7. Conclusion

Augmented experimental results suggested that de novo lipogenesis is an important hallmark for the progression of tumor. Consequently, to mitigate tumorigenesis in an effective way, the metabolic target with site specific but not a stage specific molecule will be a better choice. Hence, the current investigation was carried out to formulate and evaluate the peptide pACC1 containing chitosan nanoparticles for mammary carcinoma. The results suggested that pACC1 peptide possess good interaction with BRCT domain in in silico evaluations with successive non-toxic effects. Moreover, the peptide pACC1 possess the ability to form intermolecular hydrogen bond with chitosan and it was found harmless for biological system. Further, dose dependent and continuous apoptotic effects were seen with in vitro evaluation, which was concluded with excess reactive oxygen species generation due to controlled synthesis of ACC1. Moreover, the in vivo findings provided concrete support for pACC1 peptide loaded chitosan nanoparticles therapy with de novo lipogenesis blocking effect. Additionally, the twin action of this peptide loaded chitosan nanoparticles in protein controlling of Her2 and EGFR is highly appreciated to predominant in breast cancer therapy. Hence, this formulation could be employed as alone or combined with existing therapy to furnish an effective anti-cancer treatment.