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**Title:** Dendritic cells-nerve interaction in allergic airway inflammation

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**Body:** Introduction: Dendritic cells (DC) play as antigen-presenting cells a decisive role within the allergic airway inflammation. The colocalisation of DC in sensory airway ganglia has been not explored so far. The aim of the present study is to evaluate possible interactions of DC in sensory ganglia concerning calcitonin gene-related-peptides (CGRP)-expression during allergic airway inflammation. Methods: The BALB/c mice were treated with intranasal house dust mite (HDM) extract (25µg/50µl) for 5 days a week within a total period of 7 weeks. The jugular-nodose ganglion complex was removed 24 hours after final allergen challenge and histological slices were prepared. Immunohistology was performed to detect the colocalisation of DC by MHC-II and CD11c and neurons by neuronal marker PGP 9.5. Results: Under physiological conditions dendritic cells are found in the vagal sensory airway ganglia of the mouse and that they were significantly increased during an allergic airway inflammation (DCs/neurons: control 23.48 ± 7.613 % vs. HDM 49.75 ± 4.194 %, p = 0.0003). Additionally, an increased number of CGRP positive neurons in vagal sensory airway ganglia during allergic airway inflammation was found (CGRP positive neurons / total neurons: HDM 52.07 ± 3.040% vs. control 21.63 ± 3.799 %, p = 0.0001). Conclusion: The finding of the presence of DC in the airway jugular-nodose ganglion indicates a role of the DC in these ganglia under physiological conditions. The increased numbers of DC and CGRP-positive neurons in these ganglia suggest the involvement of these cells the pathogenesis of allergic airway inflammation. However, the exact functions of DC and CGRP in allergic airway inflammation remain to be explored in future studies.