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The contribution of cholesterol and epigenetic changes to the pathophysiology of breast cancer

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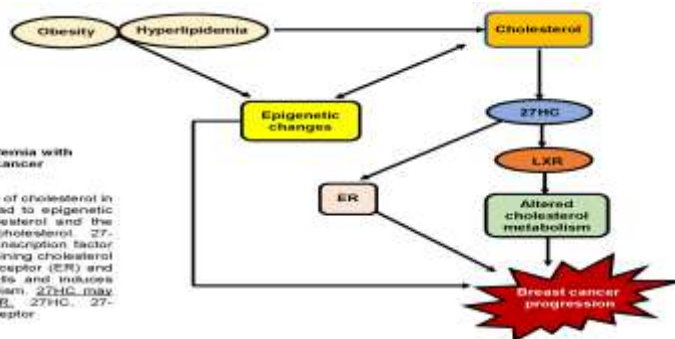
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Graphical abstract

Graphical Abstract: Association of obesity and hyperlipidemia with epigenetics to induce Estrogen receptor positive breast cancer progression.

Obesity, as well as Hyperlipidemia, facilitate the accumulation of cholesterol in the breast tissues. Obesity and hyperlipidemia may also lead to epigenetic modification. This may result in the accumulation of cholesterol and the synthesis of oxysterol, 27-hydroxycholesterol (27HC) from cholesterol. 27HC acts as an agonist of the Liver X Receptor (LXR), a transcription factor and regulator of cholesterol and plays a critical role in maintaining cholesterol homeostasis. 27HC also acts as an agonist of estrogen receptor (ER) and may inhibit LXR function in ER-positive breast cancer cells and induces breast cancer pathogenesis by altering cholesterol metabolism. 27HC may increase breast cancer progression by regulating ER. 27HC, 27-hydroxycholesterol; LXRs, liver X receptors; ER, estrogen receptor.



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