# **Pathologic complete response (pCR)** (Core)

Pathologic complete response (pCR) is now defined as no invasive disease in the breast (ypT0/ypTis or ypT0) and no disease in all sampled lymph nodes (ypN0). An international effort tried to standardise the definition and aspects of clinical practice and pathologic evaluation that impact the determination of pCR.[1,2] Fiducial marker placement to mark the primary tumour site prior to initiating therapy is very important. To improve the accuracy of sentinel lymph node biopsy the placement of a clip in involved lymph nodes is also recommended. Appropriate handling of the pathology specimen is critical (see **Appendix 1: General information - Specimen handling post neoadjuvant treatment** section). Directed sampling with identification of the tumour site is needed to accurately determine the pCR status.

Absence of disease in all sampled lymph nodes, including absence of isolated tumour cells (ITC), is required for pCR. Lymphovascular invasion (LVI) only associated with the primary tumour or elsewhere (for example, dermal LVI or in the axilla) is not considered pCR. The presence of in situ carcinoma, lobular neoplasia, necrotic tumour and mucin in the absence of viable disease do not preclude classification as pCR.

It is unclear if residual ductal carcinoma in situ (DCIS) after neoadjuvant therapy affects prognosis. The definition of pCR used may or may not include the absence of DCIS. It is helpful to document the definition of pCR used (ypT0/ypTis ypN0 or ypT0 ypN0). ypTis ypN0 has an excellent prognosis.

**References**


1 Provenzano E, Bossuyt V, Viale G, Cameron D, Badve S, Denkert C, MacGrogan G, Penault-Llorca F, Boughey J, Curigliano G, Dixon JM, Esserman L, Fastner G, Kuehn T, Peintinger F, von Minckwitz G, White J, Yang W and Symmans WF (2015). Standardization of pathologic evaluation and reporting of postneoadjuvant specimens in clinical trials of breast cancer: recommendations from an international working group. *Mod Pathol* 28(9):1185-1201.

2 Bossuyt V, Provenzano E, Symmans WF, Boughey JC, Coles C, Curigliano G, Dixon JM, Esserman LJ, Fastner G, Kuehn T, Peintinger F, von Minckwitz G, White J, Yang W, Badve S, Denkert C, MacGrogan G, Penault-Llorca F, Viale G and Cameron D (2015). Recommendations for standardized pathological characterization of residual disease for neoadjuvant clinical trials of breast cancer by the BIG-NABCG collaboration. *Ann Oncol* 26(7):1280-1291.