

## **bluebird bio Announces Global Strategic Collaboration with Celgene to Advance Gene Therapy in Oncology**

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### **FOR IMMEDIATE RELEASE**

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*- Separately, Celgene and bluebird bio to collaborate with the Center for Cell and Gene Therapy to advance new and existing CAR T-cell programs -*

CAMBRIDGE, Mass. -- March 21, 2013 -- bluebird bio, a privately-held biotechnology company focused on gene therapy, today announced the formation of a broad, global strategic collaboration with Celgene Corporation to discover, develop and commercialize novel diseasealtering gene therapies in oncology. The collaboration will focus on applying gene therapy technology to genetically modify a patient's own T-cells, known as chimeric antigen receptor (CAR) T-cells, to target and destroy cancer cells. The multi-year research and development collaboration has the potential to lead to the development and commercialization of multiple CAR T-cell products. Celgene has an option to license any products resulting from the collaboration after the completion of a Phase 1 clinical study for each such product. bluebird bio will be responsible for research and development activity through Phase 1 studies.

Additionally, Celgene has also entered into a separate strategic collaboration in the CAR T-cell field with the Center for Cell and Gene Therapy at Baylor College of Medicine, Texas Children's Hospital and The Methodist Hospital, Houston, led by Malcolm Brenner, M.D., Ph.D., professor, Department of Molecular and Human Genetics and the director, Center for Cell and Gene Therapy. bluebird bio, Celgene and Dr. Brenner's team will work collaboratively to advance and develop existing and new products and programs in the CAR T-cell field.

"The genetic manipulation of autologous T-cells is a new frontier in oncology, one that shows early promise in emerging clinical trials," said Tom Daniel, president, research & early development at Celgene. "We see strong prospects for this collaboration between Celgene, bluebird bio and Baylor College of Medicine's experienced leaders in this emerging field, led by Dr. Brenner, to advance this innovative approach to intractable problems in oncology."

"We believe that our recent advances in the industrialization of our gene therapy platform will drive improvements in the potency, purity, efficiency and scalability of our lentiviral gene therapy programs. These advances provide us with an opportunity to apply our platform, intellectual property and know-how to the development of additional product candidates in indications such as CAR T-cells for cancer," stated Nick Leschly, CEO of bluebird bio. "Celgene is a global leader in oncology and, combined with Baylor's expertise in the CAR T-cell field, we have created a great opportunity to drive innovation in a new and exciting area."

Financial terms of the agreement include an upfront payment and up to \$225 million per product in potential option fees and clinical and regulatory milestones. bluebird bio also has the right to participate in the development and commercialization of any licensed products resulting from the collaboration through a 50/50 co-development and profit share in the United States in exchange for a reduction of milestones. Royalties would also be paid in regions where there is no profit share including in the United States if bluebird bio declines to exercise their co-development and profit sharing rights.

The gene therapy products currently in clinical development at bluebird bio for the treatment of childhood cerebral adrenoleukodystrophy, beta-thalassemia and sickle cell disease are independent of this collaboration.

Cowen and Company contributed as a strategic advisor to bluebird bio on this transaction.

#### **About CAR T-Cell Therapy**

CAR T-cell therapy represents a promising, emerging approach to treating cancer. Blood is withdrawn from a patient and the T-cells are then extracted from a patient's blood. These cells are then genetically modified to recognize and attack cancer cells and then re-introduced into the patient's blood. The patient's genetically modified cells are intended to bind to and kill the target cancer cells.

#### **About bluebird bio**

bluebird bio is developing potentially transformative gene therapies for severe genetic and orphan diseases. bluebird bio has two clinical-stage programs in development for childhood cerebral adrenoleukodystrophy (CCALD) and beta-thalassemia/sickle cell disease. Led by a management team with extensive industry experience, bluebird bio is privately held and backed by top-tier life sciences investors. Its operations are located in Cambridge, Mass., San Francisco, Calif., and Paris, France. For more information, please visit [www.bluebirdbio.com](http://www.bluebirdbio.com).

**About Celgene**

Celgene Corporation, headquartered in Summit, New Jersey, is an integrated global biopharmaceutical company engaged primarily in the discovery, development and commercialization of novel therapies for the treatment of cancer and inflammatory diseases through gene and protein regulation. For more information, please visit [www.celgene.com](http://www.celgene.com).

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