Recurrent or Metastatic Breast Cancer

HER2-NEGATIVE

Preferred Single Agents

Anthacyclins

藥品名	劑量 mg/m2	給藥日	頻率	週期	參考文獻
Doxorubicin	60-75	1	Q3W	7	1

藥品名	劑量 mg/m2	給藥日	頻率	週期	參考文獻
Doxorubicin	20	1	QW		2

藥品名	劑量 mg/m2	給藥日	頻率	週期	參考文獻
Lipo-Doxorubicin	50	1	Q4W		3

Taxanes

藥品名	劑量 mg/m2	給藥日	頻率	週期	參考文獻
Paclitaxel	175	1	Q3W		4

藥品名	劑量 mg/m2	給藥日	頻率	週期	參考文獻
Paclitaxel	80	1	QW		5

Antimetabolites

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Capecitabine	1000-1250 PO BID	1-14	Q3W	6	6

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Gemcitabine	800-1200	1, 8, 15	Q4W		7

Other microtubule inhibitors

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Vinorelbine	25	1	QW		8

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Eribulin	1.4	1, 8	Q3W		9

PARP inhibitors

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Olaparib	300 mg PO BID				46

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Talazoparib	1 mg PO QD		Q4W		47

Atezolizumab + albumin-bound paclitaxel

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Atezolizumab	840 mg	1, 15	Q4W		48
Nab-Paclitaxel	100	1, 8, 15	Q4W		

(An option for patients with PD-L1-positive TNBC)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Pembrolizumab	200 mg	1	Q3W		55

TNBC, CPS ≥ 10

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Carboplatin	AUC 6	1	Q3W-Q4W		11

(An option for patients with triple-negative tumors and germline BRCA1/2 mutation)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Cisplatin	75	1	Q3W	4	17

(An option for patients with triple-negative tumors and germline BRCA1/2 mutation)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Fam-trastuzumab deruxtecan-nxk	5.4 mg/kg	1	Q3W		61

(For HER2 IHC 1+ or 2+/ISH negative)

Other Single Agents

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Cyclophosphamide	50 PO QD	1-21	Q4W		10

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Docetaxel	60-100	1	Q3W	6	12, 13

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Docetaxel	35	1, 8, 15, 22, 29, 36	Q8W		14

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Nab-Paclitaxel	100 or 150	1, 8, 15	Q4W		15, 16

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Nab-Paclitaxel	260	1	Q3W		15

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Epirubicin	75	1	Q3W		18

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Sacituzumab govitecan-hziy	10	1, 8	Q3W		61

For TNBC (HER2 negative 2nd line)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Larotrectinib	100 mg BID PO				56

NTRK fusion

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Entrectinib	600 mg QD PO				57

NTRK fusion

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Pembrolizumab	200 mg	1	Q3W		58, 59

MSI-H/dMMR and TMB-H (≥ 10 muts/mb)

Combinations

Carboplatin + Docetaxel (triple negative)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Carboplatin	AUC 6	1	Q3W	6	49, 50
Docetaxel	75	1	Q3W	6	

Paclitaxel+Carboplatin (Triple negative)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Paclitaxel	175-200	1	Q3W		51
Carboplatin	AUC 6	1	Q3W		

Paclitaxel+Carboplatin (weekly)(Triple negative)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Paclitaxel	100	1, 8, 15	Q3W		52
Carboplatin	AUC 2	1, 8, 15	Q3W		

Albumin-bound Paclitaxel + Carboplatin (weekly) (Triple negative, preoperative setting)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Nab-Paclitaxel	125	1, 8	Q3W		53
Carboplatin	AUC 2	1, 8	Q3W		

CAF

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Cyclophosphamide	100 PO	1-14	Q4W		19
Doxorubicin	30	1, 8	Q4W		
5-FU	500	1, 8	Q4W		

FAC

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
5-FU	500	1, 8 or 1, 4	Q3W		20
Doxorubicin	50	1	Q3W		
Cyclophosphamide	500	1	Q3W		

FEC

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Cyclophosphamide	400	1, 8	Q4W	6-9	21
Epirubicin	50	1, 8	Q4W		
5-FU	500	1, 8	Q4W		

AC

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Doxorubicin	60	1	Q3W	8	22
Cyclophosphamide	600	1	Q3W	8	

EC

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Epirubicin	75	1	Q3W	6	23
Cyclophosphamide	600	1	Q3W	6	

CMF

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Cyclophosphamide	100 PO QD	1-14	Q4W		24, 45
Methotrexate	40	1, 8	Q4W		
5-FU	600	1, 8	Q4W		

Docetaxel + Capecitabine

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Docetaxel	75	1	Q3W	6	25
Capecitabine	950 PO BID	1-14	Q3W	6	

GT

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Paclitaxel	175	1	Q3W		26
Gemcitabine	1250	1, 8	Q3W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Paclitaxel	80	1, 8, 15	Q4W		44
Gemcitabine	800	1, 8, 15	Q4W		

Gemcitabine + Carboplatin

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Gemcitabine	1250	1, 8	Q3W		27
Carboplatin	AUC 2	1, 8	Q3W		

Bevacizumab + Paclitaxel

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Bevacizumab	10 mg/kg	1, 8	Q4W		28
Paclitaxel	90	1, 8, 15	Q4W		

HER2-POSITIVE

Preferred Agents

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Pertuzumab	840 → 420 mg	1	Q3W		29
Trastuzumab	8 → 6 mg/kg	1	Q3W		
Docetaxel	75-100	1	Q3W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Pertuzumab	840 → 420 mg	1	Q3W		30, 31
Trastuzumab	8 → 6 (4 → 2) mg/kg	1	Q3W (QW)		
Paclitaxel	175 (80)	1	Q3W (QW)		

Other Agents

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Trastuzumab	8 → 6 (4 → 2) mg/kg	1	Q3W (QW)		31, 32
Paclitaxel	175	1	Q3W		
Carboplatin	AUC 6	1	Q3W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Trastuzumab	8 → 6 (4 → 2) mg/kg	1	Q3W (QW)		31, 33, 34
Paclitaxel	175 (80-90)	1	Q3W (QW)		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Trastuzumab	8 → 6 (4 → 2) mg/kg	1	Q3W (QW)		31, 35, 36
Docetaxel	80-100 (35)	1, 8, 15 (1)	Q3W (QW)		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Trastuzumab	8 → 6 (4 → 2) mg/kg	1	Q3W (QW)		31, 37
Vinorelbine	30-35 (25)	1, 8 (1)	Q3W (QW)		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Trastuzumab	8 → 6 (4 → 2) mg/kg	1	Q3W (QW)		31, 33, 38, 39
Capecitabine	1000-1250	1-14	Q3W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
T-DM1	3.6 mg/kg	1	Q3W		40

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Lapatinib	1250 mg PO QD	1-21	Q3W		41
Capecitabine	1000 PO BID	1-14	Q3W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Trastuzumab	8 → 6 (4 → 2) mg/kg	1	Q3W (QW)		31, 43
Lapatinib	1000 mg PO QD		Q3W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Neratinib	240 mg PO QD	1-21	Q3W		54
Capecitabine	750 PO BID	1-14	Q3W		

參考文獻

1. Chan S, Friendrichs K, Noel D, et al. Prospective randomized trial of docetaxel versus doxorubicin in patients with metastatic breast cancer. J Clin Oncol. 1999 Aug;17(8):2341-54.
2. Gasparini G, Dai Fior S, Panizzoni GA, et al. Weekly epirubicin versus doxorubicin as second line therapy in advanced breast cancer. A randomized clinical trial. Am J Clin Oncol. 1991 Feb;14(1):38-44.
3. O'Brien ME, Wigler N, Inbar M, et al. Reduced cardiotoxicity and comparable efficacy in a phase III trial of pegylated liposomal doxorubicin HCl (CAELYX/Doxil) versus conventional doxorubicin for first-line treatment of metastatic breast cancer. Ann Oncol. 2004 Mar;15(3):440-9.
4. Seidman AD, Tiersten A, Hudis C, et al. Phase II trial of paclitaxel by 3-hour infusion as initial and salvage chemotherapy for metastatic breast cancer. J Clin Oncol 1995;13:2575-2581.
5. Perez EA, Vogel CL, Irwin DH, et al. Multicenter Phase II Trial of Weekly Paclitaxel in Women With Metastatic Breast Cancer. J Clin Oncol 2001;19:4216-4223.
6. Safety and Efficacy of Two Different Doses of Capecitabine in the Treatment of Advanced Breast Cancer in Older Women. J Clin Oncol 2005;23:2155-2161.
7. Seidman AD, Gemcitabine as Single-Agent Therapy in the Management of Advanced Breast Cancer. Oncology (Williston Park)2001;15:11-14.
8. Zelek L, Barthier S, Riofrio M, et al. Weekly vinorelbine is an effective palliative regimen after failure with anthracyclines and taxanes in metastatic breast carcinoma. Cancer. 2001 Nov 1;92(9):2267-72.
9. Cortes J, O'Shaughnessy J, Loesch D, et al. Eribulin monotherapy versus treatment of physician's choice in patients with metastatic breast cancer (EMBRACE): a phase 3 open-label randomised study. Lancet 2011;377:914-923.

10. Licchetta A, Correale P, Migali C, et al. Oral Metronomic Chemo-Hormonal-Therapy of Metastatic Breast Cancer with Cyclophosphamide and Megestrol Acetate. *J Chemother* 2010;22(3):201-4.
11. Isakoff, SJ, Goss PE, et al. (2011). TBCRC009: A multicenter phase II study of cisplatin or carboplatin for metastatic triple-negative breast cancer and evaluation of p63/p73 as a biomarker of response[abstract]. *J Clin Oncol* 29(15_suppl):Abstract 1025.
12. Burris HA, 3rd. Single-agent docetaxel(Taxotere) in randomized phase III trials, *Semin Oncol* 1999;26:1-6.
13. Harvey V, Mouridsen H, Semiglazov V, et al. Phase III Trial Comparing Three Doses of Docetaxel for Second-Line Treatment of Advanced Breast Cancer. *J Clin Oncol* 2006;24(31):4963-70.
14. Rivera E, Mejia JA, Arun BJ, et al. Phase 3 study comparing the use of docetaxel on an every-3-week versus weekly schedule in the treatment of metastatic breast cancer. *Cancer* 2008 Apr 1;112(7):1455-61.
15. Gradishar WJ, Tjulandin S, Davidson N, et al. Phase III Trial of Nanoparticle Albumin-Bound Paclitaxel Compared With Polyethylated Castor Oil-Based Paclitaxel in Women With Breast Cancer. *J Clin Oncol* 2005;23:7794-7803.
16. Gradishar W, Dimitry K, Sergey C, et al. Significantly Longer Progression-Free Survival With nab-Paclitaxel Compared With Docetaxel As First-Line Therapy for Metastatic Breast Cancer. *J Clin Oncol* 2009;27(22):3611-9.
17. Silver DP, Richardson AL, Eklund AC, et al. Efficacy of Neoadjuvant Cisplatin in Triple-Negative Breast Cancer. *J Clin Oncol* 2010;28(7):1145-53.
18. Bastholt L, Dalmark M, Gjedde SB, et al. Dose-response relationship of epirubicin in the treatment of postmenopausal patients with metastatic breast cancer: a randomized study of epirubicin at four different dose levels performed by the Danish Breast Cancer Cooperative Group. *J Clin Oncol* 1996;14:1146-1155.
19. Bull JM, Tormey DC, Li SH, et al. A randomized comparative trial of adriamycin versus methotrexate in combination drug therapy. *Cancer* 1978;41:1649-1657.
20. Hortobagyi GN, Gutterman JU, Blumenschein GR, et al. Combination chemoimmunotherapy of metastatic breast cancer with 5-FU, fluorouracil, adriamycin, cyclophosphamide, and BCG. *Cancer* 1979;43:1225-33.
21. Ackland SP, Anton A, Breitbach GP, et al. Dose-Intensive Epirubicin-Based Chemotherapy Is Superior to an Intensive Intravenous Cyclophosphamide, Methotrexate, and Fluorouracil Regimen in Metastatic Breast Cancer: A Randomized Multinational Study. *J Clin Oncol* 2001;19:943-953.

22. Nabholz JM, Falkson C, Campos D, et al. Docetaxel and Doxorubicin Compared With Doxorubicin and Cyclophosphamide as First-Line Chemotherapy for Metastatic Breast Cancer: Results of a Randomized, Multicenter, Phase III Trial. *J Clin Oncol* 2003;21(6):968-75.
23. Langley RE, Camichel J, Jones AL, et al. Phase III Trial of Epirubicin Plus Paclitaxel Compared With Epirubicin Plus Cyclophosphamide As First-Line Chemotherapy for Metastatic Breast Cancer: United Kingdom National Cancer Research Institute. *J Clin Oncol* 2005;23:8322-8330.
24. Bonadonna G, Brusamolino E, Valagussa P, et al. Combination Chemotherapy as an Adjuvant Treatment in Operable Breast Cancer. *N Engl J Med* 1976;294:405-410.
25. Mavroudis D, Papakotoulas P, Ardavanis A, et al. Randomized phase III trial comparing docetaxel plus epirubicin versus docetaxel plus capecitabine as first-line treatment in women with advanced breast cancer. *Ann Oncol* 21:48(2010).
26. Alban KS, Nag S, Calderillo-Ruiz G, et al. Gemcitabine Plus Paclitaxel Versus Paclitaxel Monotherapy in Patients With Metastatic Breast Cancer and Prior Anthracycline Treatment. *J Clin Oncol* 2008;26(24):3950-7.
27. O'Shaughnessy J, Schwartzberg LS, Danso MA, et al. A randomized phase III study of iniparib (BSI-201) in combination with gemcitabine/carboplatin (G/C) in metastatic triple-negative breast cancer (TNBC). [abstract]. *J Clin Oncol* 2011;29(Suppl_15):Abstract 1007.
28. Miller K, Wang M, Gralow J, et al. Paclitaxel plus Bevacizumab versus Paclitaxel Alone for Metastatic Breast Cancer. *N Engl J Med* 2007;357:2666-2676.
29. Baselga J, Cortes J, Kim SB, et al. Pertuzumab plus Trastuzumab plus Docetaxel for Metastatic Breast Cancer. *N Engl J Med* 2012;366:109-119.
30. Phase II study of pertuzumab, trastuzumab, and weekly paclitaxel in patients with HER2-overexpressing metastatic breast cancer [abstract]. *Cancer Research* 2012;72:Abstract P5-18-20.
31. Leyland-Jones B, Gelmon K, Ayoub JP, et al. Pharmacokinetics, Safety, and Efficacy of Trastuzumab Administered Every Three Weeks in Combination With Paclitaxel. *J Clin Oncol* 2003;21:3965-3971.
32. Perez EA, Suman VJ, Rowland KM, et al. Two Concurrent Phase II Trials of Paclitaxel/Carboplatin/Trastuzumab (Weekly or Every-3-Week Schedule) as First-Line Therapy in Women with HER2-Overexpressing Metastatic Breast Cancer: NCCTG

- Study 983252. Clin Breast Cancer 2005;6:425-432.
33. Slamon DJ, Leyland-Jones B, Shak S, et al. Use of Chemotherapy plus a Monoclonal Antibody against HER2 for Metastatic Breast Cancer That Overexpresses HER2. N Engl J Med 2001;344:783-792.
 34. Seidman A, Berry DA, Cirincione C, et al. Randomized Phase III Trial of Weekly Compared With Every-3-Weeks Paclitaxel for Metastatic Breast Cancer, With Trastuzumab for all HER-2 Overexpressors and Random Assignment to Trastuzumab or Not in HER-2 Nonoverexpressors: Final Results of Cancer and Leukemia Group B Protocol 9840. J Clin Oncol 2008;26:1642-1649.
 35. Marty M, Cognetti F, Maraninchi D, et al. Randomized Phase II Trial of the Efficacy and Safety of Trastuzumab Combined With Docetaxel in Patients With Human Epidermal Growth Factor Receptor 2–Positive Metastatic Breast Cancer Administered As First-Line Treatment: The M77001 Study Group. J Clin Oncol 2005;23:4265-4274.
 36. Esteva FJ, Valero V, Booser D, et al. Phase II Study of Weekly Docetaxel and Trastuzumab for Patients With HER-2–Overexpressing Metastatic Breast Cancer. J Clin Oncol 2002;20:1800-1808.
 37. Burstein HJ, Keshaviah A, Baron AD, et al. Trastuzumab plus vinorelbine or taxane chemotherapy for HER2-overexpressing metastatic breast cancer: The trastuzumab and vinorelbine or taxane study. Cancer 2007;110:965-972.
 38. von Minckwitz G, du Bois A, Schmidt M, et al. Trastuzumab Beyond Progression in Human Epidermal Growth Factor Receptor 2–Positive Advanced Breast Cancer: A German Breast Group 26/Breast International Group 03-05 Study. J Clin Oncol 2009;27:1999-2006.
 39. Cobleigh MA, Vogel CL, Tripathy D, et al. Multinational Study of the Efficacy and Safety of Humanized Anti-HER2 Monoclonal Antibody in Women Who Have HER2-Overexpressing Metastatic Breast Cancer That Has Progressed After Chemotherapy for Metastatic Disease. J Clin Oncol 1999;17:2639-2648.
 40. Verma S, Miles D, Gianni L, et al. Trastuzumab Emtansine for HER2-Positive Advanced Breast Cancer [Supplementary appendix available online]. N Engl J Med 2012;367:1783-1791.
 41. Geyer C, Forster J, Lindquist D, et al. Lapatinib plus Capecitabine for HER2-Positive Advanced Breast Cancer. N Engl J Med 2006;355:2733-2743.
 42. Bartsch R, Wenzel C, Altorjai G, et al. Capecitabine and Trastuzumab in Heavily Pretreated Metastatic Breast Cancer. J Clin Oncol 2007;25:3853-3858.

43. Blackwell KL, Burstein H, et al. Randomized Study of Lapatinib Alone or in Combination With Trastuzumab in Women With ErbB2-Positive, Trastuzumab-Refractory Metastatic Breast Cancer. *J Clin Oncol* 2010;28(7):1124-30.
44. Kun-Ming Rau, Shan-Hsuan Li, et al. Weekly Paclitaxel Combining with Gemcitabine is an Effective and Safe Treatment for Advanced Breast Cancer Patients. *Jpn J Clin Oncol* 2011;41(4):455–461.
45. Jin Hyun Park, Seock-Ah Im, et al. Cyclophosphamide, Methotrexate, and 5-Fluorouracil as Palliative Treatment for Heavily Pretreated Patients with Metastatic Breast Cancer: A Multicenter Retrospective Analysis. *J Breast Cancer*. 2017 Dec; 20(4): 347–355.
46. Mark Robson, Seock-Ah Im, Elzbieta Senkus, et al. Olaparib for Metastatic Breast Cancer in Patients with a Germline BRCA Mutation. *N Engl J Med* 2017; 377:523-533.
47. Litton J, Rugo H, Ettl J, et al. Talazoparib in patients with advanced breast cancer and a germline BRCA mutation. *N Engl J Med* 2018;379:753-63.
48. Schmid P, Adams S, Rugo HS, et al. Atezolizumab and Nab-Paclitaxel in Advanced Triple-Negative Breast Cancer. [supplementary appendix appears online]. *N Engl J Med*. 2018 Nov 29;379:2108-2121.
49. Pathological Response and Survival in Triple-Negative Breast Cancer Following Neoadjuvant Carboplatin plus Docetaxel. *Clin Cancer Res* December 1 2018 (24) (23) 5820-5829.
50. A Phase II Trial of Docetaxel and Carboplatin as First-Line Chemotherapy for Metastatic Breast Cancer: NCCTG Study N9932. *Oncology* 2005;69:117–121.
51. Perez EA, Hillman DW, Stella PJ, et al. A phase II study of paclitaxel plus carboplatin as first-line chemotherapy for women with metastatic breast carcinoma. *Cancer* 2000;88(1):124-131.
52. Loesch D, Robert N, Asmar L, et al. Phase II multicenter trial of a weekly paclitaxel and carboplatin regimen in patients with advanced breast cancer. *J Clin Oncol* 2002;20(18):3857-3864.
53. Yardley DA, Coleman R, Conte P, et al. nab-Paclitaxel plus carboplatin or gemcitabine versus gemcitabine plus carboplatin as first-line treatment of patients with triple-negative metastatic breast cancer: results from the tnAcity trial. *Ann Oncol* 2018;29(8):1763-1770.
54. Saura C, Oliveira M, Feng YH, et al. Neratinib plus capecitabine versus lapatinib plus capecitabine in patients with HER2-

- positive metastatic breast cancer previously treated with ≥ 2 HER2-directed regimens: Findings from the multinational, randomized, phase 3 NALA trial. Presented at the American Society of Clinical Oncology (ASCO) Annual Meeting. May 31-June 4, 2019; Chicago, IL. J Clin Oncol 2019;37:(suppl; abstr 1002).
55. Cortes J, Cescon DW, Rugo HS, et al. Pembrolizumab plus chemotherapy versus placebo plus chemotherapy for previously untreated locally recurrent inoperable or metastatic triple-negative breast cancer (KEYNOTE-355): a randomised, placebo-controlled, double-blind, phase 3 clinical trial. Lancet. 2020 Dec 5;396(10265):1817-1828.
56. Drilon A, Laetsch TW, Kummar W, et al. Efficacy of larotrectinib in TRK fusion-positive cancers in adults and children. N Engl J Med 2018;378(8):731-739.
57. Drilon A, Siena S, Ou SI, et al. Safety and antitumor activity of the multitargeted pan-TRK, ROS1, and ALK inhibitor entrectinib: Combined results from two phase I trials (ALKA-372-001 and STARTRK-1). Cancer Discov 2017;7(4):400-409.
58. Le DT, Durham JN, Smith KN, et al. Mismatch repair deficiency predicts response of solid tumors to PD-1 blockade. Science 2017;357(6349):409-413.
59. Marabelle A, Fakih M, Lopez J, et al. Association of tumour mutational burden with outcomes in patients with advanced solid tumours treated with pembrolizumab:prospective biomarker analysis of the multicohort, open-label, phase 2 KEYNOTE-158 study. Lancet Oncol. 2020;21(10):1353-1365.
60. Modi S, Jacot W, Yamashita T, et al. Trastuzumab deruxtecan in previously treated HER2-lowadvanced breast cancer [article and supplementary appendix published online ahead of print June 5, 2022]. N Engl J Med 2022.
61. Bardia A, Mayer IA, Vahdat LT, et al. Sacituzumab govitecan-hziy in refractory metastatic triple negative breast cancer. N Engl J Med. 2019;380:741-751.

Endocrine Therapy Regimens for Recurrent or Metastatic Breast Cancer

Premenopausal

SERM

藥品名	劑量 mg/m2	給藥日	頻率	週期	參考文獻
Tamoxifen	20-40 mg PO QD				1

Ovarian ablation or suppression

藥品名	劑量 mg/m2	給藥日	頻率	週期	參考文獻
Goserelin Acetate	3.6 mg SC		Q4W		5

藥品名	劑量 mg/m2	給藥日	頻率	週期	參考文獻
Leuprolide Acetate	3.75 mg SC		Q4W		6

Postmenopausal

Aromatase inhibitor

藥品名	劑量 mg/m2	給藥日	頻率	週期	參考文獻
Exemestane	25 mg PO QD				2

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Anastrozole	1 mg PO QD				3

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Letrozole	2.5 mg PO QD				4

SERD

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Fulvestrant	500 IM		Q4W		7

CDK4/6 inhibitor+AI (for Her2-negative)

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Palbociclib	125 mg PO QD	1-21	Q4W		8
Letrozole	2.5 mg PO QD	1-21	Q4W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Palbociclib	125 mg PO QD	1-21	Q4W		8
Anastrozole	1 mg PO QD	1-21	Q4W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Palbociclib	125 mg PO QD	1-21	Q4W		8
Exemestane	25 mg PO QD	1-21	Q4W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Ribociclib	600 mg PO QD	1-21	Q4W		9
Letrozole	2.5 mg PO QD	1-21	Q4W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Ribociclib	600 mg PO QD	1-21	Q4W		9
Anastrozole	1 mg PO QD	1-21	Q4W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Ribociclib	600 mg PO QD	1-21	Q4W		9
Exemestane	25 mg PO QD	1-28	Q4W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Abemaciclib	150 mg PO BID				15
Letrozole	2.5 mg PO QD				

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Abemaciclib	150 mg PO BID				15
Anastrozole	1 mg PO QD				

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Abemaciclib	150 mg PO BID				15
Exemestane	25 mg PO QD				

CDK4/6 inhibitor + SERD

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Palbociclib	125 mg PO QD	1-21	Q4W		10
Fulvestrant	500 IM	1, 15 → 1	Q4W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Palbociclib	600 mg PO QD	1-21	Q4W		11
Fulvestrant	500 IM	1, 15 → 1	Q4W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Abemaciclib	150 mg PO BID				16
Fulvestrant	500 IM	1, 15 → 1	Q4W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Everolimus	10 mg PO QD				12
Exemestane	25 mg PO QD				

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Everolimus	10 mg PO QD		Q4W		13
Fulvestrant	500 IM	1, 15 → 1	Q4W		

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Everolimus	10 mg PO QD				14
Tamoxifen	20-40 mg PO QD				

Fulvestrant + Alpelisib for PIK3CA-mutated tumors

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Alpelisib	300 mg PO QD				17
Fulvestrant	500 IM	1, 15 → 1	Q4W		

Useful in certain circumstances

Abemaciclib

藥品名	劑量 mg/m ²	給藥日	頻率	週期	參考文獻
Abemaciclib	200 mg PO BID				18

參考文獻

1. Product Information: tamoxifen citrate oral tablets, tamoxifen citrate oral tablets. Watson Laboratories (per manufacturer), Corona, CA, 2011.
2. Product Information: AROMASIN(R) oral tablets, exemestane oral tablets. Pharmacia & Upjohn Company (per FDA), New York, NY, 2013.

3. Product Information: ARIMIDEX(R) oral tablet, anastrozole oral tablet. AstraZeneca Pharmaceuticals LP, Wilmington, DE, 2009.
4. Product Information: Femara oral tablets, letrozole oral tablets. Novartis Pharmaceuticals Corporation, East Hanover, NJ, 2010.
5. Product Information: ZOLADEX(R) implant 3.6mg, goserelin acetate implant implant 3.6mg. AstraZeneca, Wilmington, DE, 2009.
6. Boccardo F, Rubagotti A, Amoroso D, et al: Endocrinological and clinical evaluation of two depot formulations of leuprolide acetate in pre- and perimenopausal breast cancer patients. *Cancer Chemother Pharmacol* 1999; 43:461-466.
7. Rita S. Mehta, M.D., William E. Barlow, Ph.D., et al. Combination Anastrozole and Fulvestrant in Metastatic Breast Cancer.
8. Turner NC, Ro J, Andre F, et al. Palbociclib in Hormone-Receptor-Positive Advanced Breast Cancer. *N Engl J Med* 2015;373:209-219.
9. Gribble N. Hortobagyi, M.D., Salomon M. Stemmer, M.D., et al. Ribociclib as First-Line Therapy for HR-Positive, Advanced Breast Cancer, *N Engl J Med* 375;18 November 3, 2016
10. Massimo Cristofanilli, Nicholas C Turner, et al. Fulvestrant plus palbociclib versus fulvestrant plus placebo for treatment of hormone-receptor-positive, HER2-negative metastatic breast cancer that progressed on previous endocrine therapy (PALOMA-3): final analysis of the multicentre, double-blind, phase 3 randomised controlled trial. *Lancet Oncol* 2016; 17: 425–39.
11. Dennis J. Slamon, Patrick Neven, et al. Phase III Randomized Study of Ribociclib and Fulvestrant in Hormone Receptor–Positive, Human Epidermal Growth Factor Receptor 2–Negative Advanced Breast Cancer: MONALEESA-3. *J Clin Oncol* 36:2465-2472.
12. José Baselga, M.D., Ph.D., Mario Campone, M.D., et al. Everolimus in Postmenopausal Hormone Receptor–Positive Advanced Breast Cancer. *N Engl J Med* 366;6 nejm.org february 9, 2012.
13. Noah Kornblum, Fengmin Zhao, et al. Randomized Phase II Trial of Fulvestrant Plus Everolimus or Placebo in Postmenopausal Women With Hormone Receptor–Positive, Human Epidermal Growth Factor Receptor 2–Negative Metastatic Breast Cancer Resistant to Aromatase Inhibitor Therapy: Results of PrE0102. *J Clin Oncol* 36:1556-1563.

14. Thomas Bachelot, Céline Bourcier, et al. Randomized Phase II Trial of Everolimus in Combination With Tamoxifen in Patients With Hormone Receptor–Positive, Human Epidermal Growth Factor Receptor 2–Negative Metastatic Breast Cancer With Prior Exposure to Aromatase Inhibitors: A GINECO Study. *J Clin Oncol* 30:2718-2724.
15. Goetz MP, Toi M, et al. MONARCH 3: Abemaciclib As Initial Therapy for Advanced Breast Cancer. *J Clin Oncol*. 2017;35(32):3638-3646.
16. Sledge GW Jr, Toi M, et al. The Effect of Abemaciclib Plus Fulvestrant on Overall Survival in Hormone Receptor–Positive, ERBB2–Negative Breast Cancer That Progressed on Endocrine Therapy—MONARCH 2. *AMA Oncol*. 2020;6(1):116-124.
17. André F, Ciruelos E, et al. Alpelisib for PIK3CA–Mutated, Hormone Receptor–Positive Advanced Breast Cancer. *N Engl J Med* 2019; 380:1929-1940.
18. Dickler MN, Tolaney SM, et al. MONARCH 1, a phase 2 study of abemaciclib, a CDK4 and CDK6 inhibitor, as a single agent, in patients with refractory HR+/HER2– metastatic breast cancer. *Clin Cancer Res*. 2017; 23(17): 5218–5224.