MEDICATION GUIDE

SKYSONA® (pronounced *sky-SO-nuh*)

(elivaldogene autotemcel)

What is the most important information I or my caregiver should know about SKYSONA?

SKYSONA may cause cancer of the blood and bone marrow, which can be life-threatening and lead to death. Blood cancer has resulted from treatment with SKYSONA because cancer-causing genes have been turned on by the gene therapy. Patients have developed cancer as early as one year after SKYSONA administration, prior to SKYSONA having time to potentially help their CALD. Blood cancer can also take years to develop, and has been diagnosed as late as 7.5 years later. Because SKYSONA was approved while patients were still being evaluated for the risk of cancer, the percent of patients who will develop cancer and the maximum timeframe when cancer caused by SKYSONA could develop is unknown. Blood cancer is usually treated with chemotherapy and may require stem cell transplant. Stem cell transplant using cells from a donor have been used to treat children diagnosed with blood cancer that was caused by SKYSONA. Blood cancers, including those following SKYSONA treatment, will lead to death if not treated. Treatment of blood cancer has led to death due to complications. Because of the risk of cancer caused by SKYSONA, your doctor may recommend that you are evaluated by a hematologist to determine if you have underlying risk factors that could further increase your risk for cancer and change whether SKYSONA is appropriate for you.

Before you are treated with SKYSONA, you should have a detailed discussion with your doctor about the risks and benefits of SKYSONA and alternative treatment options. Alternative treatment may include an allogeneic hematopoietic stem cell transplant. Discuss with your physician the possibility of a stem cell transplant using cells from a suitable and willing matched sibling donor if one is available.

Because of the risk of cancer, it is important for you to be monitored lifelong. At a minimum we recommend blood tests every 3 months for 15 years. Blood tests will look at your blood cell counts and the locations in your blood cells where the gene therapy is inserted. If your blood counts are too low or too high, or if you have lots of cells with the same gene therapy insertion sites, additional testing may be recommended. Additional testing might include more frequent blood tests to watch you more closely for changes in your blood. Additional testing could also include a bone marrow evaluation, which can tell your doctor more than blood tests about the health of your bone marrow and if there is cancer forming.

If blood cancer develops quickly or if you have not been having the recommended blood or bone marrow tests, you might experience symptoms of cancer before it is diagnosed. You or your caregiver should call your healthcare provider right away for any of these signs or symptoms:

- Abnormal bruising or bleeding (including nosebleed)
- Blood in urine, stool, or vomit
- Coughing up blood
- Severe headache
- Unusual stomach or back pain
- Fever (100.4°F/38°C or higher)
- Swollen glands
- Abnormal tiredness

If you are diagnosed with a cancer, have your treating physician contact bluebird bio at 1-833-999-6378.

SKYSONA may cause life-threatening allergic reactions as it contains DMSO, a commonly used preserving agent. Please inform your healthcare provider if you have been told that your child has a DMSO allergy or has experienced a reaction after receiving a DMSO-containing product.

It is important that you or your caregiver tell your healthcare providers that you have received SKYSONA.

What is SKYSONA?

SKYSONA is a one-time gene therapy to treat boys with early, active cerebral adrenoleukodystrophy (CALD). CALD is a genetic disease caused by mutations in the *ABCD1* gene that lead to the buildup of very long chain fatty acids (VLCFAs) in the brain. These VLCFAs may destroy the protective covering around nerve cells and cause damage to the brain. Once this occurs, this damage can be seen on magnetic resonance imaging (MRI) of the brain, which is when the cerebral form of adrenoleukodystrophy (CALD) is diagnosed. SKYSONA may be recommended if this damage is determined to be early (based on a lesser degree of the damage on MRI) and if cerebral disease is active (based on presence of contrast enhancement on MRI that indicates this damage is ongoing). SKYSONA is made specifically for each patient, using the patient's own blood stem cells and adds functional copies of the *ABCD1* gene to your cells. This may help your body to break down the VLCFAs to slow the progression of damage to the brain and slow the decline in neurologic function.

How will I get SKYSONA?

Before treatment: Your healthcare providers will give you other medicines, including chemotherapy medicine, as part of your treatment before you are given SKYSONA. It's important that you or your caregiver talk to your healthcare providers about the risks and benefits of all medicines involved in your treatment.

After receiving the chemotherapy, it may not be possible for you to father a child. You or your caregiver should consider discussing options for fertility preservation with your doctor before treatment.

STEP 1: SKYSONA is made specifically for you from your own blood stem cells. Your healthcare provider will collect your blood stem cells through a process called mobilization and apheresis *(A-feh-REE-sis)*. This process takes approximately one week.

'Back-up' stem cells (or 'rescue cells') are also collected and stored at the hospital. This is a precaution in case there is a problem during the treatment process. If this happens, your back-up stem cells will be given back to you. If you receive back-up cells, you will have no benefit from SKYSONA.

STEP 2: Your blood stem cells will be sent to a manufacturing site where they are used to make SKYSONA. It takes approximately 51 – 65 days from the time your cells are collected to make and test SKYSONA before it is shipped to your healthcare providers, but the time may vary.

STEP 3: Before you receive SKYSONA, your healthcare providers will give you chemotherapy for a few days to make room in the bone marrow. You will be admitted to the hospital for this step and remain in the hospital until after SKYSONA infusion.

STEP 4: SKYSONA is given by an intravenous infusion (into your vein). You may receive one or two bags of SKYSONA. Each bag is infused in less than 60 minutes.

After SKYSONA infusion, you may stay in the hospital for up to approximately 2 months so that your healthcare team can closely monitor your recovery. Your healthcare providers will determine when you can go home.

What should I avoid after receiving SKYSONA?

- Do not donate blood, organs, tissues or cells.

What are the possible or reasonably likely side effects of SKYSONA?

There is a risk of blood cancer following treatment with SKYSONA which will require lifelong monitoring. You will be monitored at least every 3 months for a minimum of 15 years for this.

Possible or reasonably likely side effects when treated with SKYSONA are:

- While receiving chemotherapy to prepare your body for SKYSONA:
  - Nausea, vomiting, decreased appetite, constipation, abdominal pain
  - Headache

- Rash

- On the day of treatment with SKYSONA
  - Life-threatening allergic reaction
  - Nausea, vomiting

- Following treatment
  - **Blood cancer.** Refer to "What is the most important information I or my caregiver should know about SKYSONA?"
  - **Low blood counts leading to a risk of bleeding and/or infection**. Until your blood counts (platelets, white blood cells, red blood cells) return to safe levels, you may be treated with blood and platelet transfusions and other medicines that prevent bleeding and infection by increasing your blood counts. Most patients' blood counts return to safe levels in about one month after treatment with SKYSONA. Some patients' blood counts may not recover for > 1 year. Tell your healthcare provider right away if you get a fever, are feeling tired, or have easy bleeding or bruising.
  - **Life-threatening infections.** Patients treated with SKYSONA may experience serious or life-threatening infections, including infections of the bloodstream by bacteria or viruses. Infections often occur in the first 1 or 2 months after treatment with SKYSONA, but can occur > 1 year later. Tell your healthcare provider right away if you develop fever, chills, or any signs or symptoms of an infection.
  - Inflamed and painful mouth (this typically occurs during the first 2 months after SKYSONA treatment)
  - Nausea, vomiting, decreased appetite, constipation, abdominal pain, diarrhea
  - Headache
  - New onset seizures

These are not all the possible side effects of SKYSONA. Your healthcare providers may give you other medicines to treat your side effects. Call your doctor for medical advice about side effects. You may report side effects to the FDA at 1-800-FDA-1088 or to bluebird bio at 1-833-999-6378.

General information about the safe and effective use of SKYSONA.

Because of the risk of blood cancer, it is important for you to be monitored lifelong. At a minimum we recommend blood tests every 3 months for 15 years.

SKYSONA treatment failures have been reported and progression of CALD may occur. After treatment with SKYSONA you will need to continue to follow-up with your doctor who will monitor you for any clinical and radiographic worsening of CALD.

Treatment with SKYSONA may cause a false-positive human immunodeficiency virus (HIV) test result by some commercial tests. If you need to have an HIV test, talk with your healthcare provider about the appropriate test to use.

Medicines are sometimes prescribed for purposes other than those listed in a Medication Guide. Talk to your healthcare provider about any concerns. You can ask your healthcare provider for information about SKYSONA that is written for healthcare professionals.

For more information, go to SKYSONA.com or call 1-833-666-2583 for bluebird Patient Services (*my bluebird support*).

Manufactured for and distributed by: **bluebird bio, Inc., Somerville, Massachusetts 02145**

This Medication Guide has been approved by the U.S. Food and Drug Administration.

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