

#### Supplementary File 4

A study compared local recurrence (LR) rates between *BRCA1/2* mutation carriers and *BRCA1/2* wildtype patients after treated with BCT. After 12 years follow up, *BRCA1/2* carriers had a higher LR (49%) than wildtype patients (21%,  $P=0.007$ ).<sup>[1]</sup> Another study including 160 *BRCA1/2* mutation patients and 445 wildtype patients showed that LR in 10 years and 15 years were 12%, 24% and 9%, 17%, respectively.<sup>[2]</sup> In 2019, a prospective study indicated that although the incidence of contralateral breast cancer was significantly higher in *BRCA1/2* breast cancer patients, 10-year ipsilateral breast recurrence rates in *BRCA1* carriers, *BRCA2* carriers, and wildtype patients were 8.7%, 14.1%, and 20%, respectively.<sup>[3]</sup>

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2. Pierce LJ, Levin AM, Rebbeck TR, Ben-David MA, Friedman E, Solin LJ, *et al.* Ten-year multi-institutional results of breast-conserving surgery and radiotherapy in *BRCA1/2*-associated stage I/II breast cancer. *J Clin Oncol* 2006;24:2437-43. doi: 10.1200/JCO.2005.02.7888.
3. Yoon KH, Chae S, Kang E, Shin HC, Kim JH, Kim IA, *et al.* Contralateral Breast Cancer and Ipsilateral Breast Tumor Recurrence in *BRCA1/2* Carriers and Non-Carriers at High-Risk of Hereditary Breast Cancer. *J Breast Cancer* 2019;22:587-598. doi: 10.4048/jbc.2019.22.e47.