Bayer Corporation and PPL Therapeutics Announce Collaboration

# Development of a Recombinant Aerosol Formulation for AAT Deficiency

## Aerosol Formulation Would Provide Convenience

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**Leverkusen, Germany** — Bayer Corporation, Research Triangle Park, N.C., US, and PPL Therapeutics, Edinburgh, Scotland, announced today that they have signed a worldwide licensing agreement to develop a transgenically produced recombinant replacement therapy for alpha1-antitrypsin (AAT) deficiency-related emphysema and for cystic fibrosis. By using newly developed aerosol technology we are able to deliver more AAT in a shorter time period.

Under the agreement, Bayer will be responsible for, and bear the costs of, clinical development and marketing, and PPL will be responsible for exclusive product manufacturing. Bayer will make an upfront investment of US$15 million in purchase of PPL equity. PPL also will receive a string of milestone payments totaling US$25 million as progress is made in registering indications and in driving sales growth.

“This agreement is a strong affirmation of the value of PPL’s technology and will provide a significant revenue stream in the coming years,” said Martyn Breeze, Commercial Director of PPL Therapeutics.

“The Bayer/PPL cooperation puts us squarely in the forefront of the development of a recombinant replacement therapy in an aerosol formulation, and represents a significant development for the company. We are eager to begin the Phase III trial in Q4 2000,” said Jan Turek, senior vice president and general manager of Bayer’s Biological Products Global Business Unit.

Bayer and PPL Therapeutics will partner initially to conduct a placebo-controlled Phase III efficacy study for AAT deficiency. Thereafter, Bayer and PPL will collaborate on aerosol AAT development in a second clinical indication, cystic fibrosis.

An aerosol formulation of rAAT would be delivered directly to the lungs via a nebulizer. The formulation is expected to provide improved patient convenience and compliance. In addition, the transgenic source will increase supply of the product, making replacement therapy available for more AAT-deficient patients. As much as 1.5 million grams may be required for treatment of this condition, a volume that PPL will to be able to produce from transgenic animals.

AAT deficiency is a potentially lethal hereditary disease affecting more than 200,000 people worldwide. Following the development of emphysema, AAT deficiency is characterized by shortness of breath, wheezing, coughing, and recurrent lung infections. Many symptomatic patients die from pulmonary causes in their 5th and 6th decades of life. Bayer's Prolastin® derived from human blood plasma is given i.v., and is currently the only available product for chronic replacement of AAT.

The agreement between Bayer Corporation and PPL Therapeutics is subject to approval by PPL Therapeutics' shareholders and appropriate regulatory agencies.

PPL Therapeutics is a biopharmaceutical company which is one of the world's leaders in the application of transgenic animal technologies to the development and production of human proteins for therapeutic and nutritional applications. PPL's patented transgenic production of human proteins involves the introduction of copies of human DNA into the genetic material of another species. The resulting transgenic animals express the human gene product (protein) in the mammary gland allowing its collection and purification during lactation. The technique, which offers the opportunity to produce human proteins economically and in potentially unlimited quantities, is based on patented technology developed by the Roslin Institute in the 1980s for which PPL holds an exclusive licence.

Leverkusen, August 16, 2000