



The roles of BRCA1 and BRCA2 in DNA repair

Figure 2. The roles of BRCA1 and BRCA2 in DNA repair. (a) This model suggests that a macromolecular complex consisting of BRCA1, BRCA2, BARD1 and Rad51 functions to repair damaged DNA. Complex formation is preceded by phosphorylation of BRCA1 by the kinase ATM. In response to DNA damage, the complex relocates to chromosomal regions undergoing DNA replication marked by proliferating cell nuclear antigen (PCNA). (b) Loss of BRCA1 and/or BRCA2 function (indicated by dotted outlines) leads to inability to repair damaged DNA. When damage occurs to critical checkpoint genes, such as *p53* (dotted outline), checkpoints such as p21 cannot be activated and cells proliferate. Modified figure reproduced, with permission from Elsevier Science, from Ref. 11 [Welch, P.L., Owens, K.N. and King, M.C. (2000) Insights into the functions of BRCA1 and BRCA2. Trends in Genetics 16, 69-74] (**fig002mgb**).