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## A toxicokinetic model of acute myelolytic leukemia for testing chemopreventive efficacy of cancer preventing drugs

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To develop a toxicokinetic model of acute myelolytic leukemia, benzene was used as a potent leukemogenic agent. The dose, period and time of cumulative benzene exposure of Swiss Albino mice were optimized and survival rate; alteration in cell cycle regulation and other clinical manifestations were analyzed at a cumulative dose of 300 ppm × 6 hr./day × 5 days/week for 2 weeks, i.e., 9000 (a) ppm. Analyzing physiological parameters like plasma enzyme profile, complete hematology (Hb%, RBC indices and WBC differentials), hematopoietic cells morphology, expression of cell cycle regulatory proteins, tissue histology and analysis of DNA fragmentation, optimum conditions were established. Elevated level of Plasma AST/ALT with corresponding changes in liver histology of optimally exposed animals also confirmed the toxicokinetic relation of benzene with leukemia. Down regulation of p53 and p21 and up regulation of CDK2, CDK4, CDK6, cyclin D1 and E in this exposed group were marked as the optimum conditions of cellular deregulation for the development of secondary AML. The efficacy of this *in vivo* model has been tested for chemopreventive activity of two natural phytochemicals like catechin a natural phenol and antioxidant from *Saraca asoca* (Roxb.) and monoterpenes from *Ocimum basilicum* L. comparing with known chemotherapeutic drug doxorubicin. It has been concluded that this toxicokinetic model can be utilized as a testing template for the development of multiactive drugs for cancer chemoprevention in the near future.

### Biography

Debjani Nath completed her PhD from Jadavpur University on 1998 and pursued her research endeavor as Postdoctoral fellow from Indian Institute of Chemical Biology, India. She has completed her teaching career of fifteen years in University of Kalyani, India and published several papers in international journals of repute and is serving as the Editorial Board Member of four international publications.

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