Targeting the PI3K signaling pathway in cancer therapy.


Source

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Abstract

Introduction: The PI3K signaling pathway is involved in the regulation of cancer cell growth, motility, survival and metabolism. The pathway is frequently active in many different types of cancer—e.g., breast, bladder, prostate, thyroid, ovarian and NSCLC. Targetable genetic aberrations in this pathway give us many opportunities for development of targeted therapies for different types of cancer. Areas covered: The genetic alterations in the PI3K/mammalian target of rapamycin (mTOR)/Akt pathway, as well as the drugs that target this pathway, either alone, in combination with other targeted agents or in chemotherapy. Targeted inhibitors of the PI3K pathway currently being tested in clinical trials in different types of human cancer. Expert opinion: Small-molecule inhibitors targeting the PI3K/Akt/mTOR pathway show some success with these agents in current clinical trials. For further improvement in response, molecular correlates that can be used for patient selection, need to be determined. A more efficient and effective way to screen for patients to determine which patients are most likely to benefit from PI3K pathway inhibitors is also needed.

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