CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP110299

Project Title:
Cellular Targets of Salinomycin: Novel Cancer Stem-Cell Specific Drug Studied in Yeast

Award Mechanism:
High Impact/High Risk

Principal Investigator:
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Entity:
University of North Texas Health Science Center at Fort Worth

Lay Summary:

A new concept in cancer biology suggests that only a small fraction of cells within a tumor, so-called cancer stem cells, drive its growth since they can divide without limitations. Recently, the established antibiotic salinomycin was found to kill breast cancer stem cells specifically. Therefore, salinomycin is an attractive candidate for cancer chemotherapy, however, its mechanism of action is unclear. We found that salinomycin is active in the model organism budding yeast but we also found that resistance against the agent is quite common – a potential major problem in therapy. We propose to determine which proteins are altered in those clones to generate resistance. This can easily be accomplished in yeast with well-established methods of molecular genetics. These studies will thus identify potential cellular targets of salinomycin and, at the same time, reveal mechanisms of resistance. The latter need to be elucidated in order to counteract them.