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### **Platinum group elements enhance the allergic immune response by acting on dendritic cells.**

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#### **BACKGROUND**

Atmospheric pollution may play a role in the immune response to allergens either directly or by entering the food chain. While particulate platinum group elements (PLGE) emitted by catalytic converters can be considered biologically inert, approximately 10% of these species accumulate in the environment as bioavailable soluble forms. **METHODS:** We challenged in vitro human immature and mature monocyte-derived dendritic cells with subtoxic concentrations of soluble species of PLGE. Dendritic cells were studied both at baseline and following treatment with  $\text{Na}_2\text{PtCl}_6$ ,  $\text{Na}_2\text{PdCl}_6$  or  $\text{Na}_3\text{RhCl}_6$ .  $(\text{NH}_4)_6\text{Mo}_7\text{O}_{24}$  was included as control. The following end-points were considered: expression of differentiation markers, effectiveness of allergen presentation and Th2 cytokine production by cocultured T lymphocytes, expression of IgE-type I receptor and efficiency of IgE-dependent endocytosis. **RESULTS:** We found that treatment with PLGE (but not with the control metal) increased costimulatory molecule expression and antigen presentation, amplified IL-5 production by cocultured T lymphocytes, upregulated IgE-type I receptor membrane expression, and augmented IgE-type I receptor-mediated endocytosis.

#### **CONCLUSIONS**

We conclude that PLGE have an adjuvant-like effect on dendritic cells that can favor and amplify the immune response to allergens.

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