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Novel gold complexes with proapoptotic properties in cancer cells

Haseeb A. Khan[1], Abdullah S. Alhomida[1], Ali Al-Hoshani[1], Anvarhusein A. Isab[2]
[1]King Saud University, Saudi Arabia
[2]King Fahad University of Petroleum and Minerals, Saudi Arabia

Cancer cells are known to undergo several pathway modifications in order to achieve uninterrupted cell proliferation, avoid apoptosis and support the metabolic requirements of the rapidly dividing cells. We synthesized two novel gold complexes (DDBDG and PBTDG) that showed binding properties with PPARγ, which is known to regulate transcription of genes involved in differentiation of cells, proliferation, angiogenesis, and apoptosis. We compared the cytotoxic and apoptotic effects of newly synthesized complexes with a known PPARγ agonist (Sorafenib) at the concentrations of 0.3, 1, 3, 10, 30, 100 μM for 24 h. The IC50 values for DDBDG, PBTDG and Sorafenib were found to be 0.875, 1.477 μM and 4.445 μM, respectively. The results of flow cytometry showed that DDBDG induced 2.2 folds, 4.4 folds, 5.5 folds apoptosis for 1 μM, 3 μM, and 10 μM concentrations, respectively. PBTDG induced 2.6 folds, 3.6 folds, 5.7 folds apoptosis for 1 μM, 3 μM, and 10 μM, respectively. While the induction of apoptosis for Sorafenib was found to be 1.2-folds (1 μM), 1.5-folds (3 μM) and 3.7-folds (10 μM). These findings clearly indicate that DDBDG and PBTDG induced higher apoptotic effects as compared to standard drug, Sorafenib. (This project was funded by the National Plan for Science, Technology and Innovation (MAARIFAH), King Abdulaziz City for Science and Technology, Saudi Arabia, Award Number: 14-BIO-865-02).

Biography

Haseeb A. Khan is affiliated to Department of Biochemistry, College of Science, King Saud University, Riyadh 11451, Saudi Arabia. He is a recipient of many awards and grants for his valuable contributions and discoveries in major area of subject research. His international experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests reflect in his wide range of publications in various national and international journals.