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Mohamed Abd Ellatif

King Khalid University, Saudi Arabia

Optimal scheduling of combination PDT with anti-angiogenic therapy for effective control of local prostatic tumor and distant metastasis

Angiogenesis is an important component in tumor development, progression and spread. As a result, there are ongoing efforts to combine existing cytotoxic therapy with anti-angiogenic therapy to enhance the efficacy of cancer treatment. However, the optimal scheduling of anti-angiogenic therapy with cytotoxic therapy, although crucial for maximizing treatment efficacy, remains unclear. The aim of this study is to investigate VEGF regulation following cytotoxic therapy as a basis for the efficacy of combination anti-angiogenic therapy.

Materials and methods: Orthotopic prostate tumors were implanted in the prostate of 6-week-old male severe combined immunodeficient mice. In particular, we investigated the effect of the combination treatment strategy on the two major patterns of metastasis: Hematogenous as well as lymphatic metastasis. Here, we investigated an optimal protocol for combining avastin anti-angiogenic therapy with photodynamic therapy (PDT), a cytotoxic therapy for various diseases including cancer. We demonstrate that PDT leads to a temporally-transient regulation of vascular endothelial

growth factor (VEGF) following treatment. More importantly, combination avastin therapy was most effective in inhibiting lung metastasis when delivered around the peak of VEGF response following PDT. Considering that temporally transient VEGF regulation was observed following PDT, radiotherapy and chemotherapy. In conclusion, optimal scheduling of combination of anti-angiogenic therapy based on temporal dynamics of the VEGF response has effective control of the local tumor as well as distant metastasis in cancer prostate.

Speaker Biography

Mohamed Abd Ellatif completed his studies at Mansoura University (1985-1995) and Toronto University (2001). Then he went back to Mansoura University and joined as a professor in Medical Biochemistry and Molecular Biology, Faculty of Medicine. In 2007, he joined as a professor of Clinical Biochemistry and Molecular Biology, College of Medicine, King Khalid University, Kingdom of Saudi Arabia during the period from 2/9/2007 till now. He has more than 55 research papers in national and international journals. He attended more than 43 international and national workshops and conferences. He is an active reviewer for many scientific journals and conferences. He handled 8 master thesis and 7 PhD thesis.

[e: mabdellatif2000@yahoo.com](mailto:mabdellatif2000@yahoo.com)