

Featured Research Studies

Med Hypotheses. 2009 Feb;72(2):135-9. Epub 2008 Nov 11.

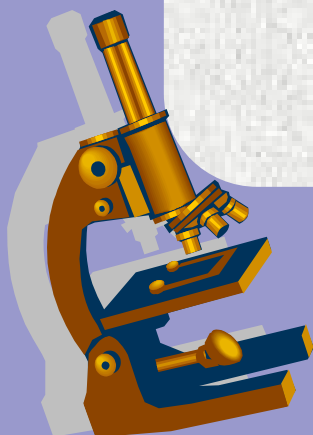
A role for the body burden of aluminium in vaccine-associated macrophagic myofasciitis and chronic fatigue syndrome.

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Macrophagic myofasciitis and chronic fatigue syndrome are severely disabling conditions which may be caused by adverse reactions to aluminium-containing adjuvants in vaccines. While a little is known of disease aetiology both conditions are characterised by an aberrant immune response, have a number of prominent symptoms in common and are coincident in many individuals. Herein, we have described a case of vaccine-associated chronic fatigue syndrome and macrophagic myofasciitis in an individual demonstrating aluminium overload. This is the first report linking the latter with either of these two conditions and the possibility is considered that the coincident aluminium overload contributed significantly to the severity of these conditions in this individual. This case has highlighted potential dangers associated with aluminium-containing adjuvants and we have elucidated a possible mechanism whereby vaccination involving aluminium-containing adjuvants could trigger the cascade of immunological events which are associated with autoimmune conditions including chronic fatigue syndrome and macrophagic myofasciitis.

PMID: 19004564 [PubMed - indexed for MEDLINE]



Environ Health Perspect. 2006 Aug;114(8):1221-6.

Mycotoxin adducts on human serum albumin: biomarkers of exposure to *Stachybotrys chartarum*.

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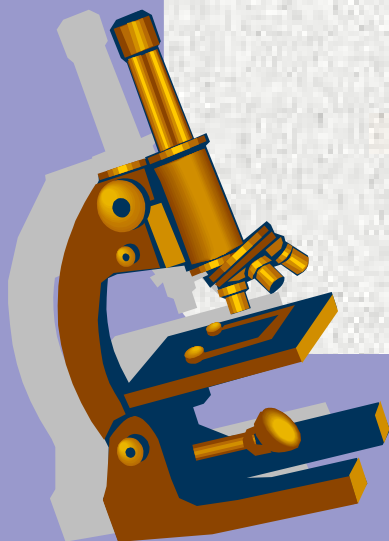
OBJECTIVE: Despite the growing body of evidence showing adverse health effects from inhalation exposure to the trichothecene-producing mold *Stachybotrys chartarum*, controversy remains. Currently, there are no reliable assays suitable for clinical diagnosis of exposure. We hypothesized that satratoxin G (SG) -albumin adducts may serve as biomarkers of exposure to this fungus.

DESIGN: We studied the formation of adducts of SG with serum albumin *in vitro* using Western blots and mass spectrometry (MS) and searched for similar adducts formed *in vivo* using human and animal serum.

RESULTS: Samples of purified human serum albumin that had been incubated with increasing concentrations of SG showed concentration-dependent albumin bands in Western blots developed with anti-SG antibodies. MS analysis found that as many as 10 toxin molecules can be bound *in vitro* to one albumin molecule. The sequencing of albumin-adduct tryptic peptides and the analysis of pronase/aminopeptidase digests demonstrated that lysyl, cysteinyl, and histidyl residues are involved in the formation of these adducts. Serum samples from three patients with documented exposure to *S. chartarum* similarly revealed lysine-, cysteine-, and histidine-SG adducts after exhaustive digestion, affinity column enrichment, and MS analysis. These adducts were also found in the sera from rats exposed to the spores of *S. chartarum* in contrast to control human subjects and control animals.

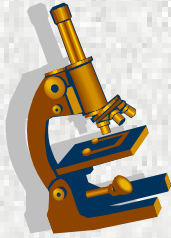
CONCLUSIONS: These data document the occurrence of SG-albumin adducts in both *in vitro* experiments and *in vivo* human and animal exposures to *S. chartarum*. Relevance to clinical practice: SG-amino acid adducts may serve as reliable dosimeter biomarkers for detection of exposure to *S. chartarum*.

PMID: 16882529 [PubMed - indexed for MEDLINE]



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Volatile organic compounds and formaldehyde as explaining factors for sensory irritation in office environments.



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This study's database comprised results of volatile organic compound (VOC) measurements from 176 office buildings. In 23 of the 176 buildings, formaldehyde measurements were also conducted. It was suspected that the buildings had indoor air problems, but a walk-through inspection did not reveal any clear, abnormal contaminant sources. The 50 most abundant VOCs and their concentrations in 520 air samples were analyzed. The irritation potency was estimated for 33 out of the 50 common VOCs and their mixtures, as well as for formaldehyde. This information was used to calculate the recommended indoor air levels (RILs) for the VOCs. The RILs were considerably higher than the measured mean indoor air concentrations in the buildings. However, the RIL for formaldehyde was exceeded in most of the 23 buildings studied. According to the evaluation of irritation potency, formaldehyde was a more likely cause of sensory irritation than the mixture of common nonreactive VOCs at the concentrations that occurred in the buildings without abnormal indoor sources. Furthermore, environmental symptoms of office workers were characterized in 20 office buildings (including the database of 176 office buildings) with the aid of an indoor air questionnaire. The most frequent symptoms related to the indoor environment were involved the upper respiratory tract. However, no relationship could be shown between the reported symptoms and the occurrence of VOC and formaldehyde concentrations in these buildings. Generally, the study results indicated that formaldehyde was the more likely agent causing sensory irritation than the mixture of the common nonreactive VOCs at the concentrations occurring in the buildings without abnormal indoor sources.

PMID: 19184725 [PubMed - indexed for MEDLINE]

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