Results: At baseline, there were minimal signs and symptoms. Maximum mean hyperemia with CAPT was 2.3 ± 0.6 units (between moderate and severe) and with EEC was 1.9 ± 0.5 units (approximately moderate); these maxima occurred after 30 minutes with CAPT (rapid spike) and after 180 minutes with EEC (gradual increase). Mean swelling was <1 unit out of 4 units at all times (CAPT and EEC), and mucous discharge was observed in only 1 subject during the study (with CAPT). Maximum mean itching with both CAPT and EEC was 2.8 ± 1.0 units (approximately severe), but this maximum occurred after 20 minutes with CAPT (rapid spike) and after 180 minutes with EEC (gradual increase). Maximum mean tearing with CAPT was 1.2 ± 0.7 units (approximately mild) and with EEC was 1.6 ± 0.6 units (between mild and moderate); these maxima occurred after 15 minutes with EEC (rapid spike) and after 120 minutes with EEC (gradual increase).

Conclusions: The time courses of allergic signs and symptoms differed between CAPT and EEC models; however, both models evoked similar maximum response levels. This demonstrates that the EEC model is a useful challenge model for mimicking natural airborne ocular allergen exposure.

56 Increased Frequency of CD4+ CD25+ FOXP3+ in Allergic Conjunctivitis Patients
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Background: Allergic conjunctivitis (AC) is one of the most common eye disorders in clinical practice. It has been shown that AC is a disorder mediated by Th2 lymphocytes producing IL-4 and IL-5, where the eye damage is caused by a type I hypersensitivity. It has been suggested in asthma and rhinitis that T regulatory cells (Tregs) CD4+ CD25+ FOXP3+ have been involved in control allergic status, favoring an optimal microenvironment with immunosuppressive cytokines (IL-10, TGF-β). However is unknown if Tregs have a role in human allergic conjunctivitis, thus it was the aim of this study.

Methods: Peripheral blood mononuclear cells (PBMC) were isolated from blood samples of healthy donors (HD) and AC-patients, and then PBMC were labeled with mAbs against CD4, CD25, and FOXP3. Labeled cells were analyzed by flow cytometry. Statistical analysis was performed with GraphPad v.5.

Results: AC-patients showed 55-times more CD4+ CD25+ cells than HD (P = 0.02). Most of CD4+ CD25+ cells were FOXP3+ (90 ± 5.4), with CD4+ CD25+ FOXP3+ cells in AC-patients than HD (28.5 ± 85.36, P = 0.02).

Conclusions: Despite we observed higher frequency of CD4+ CD25+ in AC-patients, these cells were FOXP3+ more interesting, the few cells FOXP3+ showed a diminished MFI. These data suggest that allergenic conjunctivitis status could be related with a regulatory dysfunction, as has been suggested in asthma and rhinitis.

57 Increased Frequency of CD4+ CCR4+ CCR9+ Cells in Patients With Allergic Conjunctivitis
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Background: Allergic conjunctivitis is one of the most common diseases affecting the ocular surface, it has been suggested that T CD4+ cells regulate immune response in allergic diseases such as asthma and rhinitis, in a predominant Th2 response. In animal models, it has been observed a selective migration of CD4+ T cells to conjunctiva directed by chemokines; however molecules involved in migration into blood has been found in unknown, thus it was the aim of this study.

Methods: Peripheral blood mononuclear cells (PBMC) were isolated from blood samples of healthy donors (HD) and AC-patients. PBMC were labeled with mAbs against CD4, CCR4, CCR5, and CRR9, and then labeled cells were analyzed by flow cytometry. T test was used to perform statistical analysis, P < 0.05 were considered statistically significant.

Results: We observed increased frequency of CCR4+ and CCR9+ on PBMC cells; interestingly, expression of CCR4+ was 1.46 times increased on CD4+ T cells of AC-patients compared to CD4+ T cells of HD (P = 0.01). Similarly, we observed higher frequency of CCR9 expression on CD4+ cells of AC-patients than on CD4+ T cells of HD (P = 0.01). On the other hand, CCR5 expression was diminished on PBMC from AC-patients than in HD (P = 0.0002).

Conclusions: Increased frequency of CD4+ CCR4+ CCR9+ was observed in AC patients with diminished frequency of CCR5 expression on PBMC. CCR4 and CCR9 have been involved in inflammatory process such arthritis and asthma, both could be related to inflammatory reaction at conjunctiva. CCR5 expression is mainly on Th1 cells, diminished frequency on PBMC in allergic conjunctivitis patients could be related with imbalance of immune response favoring a Th2 chronic inflammation.
treatment revealed that the treatment of IFN-γ up to 24 hours suppressed the IL-19 AC-patients were included in this study. AC diagnosis was
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63 adults with ocular symptoms (itching, red eyes or tearing) were fi
2
These results uncovered previously unsuspected contribution fl
3
0.0001). There was a signi
cant correlation (96.5%, Pearson, P < 0.0001) between the number of red eyes in blue using the
4
improvement since 3 months of treatment and it was maintained until the end of 6 months. Clinical improvement correlated with IFN-g concentration.
Conclusions: Clinical outcome in AC-patients treated with SLIT could be tear IFN-g dependent.

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CYTOKINES AND CHEMOKINES

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Hypoxia-Inducible Factor 1 (HIF-1) Transcription is a “Signalling Driver” for Allergic Inflammation, Host Innate Immune Defence and Leukaemia Progression
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Background: Hypoxia-inducible factor 1 is a transcription complex that plays a pivotal role in cellular adaptation to low oxygen availability, which occurs during allergic responses, host immune defence and leukaemia progression. We investigated the role of HIF-1 in cellular adaptation to stress associated with different types of pathological reactions of immune cells. We studied IgE-dependent responses of human mast cells and basophils, Toll-like receptor (TLR)-mediated innate immune reactions of human myeloid cells and stem cell factor (SCF)-mediated responses of hematopoietic cells of myeloid lineage.
Methods: LAD2 human mast cells1, primary human basophils, and THP-1 human myeloid cells were used for investigations of FceRI, TLR ligand and SCF-induced responses. Quantitative real-time PCR, Western blot analysis, ELISA, fluorometry, luminometry and fluorescence microscopy were employed to run the assays.
Results: We observed that HIF-1 activation is differentially regulated in the cases of pro-allergic, TLR-dependent and SCF-induced cellular responses. While PI3K/mTOR and MAP kinase pathways were the major contributors to HIF-1 activation during allergic/SCF-dependent responses, TLR-mediated processes occurred mostly via redox-dependent mechanisms. Experiments with HIF-1α (the inducible subunit regulating HIF-1 transactivation) knockout cells demonstrated that HIF-1 plays a crucial role in the expression of the primary angiogenic cytokine VEGF and controls intracellular energy metabolism by regulating glycolytic metabolic activity.
Conclusions: The HIF-1 transcription complex supports not only the survival of immune cells (mast cells, basophils, myeloid cells) in pathological environments but also determines their abilities to generate pro-allergic, pro-inflammatory as well as pro-angiogenic cytokines over sustained periods.