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Venom present in *Heteractis magnifica* induces apoptosis in human lung cancer A549 cells

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Lung cancer is a major cause of cancer deaths throughout the word but the complexity of apoptosis resistance in lung cancer is unclear. This study defined important roles for inducing apoptosis in A549 human lung cancer cell line with sea anemone venom. In our previous study we found *Heteractis magnifica* displayed cytotoxic and cytolytic activity on human lung cancer cell line. However the detailed mechanism underlying this process has not yet been elucidated. This study shows that chemo-preventive action of venom from *H. magnifica* might be due to its ability to induce apoptosis and cell cycle arrest. *H. magnifica* venom inhibited the growth of A549 cells line in a concentration dependent manner. The venom at 40 µg/ml on A549 cell line induced 32.2% apoptosis compared to 2.2% in untreated cells. Caspase 3/7 assay and JC-1 staining detected increases in the levels of apoptosis-regulating proteins and mitochondrial membrane potential, respectively. The findings of this study indicate that the crude extracts from *H. magnifica* induce apoptosis in A549 human lung cancer cell line and that this phenomenon is mediated via both the death receptor-mediated and mitochondria-mediated apoptotic pathway. Thus, novel compounds from *H. magnifica* may be developed as effective treatments for lung cancer.

Biography

Mahnaz Ramezanpour is a Ph.D. student in Medical Biotechnology, Flinders University. He has already generated a significant data on the project. The data have been published, presented at a conference and the maintenance funded by grant. One paper has been accepted, two are under review. He has trained Masters and Honours' research students to carry out some of these techniques in our laboratory. He has acted as a tutor for undergraduate students in the school of Biochemistry and also, has been a demonstrator for undergraduate students in the school of Biological Sciences.

The etiology of Bladder cancer and its dietary remedy

King-Thom Chung
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Multiple factors involved with the etiology of urinary bladder cancer (UBC), which occurs worldwide. UBC can be caused by inhalation of cigarette smoke, smoke from cooking, volatiles of coal tar, and diesel exhaust; exposure to exogenousindustrial/environmental carcinogens or endogenous carcinogens; intake of drugs or herbal remedies like aristolochic acids; contact of chlorinated water or hair dyes; ingestion of bracken fern (*Pteridiumaquilinum*) and/or arsenic; and infection of *Schistosomahaematobium* (schizosomiasis), enterobacteria(cystitis), and papilloma viruses. Genetic factors also affect the occurrence of UBC. Dietary intake of fruits, vegetables, soy products, vitamins, green tea, and the decrease of fat consumption is important for prevention. A proper intake of anticarcinogenic compounds such as selenium, garlic, lycopene, linoleic acid, various vitamins, gallic acid,procatechuic acid, p-coumaric acid, betulinic acid, and shibuol is possibly the best remedy for UBC.

Biography

King-Thom Chung completed Ph.D. in microbiology at the University of California, Davis, in 1972 and he joined the Frederick Cancer Research Center, as a scientist. He was first to demonstrate that the aromatic amines generated from azo dyes are carcinogenic. In 1977, he was a visiting professor at the Purdue Food Science Institute, then joined the Department of Biology as an Associate Professor at Tunghai University in Taichung, Taiwan. In 1980, he established the first Department of Microbiology in Taiwan. Later he became dean of college of science. In 1987, he was a visiting scientist at USDA, Roman L. Hruska U.S. Meat Animal Research Center, Clay Center, Nebraska, to work on food safety. In 1988, he joined the faculty at The University of Memphis as a biology faculty teaching Microbiology, Food and Industrial Toxicology, and continued his research on aromatic amines induced carcinogenesis. His research also includes anti-carcinogenic potential of different plant polyphenols such as dietary tannin and its derivatives. His publications include more than 10 review papers and numerous peer reviewed papers. He is a reviewer for several journals and currently the managing editor of *Arylamine Induced Carcinogenesis* for Frontiers in Bioscience since 2009. He is also an author of *Women Pioneers of Medical Research*.

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