Reviewer’s report

Title: Recent Advances in Triple Negative Breast Cancer Treatment: The Immunotherapy Era

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Reviewer: Marcus Schmidt

Reviewer’s report:

The authors present a comprehensive review of immunotherapy in triple-negative breast cancer (TNBC) with an emphasis on the phase III trial IMpassion130. Furthermore, they raise and discuss several crucial questions, ranging from the best test (e.g. PD-L1, gene expression signatures, tumor infiltrating lymphocytes, tumor mutational burden, microsatellite instability, BRCA mutations) to enrich TNBC patients deriving benefit from immune checkpoint inhibitors (ICPi) to potential lessons from the neoadjuvant setting including the important question of the optimal endpoint to use. This manuscript is well-written and gives a focused overview of the emergent field of immunotherapy in TNBC.

However, there are several points the authors should comment on:

1) For the general understanding why immunotherapy might be helpful especially in TNBC, the authors should outline in their introduction the well-described prognostic and predictive effects of immune cells especially in TNBC.

2) At least for the ICPi used in IMpassion130 (atezolizumab), the predictive relevance of PD-L1, TILs and BRCA mutations was clarified by Emens and coworkers. The authors quote this abstract but they should also comment these important findings.

3) In their section choosing the right chemotherapy partner the authors mention that nab-paclitaxel was used in IMpassion130 and that there were better agents like anthracyclines, platinum salts and taxanes. However, nab-paclitaxel is a taxane. The authors should correct this confusing contradiction.

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1. M. Schmidt received honoraria for speaker or consultancy role from AstraZeneca, Celgene, Eisai, Lilly, Myelo Therapeutics, Novartis, Pantarhei Bioscience, Pfizer, Pierre-Fabre, and Roche. He received research funding from AstraZeneca, BioNTech, Eisai, Genentech, Myelo Therapeutics, Pantarhei Bioscience, Pierre-Fabre, and Roche. He received travel reimbursement from Pfizer and Roche.

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