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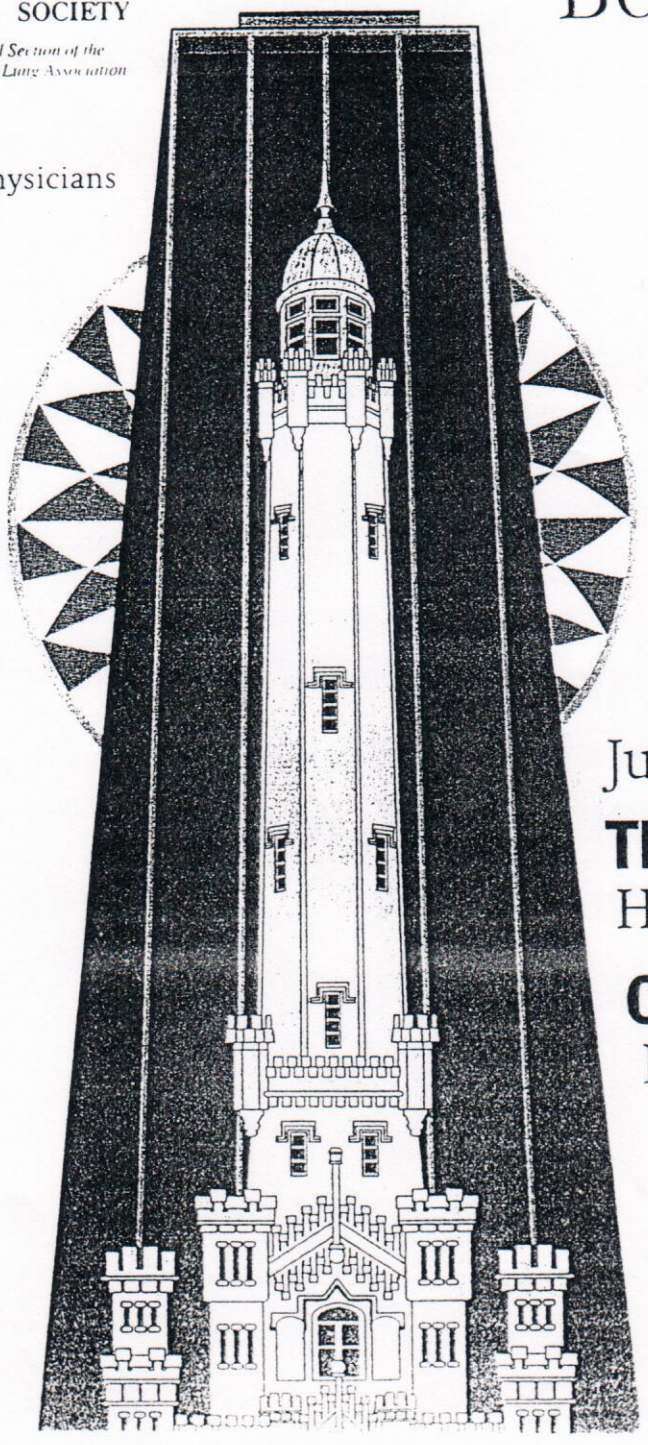

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SKIN TEST REACTIVITY TO *EUROGLYPHUS MAYNEI* IN FLORIDA: A COMPARISON WITH THREE OTHER HOUSE DUST MITE SPECIES.

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The house dust mite species, *Euroglyphus maynei* (*Em*), is common in the southern U.S. and is the predominant species in some U.S. homes. The prevalence of sensitization to *Em* in the U.S. has not been reported previously. *Em* has at least 33 antigens and 15 species-specific and common allergens (*J Allergy Clin Immunol* 1993;91:1051-8).

This study determined the prevalence of skin test reactivity to *Em* and compared it to that obtained with *Dermatophagoides pteronyssinus* (*Dp*), *Dermatophagoides farinae* (*Df*), and *Blomia tropicalis* (*Bt*) extracts in Tampa, Florida. One-hundred-ninety-one consecutive adult subjects (70 males, 121 females) with allergic rhinitis and/or asthma were evaluated. Extracts of *Bt* and *Em* (1:50 w/v) and standardized *Dp* and *Df* extracts (1:50 w/v) were used for percutaneous testing. Of the 191 subjects, 99 (51.8%) had a positive test (wheal ≥ 3 mm) to at least 1 mite species; 46.1%, 46.6%, 24.1%, and 40.8% reacted to *Df*, *Dp*, *Bt*, and *Em*, respectively. Positive tests to both *Df* and *Dp* occurred in 81 subjects (42.4%) of which 2 (2.6%) also reacted to *Bt* but not to *Em*, 33 (40.7%) to *Dp*, *Df* and *Em* but not to *Bt* and 39 (48.1%) to all 4 mite species; the remaining 7 (8.6%) had no additional reactivity. Positive tests to *Df*, *Dp*, *Bt*, or *Em* alone in the 99 subjects occurred in 4 (4.0%), 4 (4.0%), 1 (1.0%), and 0%, respectively. Other combinations accounted for the remaining 9 subjects with positive tests.

The high rate of skin test reactivity to *Em* indicates that *Em* sensitivity should be considered in regions where *Em* is common.

This abstract is funded by: University of South Florida and V.A. Research Funds

INDOOR ALLERGENS IN INNER CITY HOMES

P. Eggleston for the National Cooperative Inner City Asthma Study

As part of this examination of risk factors for asthma morbidity in children aged 4-9 living in the inner city of 7 metropolitan areas, we conducted 611 home visits. After completion of a home inspection checklist, we collected settled dust samples from the child's bedroom, TV room and kitchen and measured *Bla g* I, *Fel d* I, group I mite allergens (*Der f* I and *Der p* I). Cockroach allergen *Bla g* I was higher in the kitchen (median 80 U/gm) than in the bedroom (med. 8.5 U/gm) or TV room (med. 8.6 U/gm). Cat allergen *Fel d* I was evenly distributed throughout the rooms, with median levels ranging from 104 ng/gm in the TV room, 91 ng/gm in the bedroom, 30 ng/gm in the kitchen. Median group I mite allergen levels were below detection in TV, bedroom and kitchen. Levels of *Fel d* I correlated more strongly across rooms (TV/kitchen $r = .65$; TV/BR $r = .73$; K/BR $r = .58$), than did cockroach (TV/kitchen $r = .38$; TV/BR $r = .48$; K/BR $r = .36$). Thus these home samples confirmed that cockroach allergen is present in the inner city while dust mite and cat are found in lower concentrations than reported previously. Unlike cat allergen, cockroach is unevenly distributed and this heterogeneity must be considered in risk factor assessment.

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PRODUCTION OF RECOMBINANT IgE BINDING GLYCOPROTEINS FROM ALTERNARIA.

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Alternaria sensitivity has been identified in epidemiologic studies as a risk factor for the development of asthma and is associated with severe episodes of asthma. *Alternaria* allergens have not been fully characterized although many fungal allergens are glycoproteins. We sought to evaluate the role of a recombinant glycoprotein in Alternaria sensitivity. We have previously obtained the cDNA sequence of a unique allergen from *Alternaria* alternata, ATTC strain 46582. We inserted a 1 kB fragment into the yeast, Piscia pastoris (Stratagene) by electroporation. Transformants were grown on selective media, and clones secreting the recombinant glycoprotein were evaluated for IgE-binding by slot blot analysis. One clone of interest was found to bind IgE from a serum pool from Alternaria sensitive individuals. This study demonstrates that recombinant glycoprotein from *Alternaria* are capable of binding IgE. Further investigations may led to improved methods for the diagnosis and treatment of *Alternaria*-induced asthma.

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ALLERGENICITY TO DESERT WEEDS IN SAUDI ARABIA.

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Several species of weeds are indigenous to Saudi Desert. Aerobiological studies have confirmed chenopodiaceae pollen as one of the most prevalent in different regions of the country. This included spp of *Atriplex*, *Chenopodium*, and *Salsola*. Skin prick test conducted using commercial extracts on 485 asthmatic patients in six different regions revealed a high degree of sensitization. In Abha 21.8% (n=156), Al-Gassim 75.5% (n=66), Al-Hofuf 16.7% (n=11) and in Gizan 9% (n=12) of the patient reacted positively to *Atriplex polycarpa*. *Chenopodium album* reacted in 21.8% in Abha, 81.8% in Al-Gassim, 8.3% in Al-Hofuf and 18.1% in Gizan. *Salsola tennifolia* reacted in 14.7% in Abha, 75.5% in Al-Gassim, 25% in Al-Hofuf and 18.1% in Gizan. Rumex crispus were found positive in 7% in Abha, 27.3% in Al-Gassim, zero in Al-Hofuf, 18.1% in Gizan. Apart from Bermuda Grass in Abha and Mesquite in Al-Gassim regions highest reactivities were recorded with members of the *chenopodiaceae* weed in all regions. It is thus implicated that exacerbation of symptoms in patients during the period corresponding to weed pollen in the air may be caused by desert weeds growing in every part of the Kingdom.

This abstract is funded by: KACST

OZONE EXPOSURE IMPAIRS PRODUCTION OF AN EPITHELIAL CELL FACTOR WHICH INHIBITS IgE MEDIATED MAST CELL DEGRANULATION.

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O3 exposure augments allergen-induced bronchoconstriction of allergic asthmatics which is mediated largely by mast cells (MC). O3 is unlikely to directly influence mucosal MCs *in vivo*. However, MC responses may be influenced via O3 effects on epithelial cells (EC), a likely target for this pollutant. In an *in vitro* test of this idea, monolayers of BEAS-S6 ECs were grown on transwells (4.5 cm^2 surface), exposed to 0.3 ppm O3 or clean air (CA) for 1 hr, rinsed, and bathed in 3 ml Welch's media for 1 hr to produce conditioned media (CM) from O3 and CA exposed ECs. RBL-2H3 cells (a rat MC line) cultured for 18 hrs with O3-CM or CA-CM containing ^{3}H-serotonin and IgE were rinsed and stimulated with α-IgE-IgG. Cells cultured in O3-CM exhibited greater IgE mediated degranulation (expressed as % serotonin release) than did cells cultured with CA-CM (35±0.8% vs.26±1.2%,p<0.05). When CA-CM produced with BEAS-6S ECs grown to confluence on a larger surface (64 cm^2) was used, IgE mediated RBL-2H3 degranulation (4.8±2.0%) was markedly inhibited when compared to degranulation of RBL-2H3 cells cultured with untreated Welch's media (33.2±4.4%) or CA-CM obtained from cells treated with cyclohexamide (CHX) for 1 hour prior to conditioning (31.3±1.2%, p=0.03). These results suggest that ECs produce a factor which inhibits MC degranulation and is sensitive to both CHX treatment and O3 exposure.

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V-BETA GENE SEGMENT EXPRESSION IN DIISOCYANATE-OCCUPATIONAL ASTHMA.

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Approximately 12,000 workers develop diisocyanate-occupational asthma (OA) each year worldwide. T-lymphocytes are believed to play a central role in the immunopathogenesis of diisocyanate-OA. We studied T-cell receptor (TCR)-Vβ gene segment expression before and after stimulation with diisocyanate-conjugated proteins (DCP) using peripheral blood mononuclear cells (PBMCs) from workers with diisocyanate-OA (n=10) in comparison to 5 normal asymptomatic controls, 5 subjects with non-OA and 5 diisocyanate-exposed asymptomatic workers. A semi-quantitative PCR technique using 20 distinct Vβ specific primers was used to examine each subject's PBMC TCR Vβ repertoire. Baseline repertoires of patients with diisocyanate-OA had decreased usage of Vβ 1 ($p<0.05$) and Vβ 5 ($p<0.02$) compared to all other subjects. After in vitro DCP antigen stimulation, Vβ 1 ($p<0.02$) and Vβ 5 ($p<0.05$) usage increased only among the diisocyanate-OA workers. HLA phenotyping for Class II molecules performed on each subject revealed no significant association between HLA Class II antigens and workers with diisocyanate-OA. HLA-DQw7 was present in 7/15 subjects without diisocyanate-OA whereas 0/10 diisocyanate-OA subjects expressed this antigenic marker. The "uncorrected" p value for the lack of HLA-DQw7 allele (molecular designation 0301) expression in workers with diisocyanate-OA was 0.02. These preliminary results suggest that T-cell subpopulation expressing TCRs with ...

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