IMPACT OF TRIPLE COMBINATIONS OF RETINOIC ACID, MOLD SPORES AND CITRAL ON THE F344 RAT LUNG TISSUE PATHOLOGY

Ibrahim O. Farah, Carlene Holt-Gray, Joseph A. Cameron, Michelle Tucci, Zelma Cason and Hamed Benghuzzi

Department of Biology, Jackson State University, Jackson, MS 39217, and the University of Mississippi Medical Center

Abstract: The impact of retinoic acid (All Trans Retinoic Acid; ATRA) and Mold spores (MLD) in the development of lung pathology and \textit{in vivo} tissue remodeling have not been well established in the literature. In addition, the role of citral (inhibitor of retinoid function) in the improvement of lung pathology has not been ascertained in animal studies. Therefore, it is hypothesized that ATRA and Mold (MLD) exposure will sensitize lung tissues leading to lung tissue pathology and that Citrals (C1 and C2) will reverse, ameliorate or improve the associated pathological damage to lung tissues. The study used an IACUC approved between-subject in vivo randomized split plot factorial design (F344 rat model; N=40). Animals were exposed to seven different treatments including untreated control, MLD, ATRA, Citrals (C1 and C2) and their MLD combinations (MLD+ ATRA+ C1, and MLD+ ATRA+ C2) by intra-peritoneal route. Rat weight and blood data were collected on Days 1 and 21, all animals were sacrificed on day 21, and lung tissues were processed for histopathology. Results from weight and blood data (ANOVA and Duncan) as well as from histopathological analyses supported the findings that exposure of F344 rats to MLD combinations with ATRA and Citrals showed various levels of lung tissue damage that were impacted by either C1 or C2 exposure. This promising study showed impressive responses on the interaction of MLD, Citrals, and ATRA as related to their impact on associated lung tissue pathologies.

Key words: ATRA, Citral, F344, Ovalbumin, Chronic Lung Pathology, Hpervitaminosis A, Mold Spores

Acknowledgements: This research supported by the National Institutes of Health/National Institute on Minority Health and Health Disparities Grant # G12MD007581, through the RCMI Center for Environmental Health at Jackson State University.