






Up Close with Mosunetuzumab

This section provides an overview of mosunetuzumab-axgb (LUNSUMIO™).

-  Indications
-  Dosing and Administration
-  CRS
-  Neurotoxicity (including ICANS)
-  Other Toxicities

Indications

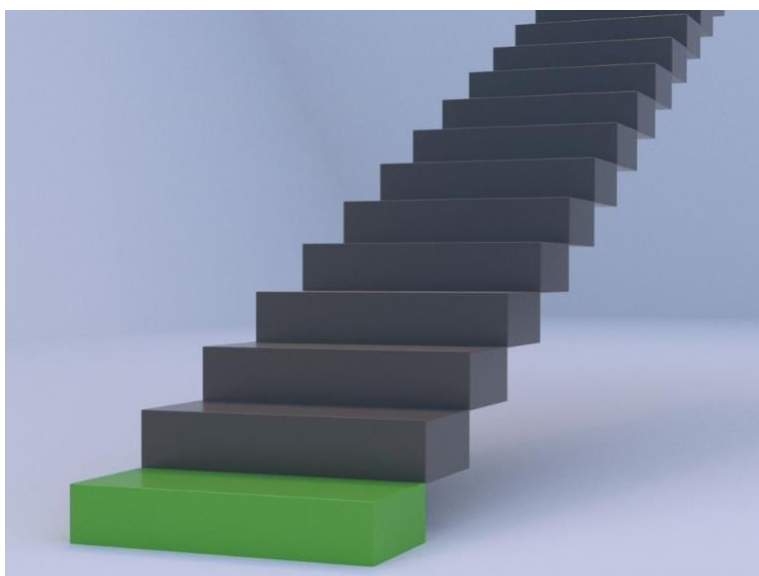


Mosunetuzumab is a **bispecific CD20-directed CD3 T-Cell engager** indicated for the treatment of:

- Adult patients with **relapsed or refractory follicular lymphoma**, who have previously received **2 or more lines of systemic therapy**.

Note: These indications are approved under accelerated approval based on response rate and durability of response. Continued approval may be contingent upon verification of clinical benefit in confirmatory trials.

Dosing and Administration



Mosunetuzumab is administered **intravenously (IV)** in **21-day cycles** for **8 consecutive cycles**, or until disease progression and/or unacceptable toxicity. Mosunetuzumab has a **unique step-up dosing** schedule as shown below to reduce the risk of cytokine release syndrome (CRS).

Mosunetuzumab Step-Up Dosing Schedule			
Treatment Cycles		Dose of Mosunetuzumab / Route	Duration of Infusion
Cycle 1 ^a	Day 1	1 mg IV	Administer over a minimum of 4 hours.
	Day 8	2 mg IV	
	Day 15	60 mg IV	
Cycle 2 ^a	Day 1	60 mg IV	If infusions from Cycle 1 were well-tolerated, mosunetuzumab may be administered over 2 hours for subsequent cycles.
Cycle 3+ ^b	Day 1	30 mg IV	
PO, orally			
^a Cycle 1 and 2 pre-medications (all patients) <ul style="list-style-type: none">• Premedicate with dexamethasone 20 mg IV or methylprednisolone 80 mg IV and complete at least 1 hour prior to infusion of mosunetuzumab.• Premedicate with diphenhydramine 50 mg to 100 mg IV/PO or equivalent antihistamine and complete at least 30 minutes prior to infusion of mosunetuzumab.• Premedicate with acetaminophen 500 mg to 1000 mg PO and complete at least 30 minutes prior to infusion of mosunetuzumab.			
^b Cycle 3+ premedications (any patient that experienced CRS of any grade with a previous dose) <ul style="list-style-type: none">• Premedicate with dexamethasone 20 mg IV or methylprednisolone 80 mg IV and complete at least 1 hour prior to infusion of mosunetuzumab.• Premedicate with diphenhydramine HCl 50 mg to 100 mg IV/PO or equivalent antihistamine and complete at least 30 minutes prior to infusion of mosunetuzumab.• Premedicate with acetaminophen 500 mg to 1000 mg PO and complete at least 30 minutes prior to infusion of mosunetuzumab.			

There are **specific recommendations** for the number of cycles recommended, pending response to mosunetuzumab.

- For patients **who achieve a complete response upon completion of cycle 8:**
 - No further subsequent treatment is required.
- For patients **who receive a partial response or have stable disease in response to mosunetuzumab after 8 cycles:**
 - Patients should receive an additional 9 cycles of mosunetuzumab (17 total).

Recommendations for Restarting Therapy with Mosunetuzumab After Dosage Delay			
Patient's Treatment History		Time Elapsed Since Last Dose	Recommended Next Actions
Cycle 1			
Day 1	1 mg	1 to 2 weeks	Administer 2 mg (Cycle 1 Day 8), then continue treatment plan as scheduled.
		> 2 weeks	Repeat 1 mg (Cycle 1 Day 1), then administer 2 mg (Cycle 1 Day 8) and resume treatment plan as scheduled.
Day 8	2 mg	1 to 2 weeks	Administer 60 mg (Cycle 1 Day 15), then resume treatment plan as scheduled.
		> 2 to < 6 weeks	Repeat 2 mg (Cycle 1 Day 8), then administer 60 mg (Cycle 1 Day 15), then resume treatment plan as scheduled.
		≥6 weeks	Repeat 1 mg (Cycle 1 Day 1), 2 mg (Cycle 1 Day 8), and then administer 60 mg (Cycle 1 Day 15) and resume treatment plan as scheduled.
Day 15	60 mg	1 to < 6 weeks	Administer 60 mg (Cycle 2 Day 1), then resume treatment plan as scheduled.
		≥6 weeks	Repeat 1 mg (Cycle 2 Day 1), 2 mg (Cycle 2 Day 8), then administer 60 mg (Cycle 2 Day 15). Upon completion, administer 40 mg (Cycle 3 Day 1) and resume treatment plan as scheduled.
Cycle 2			
Day 1	60 mg	3 to < 6 weeks	Administer 30 mg (Cycle 3 Day 1) and continue treatment plan as scheduled.
		≥ 6 weeks	Repeat 1 mg (Cycle 3 Day 1), 2 mg (Cycle 3 Day 8), and then administer 30 mg (Cycle 3 Day 15). Upon completion, administer 30 mg (Cycle 4 Day 1), and resume treatment plan as scheduled.
Cycle 3+			
Day 1	30 mg	3 to < 6 weeks	Administer 30 mg and continue treatment plan as scheduled.
		≥ 6 weeks	Repeat 1 mg on Day 1 and 2 mg on Day 8 of the next cycle. Upon completion, administer 30 mg on Day 15. ^a Moving forward, administer 30 mg on Day 1 of each subsequent cycle.
^a Administer pre-medications as described below for Days 1, 8, and 15 of doses in the next cycle			

⚠ CRS



What is it? Cytokine release syndrome (CRS) is a systemic inflammatory response that can occur when the immune system is activated and releases large amounts of cytokines—proteins that help regulate immune responses.

- **Signs and symptoms:** pyrexia, hypotension, hypoxia, dyspnea, chills, and tachycardia.
- CRS is frequently graded using the [American Society for Transplantation and Cellular Therapy \(ASTCT\) consensus criteria](#).

Why it matters. CRS occurred in **44%** of patients in the study GO29781.

- **Most CRS events occurred during Cycle 1**, with the **highest events occurring on Day 15 of Cycle 1**, which coincides with the **highest administered** dose of mosunetuzumab (**60 mg**).
 - The **median time to onset** of CRS across all doses was **27 hours** (range: 1 to 72 hours) post-administration.
 - Cycle 1 Day 1: ~5 hours
 - Cycle 1 Day 8: ~28 hours
 - Cycle 1 Day 15: ~25 hours
 - Cycle 2 Day 1: ~46 hours
 - The **median duration** of CRS was **3 days** (range: 1 to 29 days).
- **Concurrent neurological adverse reactions** associated with CRS **occurred in 6% of patients**, including, but not limited to anxiety, confusion, and headache.

The bottom line. CRS was primarily low-grade, predictable, and manageable.

🧠 Neurotoxicity (including ICANS)



What is it? Immune Effector Cell-Associated Neurotoxicity Syndrome (ICANS) is characterized by various neurological symptoms resulting from the activation of the immune system and the resultant inflammatory processes.

- **Signs and symptoms:** encephalopathy, headaches, seizures, aphasia, motor deficits, ataxia, and tremor.
- ICANS is frequently graded using the [ASTCT consensus criteria](#).

Why it matters. ICANS was reported in **1% of patients** in the clinical trial, however across a broader clinical trial population, ICANS **occurred or was suspected in 2.1%** of trial participants.

- The **time to onset** of ICANS or suspected ICANS was **17 days** (range: 1 to 48 days).
- ICANS resolved in most cases and lasted a few days.

The bottom line. ICANS was uncommon, primarily low-grade, and resolved in the majority of cases over a few days.

Other Toxicities



Mosunetuzumab can cause other adverse reactions such as **opportunistic infections, cytopenia, tumor flares, hemophagocytic lymphohistiocytosis, and embryo-fetal toxicity.**

Why it matters. In addition to the risks of CRS and neurotoxicity (including ICANS), care teams need to be on the lookout for other **mosunetuzumab-associated toxicities.**

Infections. Mosunetuzumab may cause serious and fatal infections.

- **Serious infections**, including opportunistic infections, occurred in **17% of patients**, with **Grade 3 or 4 infections in 14%**, and **fatal infections in 0.9%**.
 - The most common serious infections reported were pneumonia, sepsis, and upper respiratory tract infections.

The bottom line. Care teams should **monitor patients for signs of infection before and during treatment**; treat appropriately.

- Avoid administration in patients with active infections; withhold or discontinue mosunetuzumab based on severity.
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Cytopenias. Mosunetuzumab may cause serious or severe cytopenias, including anemia, neutropenia, and thrombocytopenia.

- In GO29781, **Grade 3 or 4 cytopenias** occurred in **up to 38% of patients** enrolled in the trial.
 - **Neutropenia, thrombocytopenia, and anemia** were reported in **38%, 12%, and 19%**, respectively.

The bottom line. Care teams should **monitor complete blood counts throughout treatment.**

- **Withhold or discontinue mosunetuzumab based on neutropenia severity**; consider prophylactic granulocyte colony-stimulating factor.

Tumor Flare. Mosunetuzumab may cause serious or severe tumor flare.

- Among the patients enrolled in GO29781, **4% of patients experienced tumor flare.**
 - Manifestations included, but were not limited to localized pain, swelling and pain at lymphoma lesions, tumor inflammation, and new or worsening pleural effusions.

The bottom line. Care teams should **monitor patients with bulky tumors or tumors in proximity to chest and airways.**

- Additionally, care teams should carefully **monitor patients for signs and symptoms of compression or obstruction due to a mass**, secondary to tumor flare.
- If these clinical manifestations are present, patients should be treated according to their institution's standard treatment.

Hemophagocytic Lymphohistiocytosis. Mosunetuzumab may cause a serious or fatal condition of hemophagocytic lymphohistiocytosis (HLH). HLH is a potentially life-threatening, hyperinflammatory syndrome that is not associated with CRS.

- Reports of HLH occurred in 0.5% (7/1536) of patients enrolled in a broader population of clinical trial. Of those 7 cases, 6 patients had fatal outcomes.
 - Manifestations of HLH include fever, hemophagocytosis, coagulopathy, splenomegaly, hepatitis, elevated ferritin, and cytopenias.

The bottom line. Care teams should **monitor for signs and symptoms of HLH**, and when the clinical presentation of CRS seems atypical and/or prolonged, patients should be considered for HLH.

- **Patients who are suspected to have HLH should withhold mosunetuzumab treatment** and should be treated for HLH per recommendations of practice guidelines.

Embryo-Fetal Toxicity. Mosunetuzumab may cause fetal harm when administered to a pregnant woman.

- Advise **females of reproductive potential** to use effective contraception **during treatment and for 3 months after the last dose.**
- Verify pregnancy status before initiating mosunetuzumab.

Use in Specific Populations

- **Lactation Use:** Advise women not to breastfeed during treatment and for 3 months after the last dose.
- **Geriatric Use:** At this time, there are no differences in safety or effectiveness of mosunetuzumab use in patients ≥ 65 years old compared to younger adults.
- **Pediatric Use:** The safety and efficacy of mosunetuzumab has not been established in pediatric patients.

Updated: 5/16/2025

References:

1. [Mosunetuzumab \(LUNSUMIO™\) \[package insert\]. Genentech, Inc. San Francisco, CA. 2024.](#)
2. [Lee DW, Santomaso BD, Locke FL, et al. ASTCT consensus grading for cytokine release syndrome and neurologic toxicity associated with immune effector cells. *Biol Blood Marrow Transplant.* 2019;25\(4\):625-638. doi:10.1016/j.bbmt.2018.12.758.](#)
3. [Budde LE, Sehn LH, Matasar M, et al. Safety and efficacy of mosunetuzumab, a bispecific antibody, in patients with relapsed or refractory follicular lymphoma: a single-arm, multicentre, phase 2 study. *Lancet Oncol.* Published online July 5, 2022. doi:10.1016/S1470-2045\(22\)00335-7.](#)