6. Conclusion

The present study has focused on the use of magainin II as an anticancer agent in comparison with the conventional drug 5-FU on colon cancer cell lines. Altogether our results demonstrated that magainin II acts as potent apoptosis inducer, by inhibiting cell growth, arresting the cell cycle, altering the mitochondrial membrane potential, increasing ROS generation and reducing telomerase activity. In addition, it has induced p53 mediated caspase dependent apoptosis by blocking Bcl-2 expression and activation of Bax expression. In mutant p53 colon cancer cell lines, magainin II induced apoptosis via intrinsic mitochondrial pathway, whereas in wild p53 colon cancer cell line (HCT 116 cell line), apoptosis was induced by magainin II through both extrinsic and intrinsic apoptotic pathways, as a result of p53-mediated Fas signalling. The results of this study suggest that magainin II is a potent apoptosis inducer that is involved in the main events that lead to cell death. Magainin II exerts an important alteration in these cells due to its apoptosis. The study of mechanism of action that magainin II exerts in tumoral cells may represent as an important therapeutic candidate for colon cancer cell line.
Figure 6.1 Possible mechanisms involved in the activation of intrinsic apoptotic signalling pathway in mutant p53 colon cancer cell line by magainin II
Figure 6.2 Possible signalling pathways of magainin II on wild p53(HCT 116) colon cancer cell line. Magainin II induces apoptosis through both extrinsic and intrinsic apoptotic pathways.