

MEDIA & INVESTOR RELEASE

Novartis Kymriah® receives FDA Regenerative Medicine Advanced Therapy designation in follicular lymphoma

- *If approved, relapsed or refractory (r/r) follicular lymphoma would become the third B-cell malignancy indication for Kymriah, joining approvals in children and young adults with r/r ALL, and adults with r/r DLBCL*
- *The Regenerative Medicine Advanced Therapy (RMAT) designation reflects the unmet need for patients with r/r follicular lymphoma*
- *US regulatory filing for Kymriah in r/r follicular lymphoma anticipated in 2021*

Basel, April 22, 2020 — Novartis today announced that the US Food and Drug Administration (FDA) granted Regenerative Medicine Advanced Therapy (RMAT) designation to Kymriah® (tisagenlecleucel), for an investigational new indication to treat patients with relapsed or refractory (r/r) follicular lymphoma (FL). Kymriah, which is designed to be a one-time treatment, is the first-ever FDA-approved CAR-T cell therapy. The potential approval in r/r FL will be the third indication for Kymriah, which also has indications in r/r pediatric and young adult acute lymphoblastic leukemia (ALL), and r/r adult diffuse large B-cell lymphoma (DLBCL).

“This designation supports the advancement of Kymriah, which could potentially address an unmet need in certain patients with follicular lymphoma, as we strive to reimagine medicine at Novartis. These patients are often faced with the burden of several years of various treatments as their disease continues to progress.” said John Tsai, MD, Head of Global Drug Development and Chief Medical Officer, Novartis.

Follicular lymphoma, the second most common form of non-Hodgkins lymphoma (NHL)^{1,2}, is an indolent lymphoma, and represents approximately 22% of NHL cases¹. Despite new treatments that improve overall survival, FL is regarded as an incurable malignancy with a relapsing and remitting pattern³. Although patients in third or later line treatment for FL have multiple systemic therapies available, the efficacy of these regimens drops off rapidly in later lines⁴. Throughout the lifetime of a relapsing FL patient, they may be exposed to a median of five lines of prior treatment, with an upper range of 12 lines^{5,6}. There also is an unmet need in people who are refractory to treatment or quickly relapse, who may exhaust treatment options while they are still healthy enough to receive active treatment⁴.

The RMAT designation program is part of the 21st Century Cures Act. The program was created to expedite the development and review of regenerative medicine therapies intended to treat, modify, reverse or cure a serious condition. The FDA granted RMAT designation for Kymriah in FL based on preliminary clinical evidence from the ELARA clinical trial, an ongoing

multi-center, phase II study to determine the efficacy and safety of tisagenlecleucel in adult patients with relapsed or refractory FL.

Kymriah was developed in collaboration with the Perelman School of Medicine at the University of Pennsylvania, a strategic alliance between industry and academia which was first-of-its-kind in CAR-T research and development.

Kymriah® (tisagenlecleucel) US Important Safety information

Kymriah may cause side effects that are severe or life-threatening, such as Cytokine Release Syndrome (CRS) or Neurological Toxicities. Patients with CRS may experience symptoms including difficulty breathing, fever (100.4°F/38°C or higher), chills/shaking chills, severe nausea, vomiting and diarrhea, severe muscle or joint pain, very low blood pressure, or dizziness/lightheadedness. Patients may be admitted to the hospital for CRS and treated with other medications.

Patients with neurological toxicities may experience symptoms such as altered or decreased consciousness, headaches, delirium, confusion, agitation, anxiety, seizures, difficulty speaking and understanding, or loss of balance. Patients should be advised to call their healthcare provider or get emergency help right away if they experience any of these signs and symptoms of CRS or neurological toxicities.

Because of the risk of CRS and neurological toxicities, Kymriah is only available through a restricted program under a Risk Evaluation and Mitigation Strategy (REMS) called Kymriah REMS.

Serious allergic reactions, including anaphylaxis, may occur after Kymriah infusion. Kymriah can increase the risk of life-threatening infections that may lead to death. Patients should be advised to tell their healthcare provider right away if they develop fever, chills, or any signs or symptoms of an infection.

Patients may experience prolonged low blood cell counts (cytopenia), where one or more types of blood cells (red blood cells, white blood cells, or platelets) are decreased. The patient's healthcare provider will do blood tests to check all of their blood cell counts after treatment with Kymriah. Patients should be advised to tell their healthcare provider right away if they get a fever, are feeling tired, or have bruising or bleeding.

Patients may experience hypogammaglobulinemia, a condition in which the level of immunoglobulins (antibodies) in the blood is low and the risk of infection is increased. It is expected that patients may develop hypogammaglobulinemia with Kymriah, and may need to receive immunoglobulin replacement for an indefinite amount of time following treatment with Kymriah. Patients should tell their healthcare provider about their treatment with Kymriah before receiving a live virus vaccine.

After treatment with Kymriah, patients will be monitored lifelong by their healthcare provider, as they may develop secondary cancers or recurrence of their cancer.

Patients should not drive, operate heavy machinery, or do other dangerous activities for eight weeks after receiving Kymriah because the treatment can cause temporary memory and coordination problems, including sleepiness, confusion, weakness, dizziness, and seizures. Some of the most common side effects of Kymriah are difficulty breathing, fever (100.4°F/38°C or higher), chills/shaking chills, confusion, severe nausea, vomiting and diarrhea, severe muscle or joint pain, very low blood pressure, dizziness/lightheadedness, and headache. However, these are not all of the possible side effects of Kymriah. Patients should talk to their healthcare provider for medical advice about side effects.

Prior to a female patient starting treatment with Kymriah, their healthcare provider may do a pregnancy test. There is no information available for Kymriah use in pregnant or breast-

feeding women. Therefore, Kymriah is not recommended for women who are pregnant or breast feeding. Patients should talk to their healthcare provider about birth control and pregnancy.

Patients should tell their healthcare provider about all the medicines they take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. After receiving Kymriah, patients should be advised that some commercial HIV tests may cause a false-positive test result. Patients should also be advised not to donate blood, organs, or tissues and cells for transplantation after receiving Kymriah.

Please see the full Prescribing Information for Kymriah, including Boxed WARNING, and Medication Guide at www.Kymriah.com

Disclaimer

This press release contains forward-looking statements within the meaning of the United States Private Securities Litigation Reform Act of 1995. Forward-looking statements can generally be identified by words such as “potential,” “can,” “will,” “plan,” “may,” “could,” “would,” “expect,” “anticipate,” “seek,” “look forward,” “believe,” “committed,” “investigational,” “pipeline,” “launch,” or similar terms, or by express or implied discussions regarding potential marketing approvals, new indications or labeling for the investigational or approved products described in this press release, or regarding potential future revenues from such products. You should not place undue reliance on these statements. Such forward-looking statements are based on our current beliefs and expectations regarding future events, and are subject to significant known and unknown risks and uncertainties. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those set forth in the forward-looking statements. There can be no guarantee that the investigational or approved products described in this press release will be submitted or approved for sale or for any additional indications or labeling in any market, or at any particular time. Nor can there be any guarantee that such products will be commercially successful in the future. In particular, our expectations regarding such products could be affected by, among other things, the uncertainties inherent in research and development, including clinical trial results and additional analysis of existing clinical data; regulatory actions or delays or government regulation generally; global trends toward health care cost containment, including government, payor and general public pricing and reimbursement pressures and requirements for increased pricing transparency; our ability to obtain or maintain proprietary intellectual property protection; the particular prescribing preferences of physicians and patients; general political, economic and business conditions, including the effects of and efforts to mitigate pandemic diseases such as COVID-19; safety, quality, data integrity or manufacturing issues; potential or actual data security and data privacy breaches, or disruptions of our information technology systems, and other risks and factors referred to in Novartis AG’s current Form 20-F on file with the US Securities and Exchange Commission. Novartis is providing the information in this press release as of this date and does not undertake any obligation to update any forward-looking statements contained in this press release as a result of new information, future events or otherwise.

About Novartis

Novartis is reimagining medicine to improve and extend people’s lives. As a leading global medicines company, we use innovative science and digital technologies to create transformative treatments in areas of great medical need. In our quest to find new medicines, we consistently rank among the world’s top companies investing in research and development. Novartis products reach nearly 800 million people globally and we are finding innovative ways to expand access to our latest treatments. About 109,000 people of more than 145 nationalities work at Novartis around the world. Find out more at <https://www.novartis.com>.

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