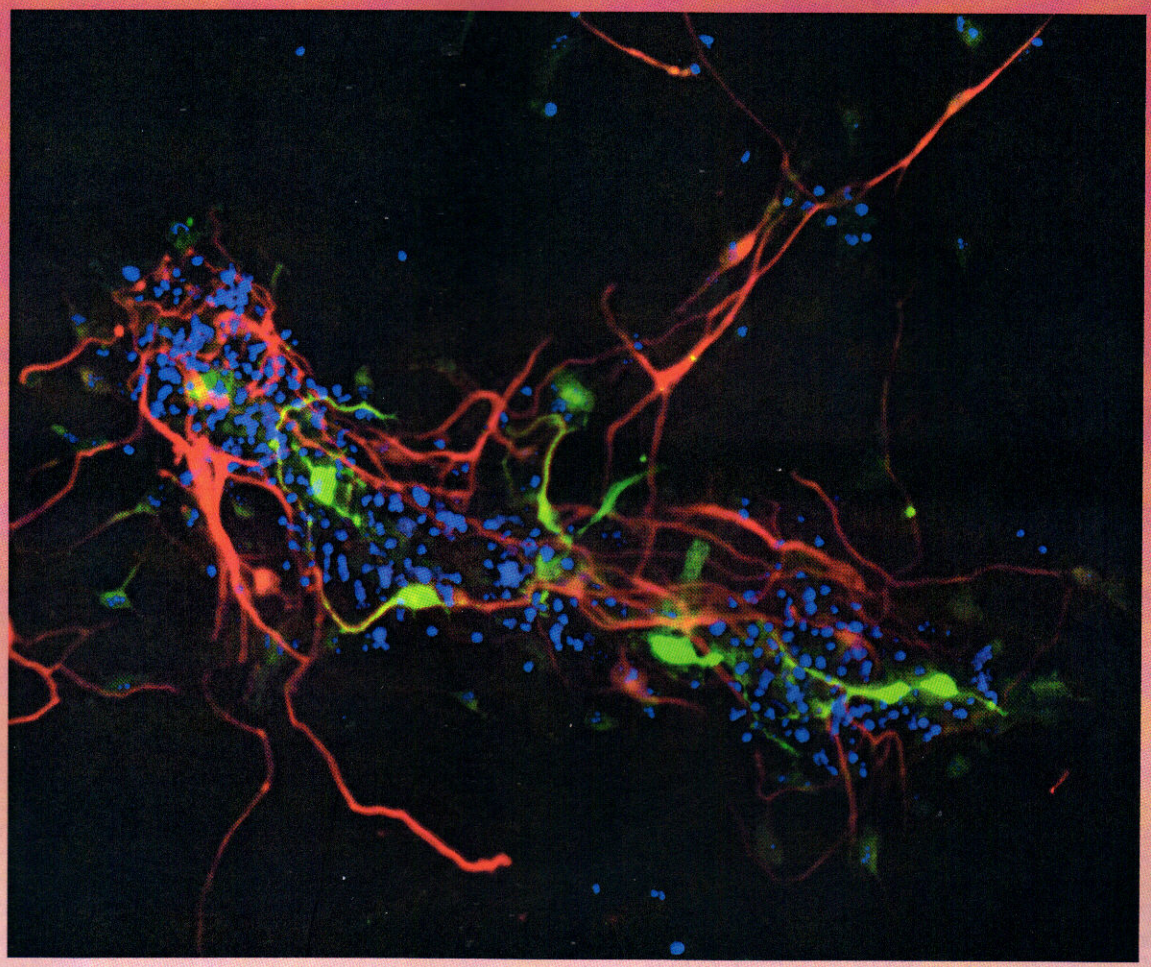
Abstracts of the 2nd Joint Meeting of Pathology And Laboratory Diagnostics



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AGE11. Oligomers of Amyloid Beta-peptides 1-40 and 1-42 Regulate Monocytes Migration *In Vitro* and *In Vivo*

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Background: Intracerebral accumulation of amyloid-beta peptides (Ab) is the main hallmark of Alzheimer's disease (AD). Although brain inflammation is a common feature in AD patients, leukocyte infiltration is rarely observed, and instead a local reaction with activated astrocytes and microglia represent the typical inflammatory feature. The reasons for this peculiar phenotype are unknown.
Methods: To ascertain whether oligomeric Ameloid beta (Ab)1-40 and Ab1-42 influence monocyte migration, we used a direct Boyden chamber assay, and a modified Boyden assay using a monolayer of HUVEC cells in the upper chamber. Cell migration upon Abeta treatment was also measured *in vivo*, upon subcutaneous injection of oligomeric Abeta peptides in mice.
Results: Our data show that treatment with oligomeric Ab1-40 enhances monocyte migration, whereas Ab1-42 significantly reduces cell migration. Even when Ab 1-40 or Ab1.42 are used to challenge HUVEC, the migration of monocytes is enhanced by Ab1-40 and is reduced upon Ab1-42 treatment. While Ab1-40 is a chemoattractant for monocytes, Ab1-42 does not act as a chemoattractant. Similar results were obtained by injecting Ab peptides subcutaneously in mice and recovering monocytic cells attracted into the injection locus, in comparison to vehicle or to LPS. Interestingly, fibrillar forms of Ab do not modify monocyte behaviour *in vitro* or *in vivo*.
Conclusions: We propose that oligomeric Ab1-42 and Ab1-40 exert an opposite effect on monocyte migration. In particular, Ab1-42 peptides may significantly reduce the monocytic response or even hamper monocyte activation and migration. In AD, higher Ab1-42 levels might thus contribute to maintain an immunological privilege in brain, hampering amyloid clearance.

ALLERGIC AND AUTOIMMUNE DISEASES

AAD1. Role of Cytokine Polymorphisms in the Rhinitis-Asthma Evolution

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Background: Several epidemiological studies demonstrate that a timeline from rhinitis to asthma exists, and that rhinitis is a risk factor for asthma. In particular, rhinitis increases the chance of development of asthma by about three times. In addition to environmental factors, genetic factors play an important role in the development of atopic airway diseases. The aim of this study is to analyse the role of cytokine polymorphism in the evolution of rhinitis-asthma.
Methods: A total of 170 allergic patients, 90 affected by rhinitis and 80 affected by asthma and 187 controls subjects matched for age and gender were typed for several single nucleotide polymorphism (SNP) of *IL-10* (rs1800896), (rs1800871), (rs1800872), *IL10RB* (rs2834167), *IL-6* (rs1800795), *IL-4* (rs2243248), *IL-4R* (rs1801275), *IL-13* (rs1800925), *IL-18* (rs187238), (rs1946518), *IL-12* (rs3212227), *INFgR* (rs1327474) and *CD23* (rs2228137) according to our laboratory procedures.
Results: The SNPs were in Hardy-Weinberg equilibrium in all three populations. None of the analysed SNPs are associated in the evolution of rhinitis-asthma. Instead, significant differences of genotype and allelic frequencies between allergic patients and controls were observed in the polymorphism of *IL-6* (p=0.0433 and p=0.0021) *IL-13* (p=0.002 and p=0.0006) and *IL-18* (p=0.0173 and p=0.0364).
Conclusions: The results of our study confirm the already known association of the *IL-6*, *IL-13* and *IL-18* polymorphism with allergic airway diseases. The possible link between rhinitis and asthma remains unknown, so additional studies are necessary.

AAD2. Comparison of Different Detection *In Vitro* Techniques in the Molecular Diagnosis of Latex Allergy among Healthcare Workers

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Background: Allergy to natural rubber latex has become an important occupational health concern in recent years. Natural latex (NRL) is from the sap of the tropical tree: *Hevea brasiliensis*. It is an elastic agent (polymeric cis 1,4 isoprene) with a proteic component of 2-3%.
Methods: A total of 619 subjects who used latex gloves for less than 5 years on a regular basis were invited to participate in the baseline questionnaire screening. In patients affected by possible allergy to latex, we performed a serum test using the ImmunoCAP®250 system (Fluorescence Enzyme Immunoassay, FEIA) and skin-prick tests (SPT).
Results: The total number of participants in the baseline survey was 619, glove related symptoms were present in 70% of workers, and were more frequent in women than in men. The most common symptoms were contact dermatitis. In enrolled subjects, ICAP test revealed a real sensitization to latex.
Conclusions: Our data confirm that these allergens are of major interest for the diagnosis of latex allergy and that the pattern of sensitization to Recombinant Latex Allergens (RLA) is substantially independent to the time of exposure to latex. Therefore, the high percentage of positivity for rHev 8 can be attributed to the so-called latex-fruit syndrome. In accordance with previous studies, in fact, Hev b8 mono-sensitized persons did not show latex specific symptoms upon contact with latex-containing material. In order to increase the diagnostic accuracy of latex, ICAP can be considered a viable alternative to other tests.

AAD3. Anti-phosphatidylserine/prothrombin Autoantibodies Significantly Improve the Laboratory Diagnostic Process of Anti-phospholipids Antibody Syndrome

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Background: Antiphospholipid syndrome (APS) is an autoimmune disorder characterized by vascular thrombosis and/or pregnancy morbidity and the persistent presence of antiphospholipid antibodies (aPL). The aim of this observational study was to examine the improvement of the diagnostic process of APS after the introduction in the clinical lab of the anti-phosphatidylserine/prothrombin IgM and IgG antibodies (aPS/PT) assay.
Methods: During 14 months of observation, 1019 patients were referred to our attention with a prescription for aPS/PT IgG/IgM antibodies that were analysed by ELISA (Inova). All patients were analysed for the "criteria" aPL, such as anti-cardiolipin (aCL) IgG/IgM, anti-beta2 glycoprotein I antibodies (aB2GPI) IgG/IgM (ELISA by Orgentec) and lupus anticoagulant (LA), tested according to the recommended criteria, performing both the screening and the confirmation steps.
Results: Overall, we found 214 (21%) aPS/PT positive cases (56.1% IgM, 29.4% IgG and 14.5% IgM+IgG) compared with 123 (12.1%) aCL and/or aB2GPI positive patients. The contemporary presence of aPS/PT and aCL or aB2GPI was limited. Moreover, 147 (14.4%) patients were positive only for aPS/PT compared with 56 (5.5%) positive only for aCL and/or aB2GPI. As a whole, aPS/PT antibodies disclosed a very significant correlation with LA, however, aPS/PT IgM positive patients were LA positive in 74% of cases, whereas aPS/PT IgG positive samples were positively correlated with LA only in 35% of cases.