Reaction of Mast Cells in the Presence of Particulate Matter from Panama City Air Samples

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According to the World Health Organization, air quality is considered one of the greatest sanitary challenges related to respiratory and cardiovascular diseases such as asthma, pulmonary cancer, and heart attacks. In this project, the aim is to test through an in vitro analysis the capability of ?PM?_10 to stimulate the mast cell line C57. ?PM?_10, provided by the Instituto Especializado de Análisis (IEA) from the University of Panama, from two different sites and seasons in Panama City (Curundu in September and San Miguelito in February), were extracted and incubated to the cell line; they were compared with two control groups, a negative and positive of maximum liberation. The effect was measured with the release of ß-hexosaminidase. The results showed that the liberation of C57 with both concentrations were very significant, releasing 35.47% (Curundu) and 49.21% (San Miguelito) compared with the non-stimulated cells. This study was able to corroborate the ability of ?PM?_10to stimulate the mast cell line to release mediators. Considering the role of mast cells in allergic reactions, the results can demonstrate how atopic individuals can be threatened by particulate matter, together with the need to protect citizens in urban areas that might be exposed to high concentrations of it. This study has the goal of developing references for further studies issuing the role of air quality in respiratory and cardiovascular diseases in order to create preventive measures and policies.

Awards Won: