Immediate-Type Hypersensitivity Response to Mitsuda Lepromin Component

To The Editor:

It has been reported (Infect. Immun. **10** [1974] 963-965.) that antibodies to leprosy lesion tissue antigens could be demonstrated rapidly by using a laser light scattering procedure. These antibodies occurred as IgG immunoglobulins. Using the same procedure, it was also possible to demonstrate that a microfiltrate of lepromin contained low molecular weight antigens capable of reacting with lepromatous sera.

A procedure was devised to isolate these autogenous antigens of leprosy by using affinity chromatography with lepromatous serum IgG as the stationary phase specific adsorbent and filtered lepromin as the mobile phase. The IgG was immobilized on Sepharose gel to the maximum binding capacity of the gel. Membrane filtered lepromin was allowed to react with the IgG creating a gel-IgG-lepromin complex. The IgG-lepromin moiety was freed from the gel by elution with acetic acid and the eluant was immediately divided into two fractions (one above 100,000 molecular weight, the other below) by passage through the proper sized ultrafilter membrane.

The lower than 100,000 MW fraction is the subject of this correspondence. It yielded a white floculent precipitate after a sequence of steps consisting of neutralization to pH 7.0, dialysis, and concentration to the equivalent original serum volume. The final product showed little or no free IgG by low level radial immunodiffusion, did not stain normally with Coumassie blue, but could possibly have contained some bound light chain IgG or IgG fragments.

When this precipitate was used as antigen in the light scatter serotest, the results were in agreement with those obtained using the whole tissue antigen, but the degree of the reactions were not as great. This could have been due to occupied binding sites, to altered light scatter characteristics, or to modified antigenicity.

The antigen also produced marked skin test "acute inflammatory reactions" peaking at six to eight hours post-intracutaneous inoculation in lepromatous, tuberculoid and noninfected individuals. These results are difficult to analyze since the tests to date have been few in number, and have been limited to persons from within a single leprosy endemic area. The point to be emphasized is the fact that this material, derived from leprosy tissue, induced a significant skin test response in seven of seven lepromatous patients. The skin reactions were quite obvious, with marked central papules. Some of the reactions showed erythema as large as 25 × 40 mm. The reactions were diminished after 8 hours, but were still evident after 24 hours, with clearing by 48 hours.

Mice inoculated IP or IM with the same material suffered no visible ill effects.

These experiments are in preparation for publication but, in view of the current international emphasis on immunology of leprosy, the results seemed pertinent enough to merit this preliminary correspondence. [Acknowledgment: Primary support was received from The John A. Hartford Foundation, Inc. with supplementary support from the World Health Organization and the Sovereign Military Order of Malta.]

—C. V. Reich, Ph.D.

Leonard Wood Memorial
615 N. Wolfe Street
Baltimore, Md. 21205