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Editorial

Allergen nomenclature

Introduction of the techniques of molecular biology to the field of allergen characterization has influenced both the methodology and the rate of identification of new allergens. Former techniques included the separation of allergenic extracts by methods, such as sodium dodecylsulfate–polyacrylamide gel electrophoresis or crossed immunoelectrophoresis and the probing of immobilized proteins from allergic patients' serum samples for the identification of allergens. On identification, the allergens were purified and characterized. At the time when the first DNA sequence of an allergen was published in 1988,[1] some 50 inhalant allergens were already identified and described. Some of these were proteins of known biologic function, such as the venom allergens of the bee[2] and the wasp.[3] However, most of the allergens identified were proteins of unknown function, and this fact necessitated an independent allergen nomenclature.

Nowadays, molecular biologists may create a complementary DNA library, screen this library with allergic patients' serum IgE, and obtain several hitherto undescribed allergens in virtually a single experiment. Positive clones are sequenced, and the sequences are compared with known sequences in the electronic databases. In some cases the biologic function of the allergen is established by homology to known database sequences, even before the allergen is characterized as a protein.

Cloning of genes encoding allergens has furthermore revealed that most, if not all, allergens are heterogenous. The significance of this "isoallergenic variation" is not fully understood; however, the implication is that several molecules exist with amino acid substitutions; up to 25% of the amino acids may be substituted, as is the case for Amb a 1,[4] and with respect to nomenclature, each isoallergen should be identified by a separate name.

The technical developments in recent years have demanded a revision of the allergen nomenclature published in 1986,[5] and the International Union of Immunological Societies' Allergen Nomenclature Sub-Committee has recently finalized a revised nomenclature. The new nomenclature has been published in *Bulletin of the World Health Organization,*[6] *Allergy and Clinical Immunology News,*[7] and other journals including THE JOURNAL OF ALLERGY AND CLINICAL IMMUNOLOGY.[8]

The most conspicuous revision is the abolition of printing in italics and the Roman numerals. Today, names of allergens are in plain writing and Arabic numerals. New in the revised allergen nomenclature are definitions of names concerning isoallergens and variants, allergen encoding genes, messenger RNAs and cDNAs, and allergenic peptides, whether of recombinant or synthetic origin and whether modified or not.

Printing in italics is now reserved for the designation of allergen encoding genes in accordance with general use. Also, the adopted designation of peptides follows the general guidelines used in other scientific areas.[9] A practical addition to the revised nomenclature is the optional use of a single

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letter prefix indicating the origin of the allergen or peptide. According to this rule, "r" indicates recombinant, "s" synthetic, and "n" natural material.

The allergen nomenclature is used for allergens inducing IgE-mediated (atopic) allergy in human beings. It is intended to be useful to both clinical and laboratory researchers. It is therefore important that researchers determine the clinical relevance of a newly described allergen. In order to maintain the integrity of the system, only allergens with a prevalence of IgE reactivity above 5% will be included in the nomenclature.

The use of the generally accepted terms "major" and "minor" to describe allergens is approved. An allergen is designated "major" or "minor," depending on whether more or less than 50% of patients tested react with the corresponding allergen-specific IgE in the given test system.[10]

Because of inherent factors, it is emphasized that determination of IgE prevalence is subject to some uncertainty. These factors include choice of test system and criteria for selection of patients, geographic region, environmental habits and conditions, etc. For these reasons researchers are urged to include a substantial number of patients in the analyses.

Finally, another innovation should be mentioned here. The International Union of Immunological Societies' Allergen Nomenclature Sub-Committee has issued a brief standard form to be submitted to the Sub-Committee for the assignment of an approved name before the first publication dealing with an unnamed allergen. The intention is to obtain information regarding the taxonomic identity, physicochemical identity, and IgE prevalence of the allergen in question, so that an unambiguous name can be assigned from the very beginning.

Both the allergen nomenclature publication and the new allergen form can be obtained by contacting Dr. Løwenstein; they can also be obtained electronically via the InterNet:

Anonymous FTP to biobase.dk:
pub/who-iuis/allergen.nomenclature
pub/who-iuis/newallergen.form

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Editor's Note:

As of August 1995, the Instructions to Authors at the front of the JOURNAL have been amended to require authors who are reporting newly identified allergens to obtain assignment of an approved name by the Allergen Nomenclature Subcommittee.