Biomedical developments for skin cancer

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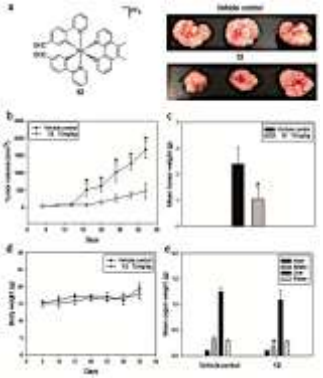
Abstract

Skin is the largest organ of the body. Human skin is normally contacted with damage stress, which is produced by external and intrinsic sources, such as ultraviolet (UV) radiation, free radicals, and reactive oxygen species. There are many studies about the skin exposed to oxidative stress or UV radiation and are responsible for aging or tumorigenesis. Melanoma, a malignant tumor of epidermal melanocytes, is one of the most deadly skin cancers. Within the past several decades, the occurrences of cutaneous malignant melanoma have increased because it has a strong propensity to metastasize and, therefore, is one of the most aggressive skin cancers. Unlike other cancers, malignant melanoma is not easy to treat with surgery, radiotherapy, or chemotherapy. A good chemother- apeutic agent will be a naturally occurring agent and can induce cytotoxicity in cancer cells.

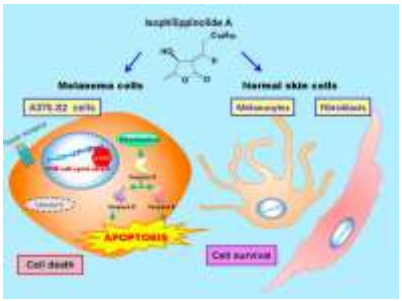
Recent Publications

1. **David Hui-Min Wang***, et al. An oligonucleotide-based label-free luminescent switch-on probe for RNA detection utilizing a G-quadruplex-selective iridium(III) complex *Nanoscale*, 6(15), 8489-8494, **2014** IF: **7.760**; Ranks: **8.49%**
2. **Hui-Min David Wang***, et al. Antagonizing STAT3 dimerization with a rhodium(III) complex *Angewandte Chemie-International Edition*, 53, 9178-9182, **2014** IF: **11.709**; Ranks: **6.75%**
3. **Hui-Min David Wang*** , et al. Development of an aptamer-based sensing platform for metal ions, proteins, and small molecules through terminal deoxynucleotidyl transferase induced G-quadruplex formation *ACS Applied Materials & Interfaces*, 7(43), 24046-24052, **2015** IF: **7.145**; Ranks: **9.23%**
4. **Hui-Min David Wang***, et al. An iridium(III)-based irreversible protein-protein interaction inhibitor of BRD4 as a potent anticancer agent *Chemical Science*, 6, 5400-5408, **2015** IF: **8.668**; Ranks: **10.24%**
5. **Hui-Min David Wang***, et al. Biofunctional activities of Equisetum ramosissimum extract: protective effects against oxidation, melanoma, and melanogenesis *Oxidative Medicine and Cellular Longevity*, 2853543, 2016 IF: **4.492**; Ranks: **28.34%**
6. **Hui-Min David Wang***, et al. Astaxanthin reduces MMP expressions, suppresses cancer cell migrations, and triggers apoptotic caspases of *in vitro* and *in vivo* models in melanoma 2017, accepted, *Journal of Functional Foods* IF: **3.973**; Ranks: **6.4%**
7. **Hui-Min David Wang***, et al. Inhibition of the Ras/Raf interaction and repression of renal cancer xenografts in vivo by an enantiomeric iridium(III) metal-based compound *Chemical Science*, 8, 4756-4763, **2017** IF: **8.668**; Ranks: **10.24%**

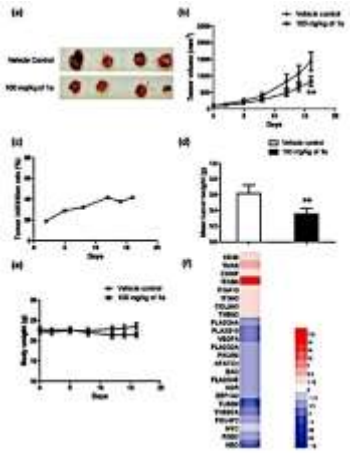
Images



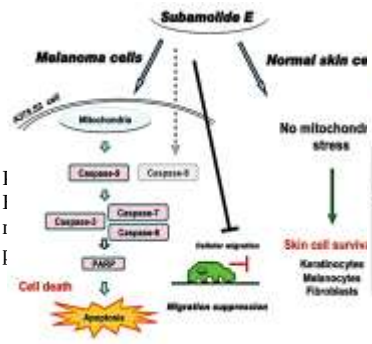
a) Chemical structure of **12** and photographs of dissected tumors from the control (vehicle) and treatment (**12**, 75 mg/kg). b) Average tumor volume of control group versus treatment group (**12**, 75 mg/kg). c) Average tumor volume weights measured after sacrifice. d) Average body weight of the vehicle control group versus the treatment group (**12**, 75 mg/kg). e) Average weight of organs (heart, spleen, liver, and kidney) of the two groups.



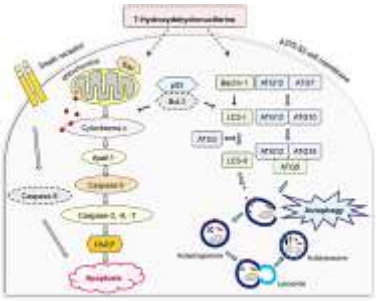
Proposed schematic diagram of subamolide E biofunctions on human skin cells, including the melanoma apoptotic pathway, migration inhibition, and normal cell survival.



Anti-proliferative activity of 1a in an *in vivo* xenograft model of melanoma.



Proposed schematic diagram of isophilippinolide A biofunctions.



Proposed schematic diagram of 7-HDNF bio-functions on the human melanoma apoptotic and autophagy pathway associated proteins.

Biography

Hui-Min David Wang, a Full Professor at Graduate Institute of Biomedical Engineering (National Chung Hsing University), graduated from the Department of Chemical Engineering, National Cheng Kung University, Tainan, Taiwan. In 2014, he got **Ta-You Wu Memorial Award** which is the highest price to young scientist of Ministry of Science and Technology (MOST) in TW. In 2015, he got **Young Scholars Biotechnology Invention Award** which is the highest price to young scientist of Taiwan Society of Biochemistry and Molecular Biology (TSBMB) in TW. In 2016, he got the **Precious Stone Award** in TW.

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