Identification of Quinones as growth inhibitors of Trastuzumab resistant breast cancer cells

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In 2013, the number of new cases of breast cancer in the US was 234,580 and ~1.7 million worldwide. Despite the advances in early detection and treatment of breast cancer, about 30% of patients with early stage breast cancer have recurrent disease where resistance to therapy is common and expected. HER2 is overexpressed in 20-40% of invasive breast cancer, and 12-24% of these patients develop resistance within 6 months for the widely used therapy trastuzumab. HER2 oncogenic variant HER2 16 has been shown to promote receptor dimerization, cell invasion and also trastuzumab resistance of NIH3T3 and MCF-7 tumor cells lines. We have identified several naphthoquinones that show growth inhibition of the MCF-7 HER2Δ16 cell lines with a significantly higher potency than the present clinically used tyrosine kinase inhibitor lapatinib. These compounds also inhibit auto-phosphorylation of the Y1248 and Y1068 residues of HER2 and EGFR, respectively.

Biography

Jayalakshmi Sridhar has completed her PhD at the age of 30 years from Osmania University, India and postdoctoral studies from Georgetown University, University of California-Riverside and Xavier University of Louisiana. She is presently an assistant professor at Xavier University of Louisiana. She has published more than 27 papers in reputed journals and has two patents.

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