Kyowa Kirin Initiates Phase 2 Clinical Study of G-Lasta® for the Mobilization of Hematopoietic Stem Cells into Peripheral Blood for Autologous Blood Stem Cell Transplantation in Japan

Tokyo, Japan, September 13, 2021 --Kyowa Kirin Co., Ltd. (TSE:4151, President and CEO: Masashi Miyamoto, "Kyowa Kirin") announces today that a phase 2 clinical study of G-Lasta® [KRN125, generic name: pegfilgrastim (genetical recombination), long-acting Granulocyte Colony-Stimulating Factor[*1] (G-CSF) preparation] for the mobilization of hematopoietic stem cells into peripheral blood for autologous blood stem cell transplantation[*2] ("the indication"), was started on September 10th in Japan.

This phase 2 clinical study is multi-centered and to evaluate efficacy and safety of single administration of G-Lasta to mobilize hematopoietic stem cells into peripheral blood in patients with multiple myeloma and malignant lymphoma in Japan.

Yoshifumi Torii, Ph.D., Executive Officer, Vice President, Head of R&D Division of Kyowa Kirin commented, "In autologous peripheral blood stem cell transplantation therapy, there are substantial needs for patients to reduce the burden of hospitalization and hospital visits over several days. We believe that G-Lasta, which is a long-acting G-CSF preparation, has a potential to contribute to these needs. We will continue to push forward with our development activities so that we can deliver the therapeutic benefit to patients with hematologic malignancies."

G-Lasta is a long-acting G-CSF preparation licensed from Kirin-Amgen Inc. and has been marketed in Japan since 2014 for decreasing the incidence of febrile neutropenia[*3] in patients receiving cancer chemotherapy. Kyowa Kirin filed an application for partial change of approved indication of G-Lasta for the mobilization of hematopoietic stem cells into peripheral blood in allogeneic blood stem cell transplantation[*4] in Japan in March 2021 and is currently under review by regulatory authority. By adding the indication to G-Lasta, which is a long-acting G-CSF preparation, Kyowa Kirin expects to be able to reduce the burden on patients who need hematopoietic stem cell transplants."

The Kyowa Kirin Group companies strive to contribute to the health and well-being of people

around the world by creating new value through the pursuit of advances in life sciences and technologies.

<Summary of the Study>

Study Name	A Clinical Trial of KRN125 to Mobilize Hematopoietic Stem Cells Into Peripheral Blood in Patients With Multiple Myeloma and Malignant Lymphoma
Study Population	Patients with multiple myeloma and malignant lymphoma
Primary Endpoint	Achievement of a target of ≥ 2*10^6 CD34+ cells/kg collected during apheresis period in patients with multiple myeloma[*5]
Estimated Enrollment	64
Estimated Study Completion Date	October 2022

***1: About Granulocyte Colony-Stimulating Factor (G-CSF)**

G-CSF is a protein produced by gene recombination technology. G-CSF selectively stimulates production of neutrophils and also enhances the neutrophil function. Based on this mechanism, G-CSF accelerates recovery from chemotherapy-induced neutropenia and reduces various risks associated with neutropenia.

***2: About mobilization of hematopoietic stem cells into peripheral blood for autologous blood stem cell transplantation**

Autologous peripheral blood stem cell transplantation is one of the treatments for multiple myeloma and malignant lymphoma. In contrast to allogeneic transplantation, it transplants hematopoietic stem cells harvested from the patients themselves in this treatment. Daily-dose G-CSF products are widely used to mobilize hematopoietic stem cells into peripheral blood. It is common to conduct an apheresis (separation and collection of blood cell components) using a blood component separator after mobilization of hematopoietic stem cells into peripheral blood by any of the following three methods: only G-CSF products, G-CSF products plus plerixafor (inhibitor of CXCR4 receptor, one of the Chemokine Receptor), or G-CSF products plus chemotherapy.

***3: About febrile neutropenia**

Myelosuppressive chemotherapy causes low neutrophil count, i.e. neutropenia, which can raise risk of infections. Neutropenia with fever, known as febrile neutropenia, can be a sign of a serious infection and patients' needs to be given appropriate treatments.

***4: About mobilization of hematopoietic stem cells into peripheral blood for allogeneic blood stem cell transplantation**

Allogeneic peripheral blood stem cell transplantation is one of the treatments for malignancies such as leukemia, as well as non-neoplastic blood diseases such as aplastic anemia. In order to harvest

hematopoietic stem cells for transplantation into recipients from donors, daily-dose G-CSF products are widely used to mobilize hematopoietic stem cells into peripheral blood. It is common to conduct an apheresis (separation and collection of blood cell components) using a blood component separator on the fourth to sixth day of administration after the subcutaneous injection of G-CSF formulation once or twice daily.

***5:**

The number of CD34 positive cells is set as the primary endpoint for this study, because it is generally thought that 2×10^6 /kg of CD34 positive cells are necessary for autologous peripheral blood stem cell transplantation.