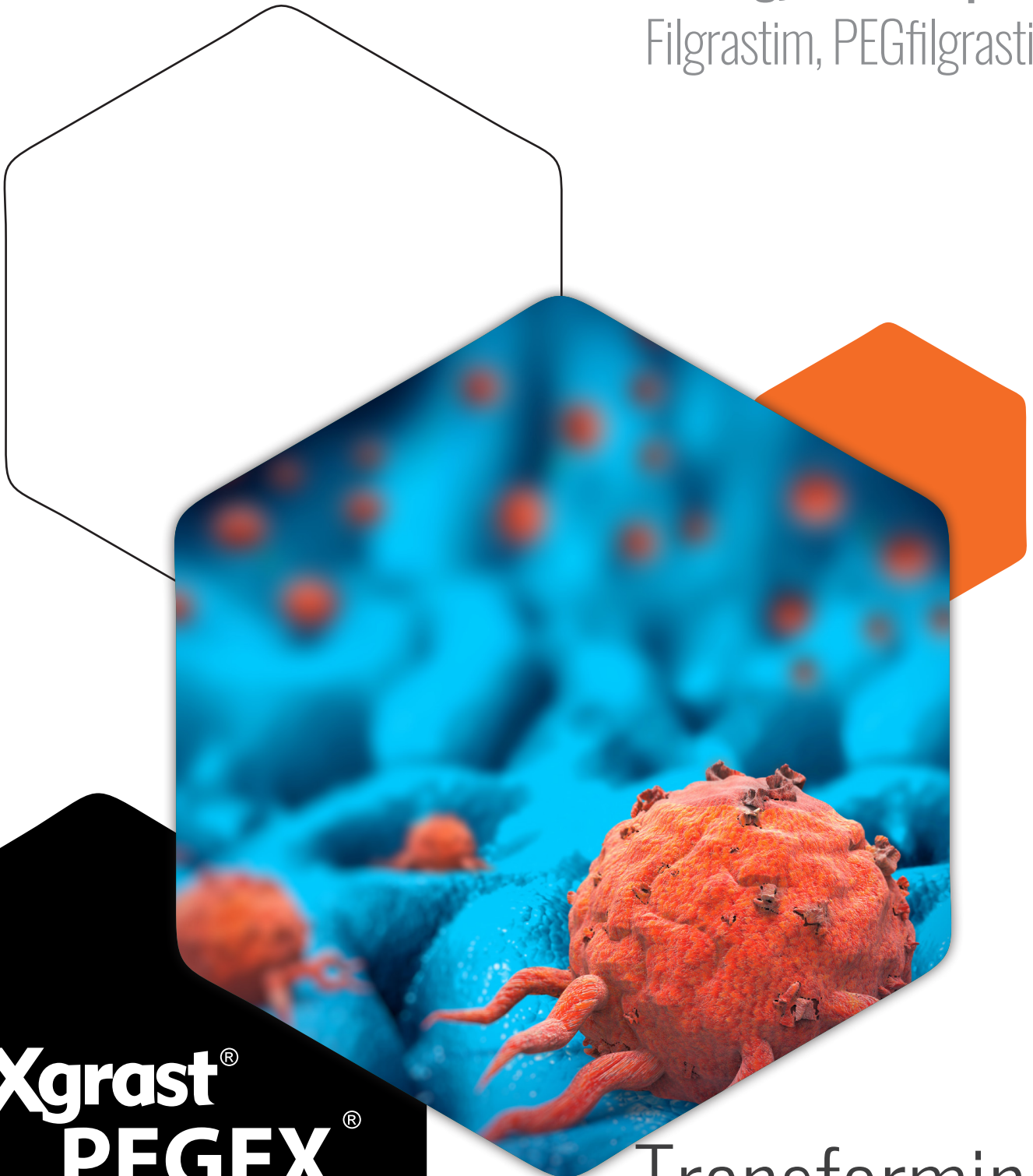


GENNOVA

Oncology - Neutropenia
Filgrastim, PEGfilgrastim



Xgrast[®]
PEGEX[®]

*To decrease the incidence of infection,
as manifested by febrile neutropenia, in
patients receiving myelosuppressive
anti-cancer drugs.*

Transforming
Healthcare
www.gennova.bio

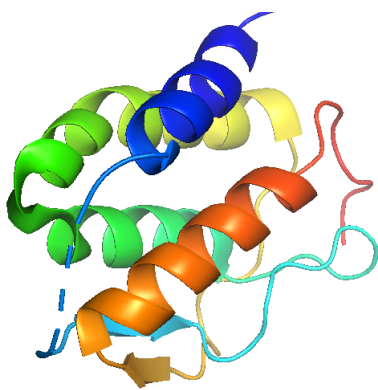
GLOBALLY



10 MILLION DEATHS



ONE-IN-SIX DEATHS DUE TO CANCER



G-CSF STRUCTURE

Cancer is a leading cause of death worldwide, accounting for nearly 10 million deaths in 2020¹. Nearly one in six deaths.

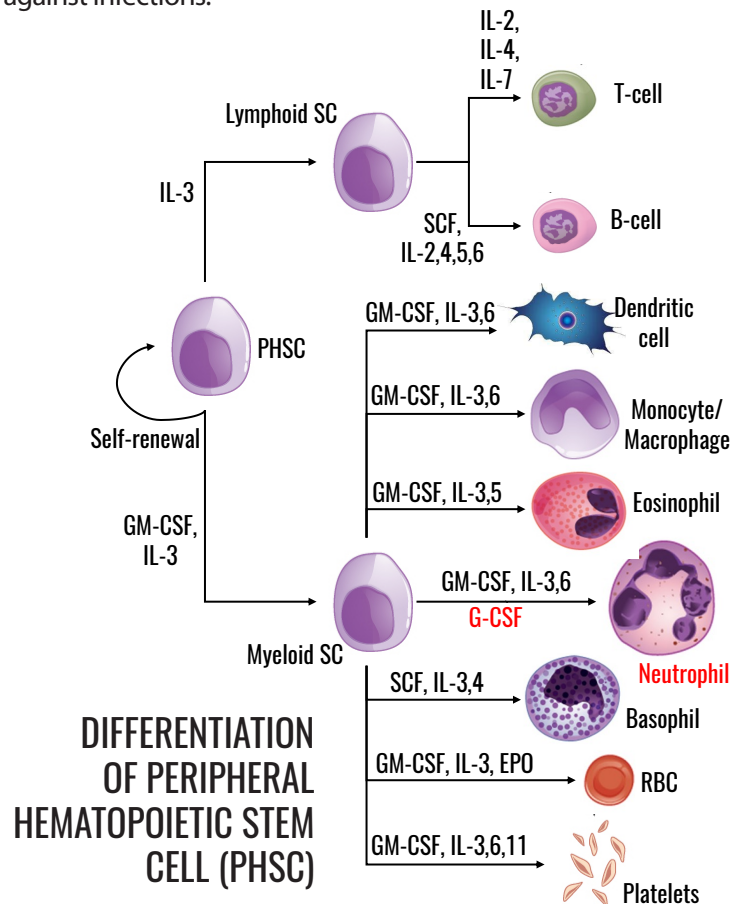
Cancer refers to a group of diseases in which some of the body's cells do not respond to cell growth and death signals and thus grow in an uncontrolled manner. Cancerous tumours spread to other parts of the body.

Chemotherapy is a type of cancer treatment which uses cytotoxic drugs that kill fast-growing tumor cells. Chemotherapy, however, not only kills fast-growing cancer cells, but also healthy normal cells that grow and divide quickly like blood-forming cells in the bone marrow, hair follicles, cells in the mouth, digestive tract, reproductive system, etc. Cancer patients experience a temporary reduction in their white blood cell counts as a result of chemotherapy.

Neutrophils, a type of white blood cells play an important role in protection against infections.

Neutropenia is a condition that occurs when the number of the neutrophils in the blood is lower than normal, predisposing cancer patients to potentially life-threatening infections, from bacteria and fungi.

Nearly 50% people with cancer who receive chemotherapy have some level of neutropenia² and requires hospitalization for treatment of severe cases. Risk of infection and mortality increases with the degree and duration of the neutropenic episode and the presence of fever.³



Filgrastim and its long lasting pegylated version will be in high demand because of increase in the number of cancer patients with every passing day.

Gennova's innovation around high cell density fermentation and genetic manipulations for its microbial products has increased the productivity by manyfold.

Gennova is one of the leading manufactures of G-CSF and PEG-G-CSF in India and intends to globally launch these two molecules.

Gennova aspires to transform the healthcare of millions of people through the implementation of technological solutions for cancer patients.

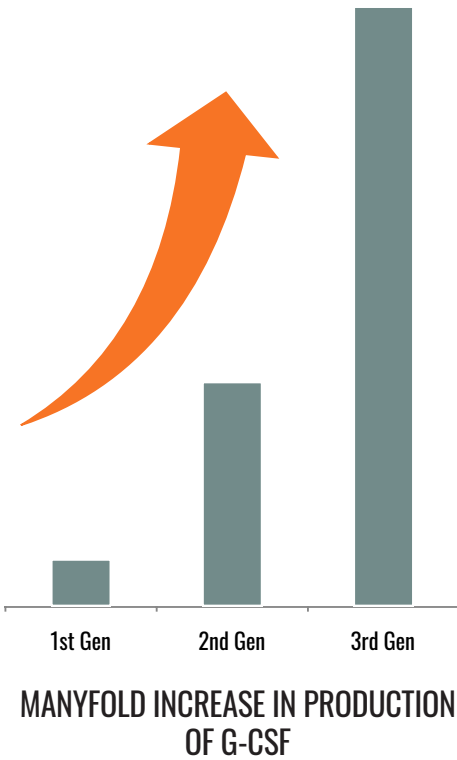
GENNOVA'S INNOVATION

Currently, the standard treatment for chemotherapy-induced neutropenia is the use of a granulocyte colony-stimulating factor (G-CSF) to attenuate white blood cell counts and absolute neutrophil counts (ANCs).

G-CSF, a biosimilar was developed and marketed by Gennova in India under the brand name **Xgrast®**. The product was launched in 2010, and is indicated for use in cancer patients.

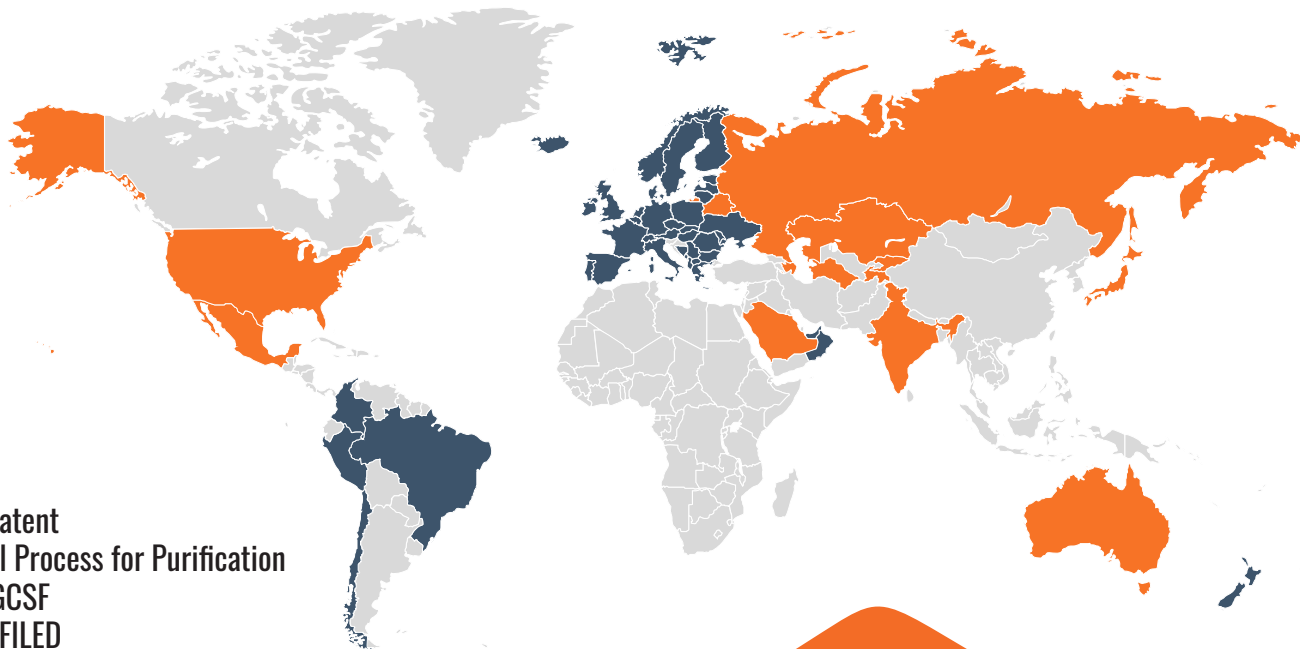
PEG-G-CSF is a covalent conjugate of recombinant methionyl human G-CSF (Filgrastim) and monomethoxypolyethylene glycol 20,000. A biosimilar pegfilgrastim was developed and marketed by Gennova in India under the brand name **PEGEX®**. Launched in 2010, **PEGEX®** is indicated for use in cancer patients.

Filgrastim and pegylated filgrastim are currently used in cancer patients for accelerated recovery from neutropenia and myelosuppression due to chemotherapy.

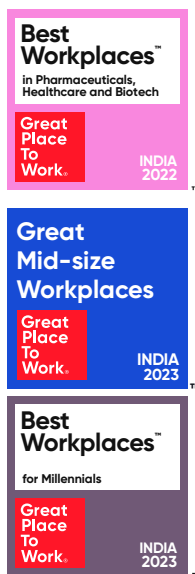


1. <https://www.who.int/news-room/fact-sheets/detail/cancer>
2. <https://www.cancer.net/coping-with-cancer/physical-emotional-and-social-effects-cancer/managing-physical-side-effects/neutropenia>
3. <https://acsjournals.onlinelibrary.wiley.com/doi/10.1002/cncr.20983>

Global Patent for Novel Process for Purification of rHU-GCSF



Maps are for graphical purposes only and not to scale.



Gennova Biopharmaceuticals Limited, headquartered in Pune, India, is a biotechnology company dedicated to the development, production and commercialization of bio-therapeutics to address life-threatening diseases across various indications. Incorporating recombinant DNA technologies together with innovative bio-manufacturing practices, Gennova has created cost effective solutions for manufacturing and successfully commercializing bio-therapeutics across cardiovascular, neurology, nephrology and oncology markets. Gennova has developed an mRNA-based platform technology for a COVID-19 vaccine.

GENNOVA

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Manufacturing Address:

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Pune – 411 057, Maharashtra, India