

Publication

Anticipating mechanisms of resistance to PI3K inhibition in breast cancer:
a challenge in the era of precision medicine**JournalItem (Reviews, Editorials, Rezensionen, Urteilsanmerkungen etc. in einer wissenschaftlichen Zeitschrift)**

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Frequent subversion of the PI3K (phosphoinositide 3-kinase) pathway during neoplastic transformation contributes to several hallmarks of cancer that result in a competitive advantage for cancer cells. Deregulation of this pathway can be the result of genomic alterations such as PIK3CA mutation, PTEN (phosphatase and tensin homologue deleted on chromosome 10) loss or the activation of upstream protein tyrosine kinases. Not surprisingly, the PI3K signalling pathway has become an attractive therapeutic target, and numerous inhibitors are in clinical trials. Unfortunately, current therapies for advanced cancers that target PI3K often lead to the development of resistance and relapse of the disease. It is therefore important to establish the molecular mechanisms of resistance to PI3K-targeted therapy. With the focus on breast cancer, in the present article, we summarize the different ways of targeting PI3K, review potential mechanisms of resistance to PI3K inhibition and discuss the rationale of combination treatments to reach a balance between efficacy and toxicity.

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