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, Chertrock 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 Jordan 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 co-workers, 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 Klsndshoj, 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 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.

"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."

"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. His 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 mucosal membranes will continue to develop."

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.”