

Research Finding Could Revolutionize Asthma Treatment

Use of Beta Blockers May Have Long-Term Benefits

SAN FRANCISCO, California, February 25, 2009: The American Asthma Foundation announced a research breakthrough suggesting that, contrary to popular belief, drugs commonly used to treat high blood pressure may also bring relief to many asthma sufferers.

Dean Smith, Executive Director of the American Asthma Foundation (AAF), said, “Drugs known as beta blockers have long been used to treat high blood pressure. However, they have historically been forbidden for patients with asthma, because they may make the symptoms worse. Now, however, results from a research study funded by the American Asthma Foundation suggest that, over the long run, asthma may well improve with low daily doses of beta blockers.”

The findings were published January 26, 2009 on www.pnas.org, the online edition of *Proceedings of the National Academy of Sciences of the United States of America*, a prestigious scientific journal. The lead investigator, Dr. Richard Bond, and his colleagues demonstrated the absence of asthma-like symptoms in laboratory mice that do not have the very receptor that is inhibited by beta blockers. This finding was in agreement with earlier studies by Bond and his colleagues showing that low doses of beta blockers improved asthma in mice.



Richard Bond, Ph.D.

Expanding on his description of Dr. Bond’s findings, Mr. Smith comments, “Dr. Bond’s research has used an approach he calls ‘paradoxical pharmacology,’ which simply means that patients may be treated with medicines that may initially worsen symptoms, but over the long run may lead to overall health improvement.” Dr. Bond’s studies led to a small clinical trial of beta blockers with humans, and a second human clinical trial is currently under way using the high blood pressure drug nadolol in patients with mild asthma.

Ms. Marion O. Sandler, Chairman of the Board of the American Asthma Foundation, points out that “Dr. Bond’s findings are especially important at the present time, because there is a great need for new treatments for asthma.” In December 2008, a Food and Drug Administration (FDA) advisory panel recommended that the FDA ban two inhaled drugs for use in asthma, because studies had shown an increased risk of hospitalization and asthma-related deaths. Notably, these two drugs have the opposite effect of beta blockers. Specifically, they clearly improve asthma in the short run, but if taken for long periods they may actually be harmful.

Dr. Bond is a Professor in the Department of Pharmacological and Pharmaceutical Sciences, University of Houston, Houston. In 2003, he received a three-year early excellence award from the American Asthma Foundation. The AAF sponsors research that investigates new theories about the underlying causes of asthma with the goal of improving treatment and preventing and curing the disease. Dr. Bond's colleagues included researchers at the University of Houston Department of Pharmacology, Baylor College of Medicine, and the M.D. Anderson Cancer Center in Houston. Information on Dr. Bond's research can be found on www.americanasthma.org.

Asthma is a chronic, complex disease that is a major public health problem. Nearly one in every 13 people in the United States has asthma -- more Americans than have coronary heart disease or cancer or Parkinson's Disease. Asthma is the most serious chronic disease of childhood and disproportionately strikes the poor.

The American Asthma Foundation is the only national advocacy group in the United States devoted solely to asthma. According to Ms. Sandler, the AAF's mission is "to improve treatment, prevent, and find a cure for the disease. Sad to say, there is no cure for asthma and little progress has been made in 50 years in improving treatment."

Elaborating on the organization's approach to research, Sandler explains, "The American Asthma Foundation underwrites a national grants program to attract the best scientific minds to address the asthma problem. Specifically, the AAF supports highly original, cutting-edge asthma research by providing generous multi-year awards to scientists not previously involved in the study of asthma."

Over the past nine years, the American Asthma Foundation has awarded almost \$60 million to 110 outstanding researchers. These United States and Canadian scientists have been drawn from a wide range of fields including biology, epidemiology, medicine, pathology, and pharmacology. Citing the impact of the AAF's awards, Mr. Smith comments that "American Asthma Foundation grants have generated over \$35 million in new funds from other sources for further asthma research." Recently, the American Asthma Foundation has expanded recruiting efforts to major universities in Australia, the United Kingdom, Ireland, and Sweden.

Detailing the positive outcomes achieved by AAF-funded investigators, Ms. Sandler notes, "To date, American Asthma Foundation awards have resulted in eleven promising breakthroughs, or new 'pathways,' that have led to support from the pharmaceutical industry. Three of these breakthroughs have progressed to clinical trials. Because the time from a 'discovery at the bench' to a new therapy is often measured in decades, we are encouraged that several AAF-supported projects are on the way to beating this timetable to find a possible therapy." Smith also observes, "American Asthma Foundation-funded investigators have published over 200 papers in peer-reviewed scientific journals, thereby helping to

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more broadly distribute the knowledge gained through research sponsored by the program.” The title of Dr. Bond’s article in the *Proceedings of the National Academy of Sciences* is “Beta2-Adrenoreceptor Signaling Is Required for the Development of an Asthma Phenotype in a Murine Model.”

Executive Director Smith invites members of the public to help fund research to find a cure and better treatments for asthma by making a donation at the American Asthma Foundation’s website, www.americanasthma.org.”

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