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CC/NUMBER 31  
AUGUST 4, 1986

Ceska M, Eriksson R & Varga J M. Radioimmunosorbent assay of allergens.

*J. Allerg. Clin. Immunol.* 49:1-9, 1972.

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The paper disc radio-allergosorbent test method was developed for the assay of allergens. This method was used to diagnose allergy *in vitro*, to compare the "potency" of different allergen extracts, and to check the procedures for allergen extraction, storage, and further treatment. [The SCI® indicates that this paper has been cited in over 395 publications.]

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July 1, 1986

At the end of the 1960s it became evident that the newly discovered immunoglobulin, IgE, was involved in allergy and that this immunoglobulin was present in blood of allergic persons in higher concentrations than in non-allergic persons. There was a need for a simple *in vitro* method that would allow determination of reaginic antibody at the nanogram-per-milliliter level in serum of patients reactive to a given allergen. Wide and colleagues<sup>1</sup> reported an *in vitro* radiosorbent method using small Sephadex particles as the solid phase. Technically, however, this method was complicated, as it involved incubation steps to be performed by vertical rotation as well as several centrifugation steps.

Having in mind methodological simplicity, my colleagues, J.M. Varga and R. Eriksson, and I started at the end of the 1960s to develop

a simple paper-disc radio-allergosorbent method at the biochemical laboratories of Pharmacia. Instead of Sephadex particles, we chose to use small filter-paper discs (5 mm in diameter) as the solid-phase sorbent to which we were able to attach allergens after chemical activation. Our approach caused a lot of unrest in the research management of the above-mentioned firm, as they hoped that we would develop a radio-allergosorbent test using unique ultrafine Sephadex particles, which were developed at Pharmacia for use in radioimmunoassays and which, at that time, were not available to anybody else. In our hands, however, small Sephadex particles were inconvenient to use in radioimmunoassays, requiring head-over-head incubation in order to keep the Sephadex particles in a homogeneous suspension, as well as centrifugation, which could become a health hazard when using radiolabelled anti-IgE.

We primarily used our paper-disc radio-allergosorbent test method to check on allergen extract potencies, and it was interesting to note that there were large differences observed between various allergen extracts used for hyposensitization of allergic patients. Large differences were also observed among allergen extract batches derived from the same commercial source. In 1981 I was invited to review our work in this field.<sup>2</sup>

In combination with isoelectrofocusing, we employed the paper-disc radio-allergosorbent test for allergen characterization and allergen standardization, and these results were reviewed in 1977.<sup>3</sup> Commercial diagnostic products for allergens based on our method were then developed and found their way to many allergy clinics.

I believe this publication is cited frequently because it described a simple solid-phase immunoassay method that, besides its first application in the allergy field, was also used for quantitative determination of other proteins, such as immunoglobulins, ferritin, cancer embryonic antigen,  $\alpha$ -fetoprotein, and others.

1. Wide L, Bennich H & Johansson S G O. Diagnosis of allergy by an *in-vitro* test for allergen antibodies. *Lancet* 25:1105-7, 1967. [See also: Wide L. Citation Classic. *Current Contents/Life Sciences* 28(3):19, 21 January 1985.]

2. Ceska M. Radioimmunoassay of IgE using paper disks. *Meth. Enzymology* 73:646-56, 1981.

3. ———. Isoelectric focusing of allergens. (Catsimpoalas N & Drysdale J, eds.) *Biological and biomedical applications of isoelectric focusing*. New York: Plenum Press, 1977. p. 57-106.

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