

**apceth starts commercial manufacturing of Zynteglo™ ▼,
bluebird bio's gene therapy for transfusion-dependent β -thalassemia**

Munich, Germany, January 13, 2020 - apceth Biopharma GmbH, a subsidiary of Hitachi Chemical Co., Ltd. and a leading company for the manufacturing of cell and gene therapeutics, starts the commercial manufacturing of Zynteglo™ ▼, a product of bluebird bio, Inc. Today bluebird bio announced the market entry of its gene therapy Zynteglo in Germany, the first country globally where Zynteglo is commercially available. Zynteglo is conditionally approved in the EU¹ as a gene therapy for patients 12 years and older with transfusion-dependent β -thalassemia (TDT) who do not have a β^0/β^0 genotype, for whom hematopoietic stem cell (HSC) transplantation is appropriate but a human leukocyte antigen (HLA)-matched related HSC donor is not available.

“Manufacturing this life-changing therapy for TDT patients in Europe marks a milestone for our company and the global Regenerative Medicine Business Sector at Hitachi Chemical Co., Ltd.”, commented Dr Christine Guenther, CEO of apceth Biopharma GmbH. “I am very proud of the teams of apceth and bluebird bio working together to make this happen. Our trustful partnership and persistent efforts over many years have made this vision come true for the patients.”

“We appreciate the team at apceth for all of their hard work and commitment to patients living with TDT,” said Nick Leschly, chief bluebird. “This is a critical step along our journey as we advance our launch and access activities in Europe. We look forward to continuing our work with our partners, the TDT community and health systems to bring Zynteglo to patients.”

¹ <https://www.ema.europa.eu/en/medicines/human/EPAR/zynteglo>

▼ This medicinal product is subject to additional monitoring.

About apceth Biopharma GmbH

apceth Biopharma, a subsidiary of Hitachi Chemical Co., Ltd., is a pioneering company in regenerative medicines and a leading and certified Contract Development and Manufacturing Organization for cell and gene therapeutics with a broad international customer base. apceth owns state-of-the-art manufacturing facilities with Grade B/A, C and D cleanrooms (ISO 5, ISO 7, ISO 8, BSL2) and is certified according to regulatory requirements for cell and gene

therapies (Advanced Therapy Medicinal Products, ATMPs). The company has a comprehensive expertise in GMP manufacturing of autologous and allogeneic cell types that are either native or genetically modified. It has long-standing experience with various cell products, including mesenchymal stem cells (MSCs), hematopoietic stem cells (HSC), lymphocytes, monocytes, dendritic cells, cord blood derived stem cells, and has the potential to expand to CAR-T and induced pluripotent stem cell (iPSC) technologies. apceth has successfully obtained manufacturing licenses for multiple cell therapy products for clinical use as well as one commercial cell-based gene therapy. apceth's CDMO team provides fully customized solutions in the development and production of every customer product and process. Located centrally in the heart of Europe, apceth can perform efficient and fast supply for patients all over the continent.

For more information on apceth, please visit www.apceth.com

About Hitachi Chemical Co., Ltd.

Hitachi Chemical Co., Ltd. (TSE : 4217), headquartered in Tokyo, Japan, delivers wide range of innovative products, such as electronic materials, automobile parts, energy storage devices and systems, in global markets. The company's consolidated revenues for fiscal 2018 (ended March 31, 2019) totaled 681 billion yen (5.5 billion euros*). For more information on Hitachi Chemical, please visit the company's website at <http://www.hitachi-chem.co.jp/english/>

*The conversion rate is 1 euro = 124 yen.

About the Hitachi Chemical Regenerative Medicine Business Sector

The Hitachi Chemical's Regenerative Medicine Business Sector provides contract development and manufacturing organization (CDMO) services at current Good Manufacturing Practices (cGMP) standards, including clinical manufacturing, commercial manufacturing, and manufacturing development. The global footprint of the business is over 200,000 square feet and includes operations in North America (Allendale, New Jersey and Mountain View, California), Europe (Munich, Germany), and Japan (Yokohama). The business leverages two decades of experience exclusively focused on the cell therapy industry.

For more information on North America services, please visit www.pctcelltherapy.com

For more information on Europe services, please visit www.apceth.com

For more information on Japan services, please visit www.hitachi-chem.co.jp/english/

Contact

apceth Biopharma GmbH

Dr Christine Guenther, CEO

Max-Lebsche-Platz 30

81377 Munich

Germany

Phone: +49 (0)89 7009608 0

Email: contact@apceth.com

Web: www.apceth.com