HEALTH AND PATHOLOGICAL IMPLICATIONS FOR THE F344 RAT LUNG UPON EXPOSURE TO CITRAL, RETINOIC ACID (ATRA), OVALBUMIN AND MOLD SPORES

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Abstract: The experimental impact of retinoic acid (All Trans Retinoic Acid; ATRA), citrals, ovalbumin and mold spores in the development of lung pathology and tissue remodeling are not well established in the literature. As well, the role of these agents in lung pathology was not ascertained under an in vivo setting. Therefore, it is hypothesized that citrals, ATRA, ovalbumin and mold-spore exposure will sensitize lung tissues and will lead to the development of lung tissue pathology in these animals. The study used an IACUC approved between-subject in vivo randomized split plot factorial design (F344 rat model; N=30). Mold spores were applied to animals by intra-tracheal route whereas vehicle, ovalbumin, C1, C2 and ATRA were administered by intra-peritoneal route. Rat weight data and blood were collected on Days 1 and 21. All animals were sacrificed on day 21 and lung tissues were processed for histopathology. Evidence from weights and blood (ANOVA and Duncan) as well as histopathological analysis supported the findings that exposure of these animals to C1, C2, ATRA, and ovalbumin and mold spores showed different levels of lung tissue damage representative of environmental/therapeutic exposure to these natural agents. This promising study showed variable lung tissue responses to the administration of ATRA, ovalbumin, citrals, and mold spores in the development of various levels of lung tissue pathology.

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