



Immunology Pioneer Honored

Ernst Beutner, PhD, receives international award

ERNST BEUTNER, PhD, PROFESSOR EMERITUS OF MICROBIOLOGY, IMMUNOLOGY AND DERMATOLOGY, HAS RECEIVED A GOLD MEDAL FROM THE AUSTRIAN DERMATOLOGIC SOCIETY.

BY S. A. UNGER
PHOTOS BY K. C. KRATT



The award, which is the highest honor bestowed by the society, recognizes the pioneering research conducted by Beutner and colleagues in the 1960s involving blood studies on antibodies and their reactions as seen in skin biopsies. The research led to the discovery of the role of autoimmunity in pemphigus vulgaris (PV), pemphigoid and related skin diseases.

Individuals with these diseases experience painful blisters (bullae) on the epidermis (the skin's outer layer) and mucous membranes. If not properly diagnosed and managed, complications can be debilitating or even fatal.

In 2000, building on the studies by Beutner's group, scientists recognized the role of autoimmunity

in an unrelated blistering disorder called dermatitis herpetiformis.

The methods developed by Beutner and his associates for the diagnosis of diseases of the skin and mucous membranes are now used worldwide and continue to yield advances in the understanding and management of this group of diseases.

Initially, Beutner conducted his studies with a group of UB medical students, including Robert E. Jordon, MD '65, and Burton Chertock, MD '67.

Jordon's father, James Jordon, MD, who headed the Division of Dermatology at UB, had suggested that Beutner's group study the role of autoimmunity in PV. The group took up his suggestion, and over the course of the next few years

they discovered evidence that both PV and bullous pemphigoid (BP) are autoimmune diseases.

Although the etiology of the disorders is now better understood due to the work of Beutner, Jordan, Chertock and Tadeusz Chorzelski of Poland, as well as other scientists, the exact cause of the development of autoantibodies remains unknown.

Following graduation from UB, Jordon pursued a career in dermatology and continues to conduct research in this area. Currently he serves as chair of dermatology at the University of Texas Medical School at Houston.

Chertock went on to train in psychiatry at the University of California at Los Angeles. Currently he serves as medical

director at Creative Care, a residential treatment program in Malibu, California.

Chorzelski devoted much of his career to work with Beutner on studies of autoimmune skin diseases.

The Gold Medal is the fourth major award Beutner has received in recent years for his lifetime contributions to dermatology. In 1999, he received the American Skin Association Award from the Society for Investigative Dermatology; in 2001, he and Jordon were co-recipients of the Dermatology Foundation's Discovery Award; and in 2003, he received the Founders Award from the American Society for Dermatopathology.

Although Beutner says it is rewarding to receive the international recognition accorded him in recent years, he looks past his own contributions to highlight promising areas of immunodermatology research that are currently being explored.

"Perhaps more important [than our group's research] from the viewpoint of understanding the nature of autoimmunity to the epidermis and dermis, is the work being conducted by Helmut Hinter, MD [in Austria], on normal autoantibodies to keratin filaments," he states.

"While this has not received the attention it deserves, further studies of such autoantibodies may reveal that they are more important to human health than the rare pathogenic autoantibodies associated with bullous diseases. The same holds true of other physiologic autoantibodies in normal sera, which

appear to play a key role in psoriasis, such as those investigated by my group, as well as by Dr. Hans Krogh [in Norway] and Dr. Stefania Jablonska [in Poland].

"If this Gold Medal can stimulate in-depth studies of the serologic specificity of all types of skin autoantibodies," Beutner adds, "it would advance the field of dermatology significantly."

The Best of Teachers and Coworkers

Beutner was born in Germany and raised in Kentucky and Philadelphia. He received his PhD from the University of Pennsylvania in 1951, and in 1956 he joined the faculty at UB, where he taught microbiology to medical and dental students until he became an emeritus professor in 1997.

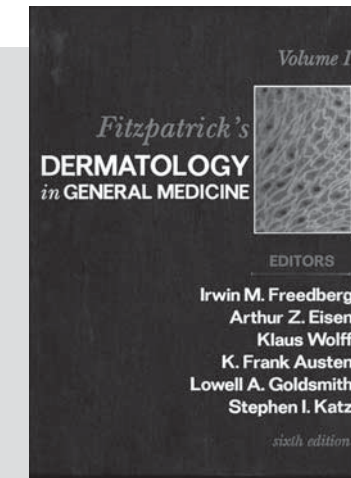
In 1992, with the encouragement of Ian Hay, PhD, chair of UB's Department of Microbiology and Immunology, Beutner founded Beutner Laboratories in Buffalo, where he and his associates perform diagnostic studies on autoimmune diseases of the skin and mucous membranes and conduct research on immunopathology of bullous and connective-tissue diseases.

In looking back on his long and productive career at UB, Beutner stresses the important contributions made by his coworkers, as well as by scientists who came before him and who in turn stimulated his explorations.

"Much credit should go to my teachers and coworkers," he explains, adding that his first teacher was his father, Reinhard Beutner, PhD, MD, a former fellow at the Rockefeller Institute, who introduced him to what he calls "observation-based biomedical research."

Beutner says his career was profoundly influenced by Ernest Witebsky, MD, UB's legendary distinguished professor of immunology who, along with Niels Klendshoj, isolated the B-antigen found in human blood, a discovery that made blood transfusions safer. Witebsky and his associates also conducted important studies in autoimmune disease and its relation to thyroiditis, Addison's Disease and myasthenia gravis.

In 1967, Witebsky was appointed director of a newly created Center for Immunology at UB, which, upon his death in 1969, was named in his honor.



In the 1960s, Ernst Beutner's group discovered that the immunofluorescent (IF) reaction patterns of pemphigus and pemphigoid could be used to diagnose the diseases. Their discovery continues to define the diagnostic "gold standard" for these diseases, as well as for dermatitis herpetiformis. Pictured far left is the IF pattern of pemphigus antibodies as published on the cover of Volume I of *Fitzpatrick's Dermatology* (Sixth Edition, 2003), the leading text on clinical dermatology, published by Harvard University.



Dermatology residents Anne Ramsdell, left, and Sanjay Tomar, right, confer with Ernst Beutner, center, during a skin immunopathology rotation in Beutner Laboratories.

“In his studies of experimental autoimmune thyroiditis, Witebsky focused on Paul Ehrlich’s ‘horror autotoxicus’ theories,” explains Beutner, “which purported that the body normally does not develop antibodies to its own tissues.”

“However, he also taught us about the methods used by Karl Landsteiner for studies of red blood cell autoantibodies, which served as a model for our studies on autoimmunity to skin and mucous membranes.”

Beutner says that Witebsky introduced him to the concepts of serologic specificity of antibody reaction, which proved crucial to his PV and BP research.

“Witebsky suggested that we apply these concepts to labeled antibody methods—immunofluorescence (IF),” he explains. “These relate structure and function, and so serve as vital tools for diverse studies.”

Beutner’s group quantified the labeled antibody methods and found that the IF reaction patterns of pemphigus and pemphigoid could be used to diagnose the diseases.

Their discovery continues to define the diagnostic “gold standard” for these diseases, as well as for dermatitis herpetiformis.

Beutner emphasizes that, as an immunologist, his studies of autoimmune skin diseases would not have been possible without considerable help from dermatologists in Buffalo such as Hans Kipping, MD, who sent his group sera and biopsies.

These samples made it possible for Beutner’s group to compile data for their first three papers on the role of autoimmunity in pemphigus and pemphigoid using indirect IF and direct IF, all of which became citation classics.

“In compiling the reports,” explains Beutner “we relied on the guidance of Dr. Walter Lever [at Tufts School of Medicine] and Dr. Witebsky.”

Credit for translating the group’s findings into “useful guides in the diagnosis and management of pemphigus and pemphigoid,” he adds, “goes largely to the late Professor Chorzelski, his brilliant chief, Professor Stefania Jablonska and her associates at Warsaw Medical School.”

Beutner says that the Polish scientists collaborated with his group in Buffalo on more than 125 publications

over the course of 25 years—between 1968 and 1993—and that the two groups continue to occasionally work together. The Polish group also took an active part in annual summer teaching programs at UB from 1971 to 1979.

American dermatologists who helped to make the teaching program a success, he explains, included Dr. Beno Michel, who developed a transport medium for direct IF studies of skin and mucosal biopsies and who is now in private practice in Cleveland, Ohio; Dr. Mark Dahl, chair of dermatology at the Mayo Clinic in Arizona and former president of the American Academy of Dermatology, who wrote three editions of a practical guide to skin immunopathology; and Jean-Claude Bystry, professor of dermatology at New York University School of Medicine, who “is still making remarkable contributions to skin immunopathology.”

“In the 1970s, these teaching programs enabled participants to start diagnostic IF services for autoimmune skin diseases and to use the findings from direct IF studies on biopsies and indirect IF studies on blood serum in the diagnosis and management of their patients,” explains Beutner.

Each year, dermatology residents from UB and the University of Rochester rotate through Beutner Laboratories, located on Bailey Avenue, across from UB’s medical school.

Although he retired from full-time teaching nine years ago, Beutner continues to take every opportunity he has to pass along his knowledge to dermatologists-in-training.

“While medical students are unfortunately no longer being taught about

studies of serologic specificity in their basic science courses, in our lab we are able to teach residents about the sensitivity and specificity of reactions of autoantibodies,” he explains.

When asked why he continues to teach residents today, 50 years after his career at UB began, Beutner says, “I do it because I feel a sense of responsibility to help support the continued growth of this subdiscipline. I feel confident that with the help of our laboratory’s associate director, Richard Plunkett, and assistant director, Raminder Grover, that the quality and extent of immunopathologic studies of the skin and mucous membranes will continue to develop.” **BP**



Richard Plunkett, PhD, associate director of Beutner Laboratories, left, and Raminder Grover, MD, assistant director.

For more information on Ernst Beutner’s research, see a report he published in the International Journal of Dermatology (2003, 42, 99-109), titled “The Development of Immunofluorescence and the Immunopathology of the Skin.”

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