Principle for PDT and SDT. Therefore, in vitro comparison of PDT and SDT effects can provide insight into SDT mechanism of action. We have investigated PDT and SDT effects on human melanoma and fibrosarcoma cell lines, previously exposed to 5 aminolevulinic acid (Ala), through cell proliferation, cell death, and gene expression analysis.

Patients (or Materials) and Methods: The human melanoma, A2058, and fibrosarcoma, HT-1080, cell lines were previously exposed to Ala (0.45 mM) for 12 and 4 hours, respectively. SW generated by a piezoelectric device (Piezoson 100, Wolf) were used for SDT. In particular, A2058 were treated with an energy flux density (EFD) of 0.32 mJ/mm² for 1000 shots (4 shots/sec) while HT-1080 were treated with an EFD of 0.43 mJ/mm² for 500 shots (4 shots/sec). A LED lamp at 405 nm was used for PDT and both cell lines were treated for 5 min at 15 mW. Cell growth was evaluated by WST-1 assay, cell death by flow cytometric analysis with SYTOX Green and APC-Annexin V and mRNA expression by real-time RT-PCR.

Results: In A2058 both treatments determined a significant cell growth reduction even if PDT produced a progressive cell growth decrease compared with PDT reaching the greatest decrease at 72 hours (P < 0.01). Moreover, cell death evaluation highlighted a 25% increase of apoptotic cells at 48 hours from SDT. Both PDT and SDT determined a significant overexpression of the pro-apoptotic gene BAX and of the genes involved in the oxidative stress, NQO1 and SOD2. In HT-1080, SDT was more effective than PDT with a more significant increase of apoptotic cells compared with PDT (P < 0.01). After both treatments a significant overexpression of the pro-apoptotic gene APAF1 was observed.

Conclusion: After PDT and SDT a similar gene expression profile was observed in both cell lines, even though SDT seems more effective on fibrosarcoma cells and PDT on melanoma cells.

Disclosure of Interest: None declared.

PP120—CHEMOTHERAPEUTIC ANTITUMOR ACTIVITIES OF CURCUMIN
A.M. El-Medany1; H.H. Hagar; O.A. Nayel; and J.M. El-Medany1
1Clinical Pharmacology, Alexandria University College of Medicine, Alexandria; 2Clinical Pharmacology, Zagazig University College of Pharmacy, Zagazig; and 3Anatomy, Alexandria University College of Medicine, Alexandria, Egypt

Introduction: In search for drugs that can target cancer cell microenvironment in as much as being able to halt malignant cellular transformation, the natural dietary phytochemical curcumin was currently assessed in DMH-induced colorectal cancer rat model.

Patients (or Materials) and Methods: The study enrolled 50 animals divided into a control group (n = 10) and DMH-induced colorectal cancer control group (n = 20) (20 mg/kg, body weight for 28 weeks) versus curcumin-treated group (n = 20) (160 mg/kg suspension daily oral for further 8 weeks).

Experimental Procedures: ACF Assay: The colonic lesion biopsies were stained by 30% methylene blue for light microscopic examination [using a 40 magnification to transilluminate the specimens] in search for lesions fulfilling Mc Lellan and Bird criteria.

Histopathological Examination: By using light microscopic assessment.

Biochemical Estimations in Colonic Tissues: Malondialdehyde (MDA) Assay, reduced glutathione (GSH) Assay, Cyclooygenase-2 (COX-2) activity measurement, tumor necrosis factor-α (TNF-α) Determination, platelet activating factor (PAF) activity measurement, transformaing growth factor-β (TGF-β) determination.

Results: Treatment by curcumin succeeded to significantly decrease the percent of ACF and tended to normalize back the histologic changes retrieved in adenomatous and stromal cells induced by DMH. The drug also significantly elevated GSH and significantly reduced most of the accompanying biochemical elevations (namely MDA, TNF-α, TGF-β, and COX2) observed in colonic carcinomatus tissue, induced by DMH, thus succeeding to revert that of MDA, COX2 & TGF-β back to near normal as justified by being nonsignificantly altered compared with normal controls. The only exception was PAF, which was insignificantly altered by the drug.

Conclusion: When taken together, it could be concluded that curcumin possess the potentiality to halt some of the orchestrated cross-talk between cancerous transformation and its microenvironmental niche that contributes to cancer initiation, progression, and metastasis in this experimental cancer colon model. Envisioning these merits to a drug with an already known safety preferentiality, awaits final results of current ongoing clinical trials, before curcumin can be added to the new therapeutic armamentarium of anticancer therapy.

Disclosure of Interest: None declared.

PP119—EFFECT OF LIPOSOMAL CURCUMIN ON RED BLOOD CELLS IN VITRO
A. Storka1; B. Vcelar2; L. Helson1; and M. Wolz1
1Clinical Pharmacology, Medical University of Vienna, Vienna; 2Immunobiologische Forschung GmbH, Polymun Scientific, Klagenfurt, Austria; and 3Inc., SignPath Pharma, Quakertown, United States

Introduction: Curcumin possesses anticancer, anti-inflammatory, antioxidant, and antimicrobial properties. Curcumin has a poor oral bioavailability and solubility in plasma. Accordingly, various drug delivery systems, such as liposomal preparation, have been developed for intravenous administration. However, animal studies have shown dose-dependent hemolysis after infusion of liposomal curcumin. Because blood cells are the first point of contact for liposomal curcumin when administered intravenously, we investigated the influence of curcumin on human red blood cell (RBC) morphology in vitro.

Patients (or Materials) and Methods: Whole blood buffered with EDTA was incubated with different concentrations (1, 10, 100 µg/mL) of free or liposomal formulations of curcumin. RBC morphology and mean cellular volume were examined after 30 minutes, 1 hour, 2 hours, and 4 hours of incubation.

Results: Dose-dependent echinocyte formation was observed after incubation with free and liposomal Curcumin, with a threshold concentration of 10 µg/mL and peak effect after 30 minutes of incubation. Treatment with empty liposomes also resulted in RBC shape change. A concomitant increase in mean red blood cell volume was detectable.

Conclusion: Curcumin, liposomes and liposomal curcumin dose-dependently change RBC morphology. This effect is additive and may represent a first sign of toxicity following intravenous administration.


PP121—CYP2C9 GENOTYPES ASSOCIATED WITH HIGHER SULFOLANE LEVELS IN CHILDREN RECEIVING INTRAVENTRACEOUS BUSULFAN PRIOR TO HEMATOPOIETIC STEM CELL TRANSPLANTATION
C.R.S. Uppugunduri1,2; Y. Daal1; M.A. Rezgul1; P. Huego Diaz1,2; A.K. Tyagi1,2; J. Rousseau4; M. Duval4; H. Bittencourt4,5; M. Krajnovic6,7; and M. Ansari1,2
1Department of Pediatrics, Hemato-oncology unit, University of Geneva; 2CANSEARCH research laboratory, Geneva Medical Department of Pediatrics, Hemato-oncology unit, University of Geneva; 2CANSEARCH research laboratory, Geneva Medical