Jacob Gopas et al., J Cancer Sci Ther 2018, Volume 10
DOI: 10.4172/1948-5956-C3-129



## Nupharidines enriched leaf extract of Nuphar lutea reduces experimental melanoma metastases

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*Nuphar lutea* L. SM., leaf and rhizome extracts (NUP), contain nupharidines as active ingredients. Nupharidines belong to the sesquiterpene lactones class of a naturally occurring plant terpenoids. This family of compounds has gained considerable interest for treating infection, inflammation and cancer. NF-κB is a central, downstream regulator of inflammation, cell proliferation and apoptosis. In our previous work we demonstrated strong inhibition of NF-κB activity and induction of apoptosis by NUP. In addition, NUP exhibited anti-inflammatory properties and partial protection from LPS-induced septic shock by modulating ERK pathway and cytokine secretion in macrophages. In the present study, we examined the effect of NUP in a B16 melanoma experimental murine lung metastasis model and its ability to affect the ERK and NF-κB pathways in variety of cell lines. We showed that NUP and cisplatin combined treatment was synergistic and reduced the lung metastatic load. In addition, NUP treatment inhibited TNFα-induced IκBa degradation and NF-κB nuclear translocation. We also observed that NUP induced ERK activation. Furthermore, ERK inhibition prevented NF-κB inactivation by NUP. Interestingly, NUP treatment induced ERK activation in a human melanoma cell line, expressing BRAF mutation. Overall, our work implies that co-administration of NF-κB inhibitors with standard anticancer drugs or radiotherapy, may act as sensitizers or as inhibitors of multidrug resistance.

### Biography

Jacob Gopas has completed his BSc from Bar-Ilan University, Israel, PhD from Albert Einstein College of Medicine, USA and Post-doctorate from Ben-Gurion University. He is a Professor, Head of the Laboratory of the Institute of Oncology, Soroka University Medical Center, Israel and teaches cell and cancer biology. His research includes basic and clinical cancer biology, Hodgkin's lymphoma, and new plant compounds against inflammation, pathogens and cancer. He has published more than 90 articles together with Israeli, German, Indian and American scientists and physicians and holds several patents (founded by the Israel Science Foundation, Israel Ministry of Health, Israel Ministry of Science, Israel Cancer Association and NIH).

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