Berberina suprime a proliferação do câncer de mama HER2 positivo inibindo a via HER2/PI3K/Akt

Berberina: Diminui o potencial de membrana mitocondrial (ΔPsi m), Inibe microorganismos tumorigênicos: bactérias, fungos e vírus, Interage com DNA e RNA formando complexos, Ativa AMPK, Ativa p53, Inibe HIF-1, Inibe NAT – N-acetiltransferase, Inibe a telomerase, Inibe a topoisomerase I, Inibe COOX-2, Inibe NOi (óxido nítrico induzível), Inibe a 5 alfa-redutase tipo 2, Ativa p21, p27 e Wee1 e inibe Cdk1, Cdk2, Cdk4/6 e Ciclinas A, E, D1 e D2, Aumenta expressão do Fas/Fasl, Inibe fator nuclear NF-kappaB, Inibe metaloproteinases: MMP-1, MMP-2 e MMP-9, Inibe vários fatores de crescimento, Reduz resistência à insulina, Diminui a resistência do câncer MDR, Inibe a glicólise por inibir extrusão do lactato (inibe CD147/Basigin - MCT1/4), inibe via RAF/ERK, inibe via HER2/PI3K/Akt. José de Felippe Junior

Growth suppression of HER2-overexpressing breast cancer cells by berberine via modulation of the HER2/PI3K/Akt signaling pathway.


Source

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Abstract

Berberine (BBR) is a natural alkaloid with significant antitumor activities against many types of cancer cells. This study investigated the molecular mechanisms by which BBR suppresses the growth of HER2-overexpressing breast cancer cells. The results show that BBR induces G1-phase cell cycle arrest by interfering with the expression of cyclins D1 and E and that it induces cellular apoptosis through the induction of a mitochondria/caspase pathway. The data also indicate that BBR inhibits cellular growth and promotes apoptosis by down-regulating the HER2/PI3K/Akt signaling pathway. Furthermore, it is also shown that a combination of taxol and BBR significantly slows the growth rate of HER2-overexpressing breast cancer cells. In conclusion, this study suggests that BBR could be a useful adjuvant therapeutic agent in the treatment of HER2-overexpressing breast cancer.