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The therapeutic potential of targeting Toll like receptor pathway in breast cancer

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Abstract

The toll-like receptor (TLR) signaling pathway plays a key role in inducing immune responses and were shown to be expressed in immune cells and tumor cells, and is involved in the progression of several malignancies including breast cancer. These findings provide a proof of the concept of targeting this pathway as a potential therapeutic option in the treatment of breast cancer. Moreover, there is a growing body of data showing the activation of TLRs in the tumor microenvironment and its dual function as anti-tumoral (dendritic T and natural killer cells activation) or pro-tumoral activity (cell proliferation, and drug resistance). Several agents have been developed for targeting of this pathway and one of these inhibitors, called Bacillus Calmette-Guerin (an agonist of TLR2 and TLR4), is recently being approved by FDA for immunotherapy of bladder cancer. This review summarizes the current knowledge of the mechanisms of action of TLR pathways in the development/progression of cancer for a better management of this disease.

Keywords: Bacillus Calmette-Guerin.; Toll like receptors; breast cancer progression; cell proliferation; drug resistance; tumor cells.

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