Researchers at the University of South Florida have invented a method for the treatment of malignant melanoma through effective inhibition of two different forms of Protein Kinase C, PKC-iota and PKC-zeta, while negligibly affecting non-malignant cells.

The number of melanoma cases reported each year has been on the rise and they are predicted to double in about 10-20 years. Malignant melanoma is a common type of cancer among all Caucasian populations worldwide. The issue with this particular type of carcinoma is the lack of comprehensive knowledge pertaining to the signaling pathways that dictate the metastasis of melanoma cells.

Scientists at USF have discovered high amounts of PKC-ι in transformed and metastasized melanocytes. Thus our inventors sought to inhibit these atypical PKCs to evaluate the potential to treat malignant melanoma. DNDA (3,4-Diaminonaphthalene-2, 7-disulfonic acid) was tested for efficacy in inhibiting PKC-ι and PKC-ζ. Significant decreases in melanoma cell populations were observed with increasing drug concentrations of DNDA. Scratch assays and western blotting analyses confirmed the efficacy of DNDA in inhibiting PKC-ι and PKC-ζ, decreasing malignant melanoma cell populations, and limiting melanoma cell motility.

This invention not only highlights the overexpression of atypical PKCs in malignant melanocytes, it also reveals the drug and the pathway which can be employed to treat melanoma.

ADVANTAGES:
- Novel therapeutic use of DNDA
- Effective PKC-ι and PKC-ζ inhibition
- Negligible effect on non-malignant cells
- Significantly decreases melanoma cell population and motility

Fig: The proliferation of melanoma cells is substantially decreased with increasing doses of DNDA

Tech ID # 16B182