Table S1. Summary of the main findings.

Treatment line and platinum free-interval	FIRST LINE SETTING 1. No difference in PFS or OS between carboplatin/PLD and carboplatin/paclitaxel in first-line treatment 2. No survival benefit in adding PLD to carboplatin/paclitaxel, but more hematological toxicity RECURRENCE SETTING 1. Comparable or better efficacy of anthracyclines over carboplatin/paclitaxel in recurrent disease 2. PLD plus trabectedin is associated with improved PFS over PLD alone	*Lawrie TA et al, 2013* *Pignata S et al, 2011* *Pujade-Lauraine E et al, 2010* *Colombo N et al, 2020* *Monk BJ et al, 2010*
BRCA 1-2 status and response to anthracyclines	BRCA mutated OC is more responsive to the group of DNA damaging drugs (i.e. PLD) and more resistant to antimicrotubule agents in comparison with sporadic tumors	*Safra T et al, 2011* *Venkitaraman AR, 2009* *Kaye SB et al, 2012* *Adams SF et al, 2011* *Hollis RL et al, 2018* *Monk BJ et al, 2020*
Patients' clinical characteristics and sensitivity to anthracyclines	1. Carboplatin/PLD combination provides better therapeutic response with similar PFS and less toxicity and grade ≥2 allergic reactions than carboplatin/paclitaxel in women > 70y 2. PLD gives less hypersensitivity than carboplatin and paclitaxel 3. The severity of hand-foot syndrome and mucositis may be a predictive marker of PLD efficacy	*Kurtz JE et al, 2011* *Joly F et al, 2011*
CA125 kinetics during treatment with anthracyclines	CA125 marker is not a good surrogate for treatment benefit with anthracyclines and its variations may not be faithful to the real efficacy of the ongoing treatment (usual later decline than with carboplatin-paclitaxel)	*Oaknin A et al, 2010* *Lee CK et al, 2011*
Anthracyclines and ovarian cancer histology	When compared to papillary serous, mucinous, endometrioid and clear cell tumors are significantly less resistant to doxorubicin and benefit most from incorporation of anthracyclines in treatment regimes	*Cloven N, 2004* *Shimizu Y et el, 1998*
Gene expression and immunochemical parameters	1. Her-2 neu expression levels are associated with response to anthracyclines 2. TOP2A expression by immunohistochemistry is a predictive marker of response to PLD-based therapy in relapsed platinum resistant or partially platinum-sensitive OC	*Cloven N et al, 2003* *Ghisoni E et al, 2019*
TP53 mutation and resistance to anthracyclines	Increase in mutant p53 levels linked to anthracyclines treatment seems to impair their antitumor effect	*Bush JA et al, 2002* *Chrisanthar R et al, 2008*
Immune system expression and anthracyclines	1. Relevant immunogenic potential of anthracyclines that may enhance immunogenic cell death by downregulating PDL-1 2. PLD seems to enhance the immune response in BRCA 1-deficient tumors	*Casares N et al, 2005* *Mantia-Smaldone G et al, 2014*
MiRNAs	Different miRNAs were found to be associated with doxorubicin-response and can help to predict response	*Boren T et al, 2009*
Organoids	Microscopic, three-dimensional structures grown from stem cells can reproduce key features of	*Maenhoudt N et al, 2020*

	patients' tumor characteristics and test chemotherapy response for each patient	