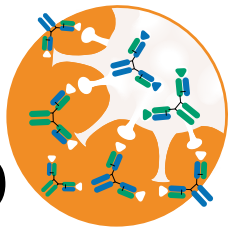
Monoclonal antibodies casirivimab and imdevimab for **COVID-19**



Active against alpha, beta, gamma, and delta variants of concern. Consider local epidemiological data since emerging evidence predicts decreased efficacy against Omicron.

Guidance for health care workers

WHO SHOULD GET CASIRIVIMAB AND IMDEVIMAB?

- Patients with confirmed **non-severe** COVID-19 at risk for progression of disease and hospitalization.

  Those at **highest risk** typically are:
  a) **older age**
  b) have **immunodeficiency** and **chronic disease**
  c) **unvaccinated**.

- Patients with confirmed **severe** or **critical** COVID-19 seronegative for SARS-CoV-2.

  Serologic testing should be conducted with tests that detect the presence of the SARS-CoV-2 spike protein antibodies.

Risk factors include: > 60 years, hypertension, diabetes, cardiac disease, chronic lung disease, cerebrovascular disease, dementia, mental disorders, chronic kidney disease, immunosuppression (including HIV), obesity and cancer.

Pregnancy, advanced maternal age, high BMI and chronic conditions are also risk factors.

There are **limited data regarding the use of casirivimab** and **imdevimab in pregnant women with COVID-19**. Decision regarding the use of this therapeutic will need to be made in consultation between the healthcare provider and patient.

Contraindications to casirivimab and imdevimab include individuals ≤12 years old, ≤40 kg, or allergic to a component of the therapeutic.

DOSAGE AND ROUTE

1. Individuals ≥ **12 years** of age and older and weighing ≥ **40 kg** should be given a single dose.
2. Total dosage should have **equal parts of casirivimab and imdevimab**.
3. Dose selection: determined based on clinical severity of patient.

Drug	Dose (non-severe disease)	Dose (severe or critical disease)
Casirivimab	IV 600 mg or 1200 mg; or SC 600 mg	IV 1200 mg or 4000 mg
Imdevimab	IV 600 mg or 1200 mg; or SC 600 mg	IV 1200 mg or 4000 mg
Total dose	IV 1200 mg or 2400 mg; or SC 1200 mg	IV 2400 mg or 8000 mg

Notes: IV – intravenous; SC – subcutaneous.

Intravenous infusion preferred

Store in a refrigerator in the original carton to protect from light 2-8 °C

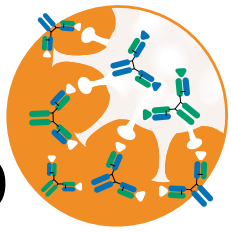
Do not freeze or shake -0 °C

World Health Organization

For detailed information, see WHO *Therapeutics and COVID-19: living guideline* – scan QR code.

https://www.who.int/publications/i/item/WHO-2019-nCoV-therapeutics-2021.4

Preparation of intravenous casirivimab and imdevimab for **COVID-19**



Guidance for health care workers

PREPARATION

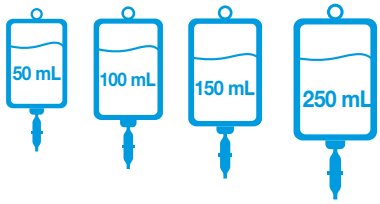
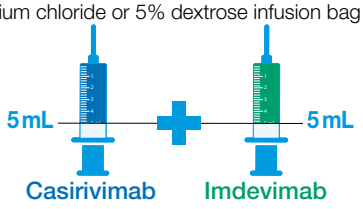
1. Wash hands per protocol and remove casirivimab and imdevimab vials from the refrigerator.
2. Allow to equilibrate to room temperature for **20 minutes** prior to preparation.
   - Ensure there is no discolouration or particulate matter of the product prior to administration.
   - If observed then discard.
3. Obtain a prefilled intravenous infusion bag of **sodium chloride** or **dextrose** solution.
   - To create space in the infusion bag for the monoclonal antibody, using a syringe and **aseptic non-touch technique**, withdraw the dose equivalent volume of fluid and discard.
4. Using a **separate syringe for each vial** of casirivimab and imdevimab, withdraw the appropriate amount of each product and inject separately into the infusion bag.
5. Gently invert infusion bag by hand 10 times to mix and immediately administer.
   - If unable to immediately administer infusion solution, then store in refrigerator at **2-8 °C** for up to **36 hours**.
   - It can be stored at room temperature (**25 °C**) for no more than **4 hours**.

If using the 20-mL vial of casirivimab or imdevimab and there is remaining product, it can be returned to the refrigerator and stored for a maximum of 48 hours per the WHO open vial policy.

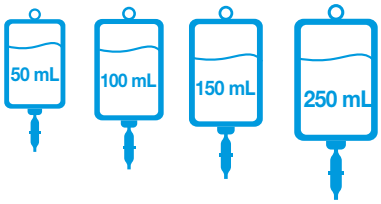
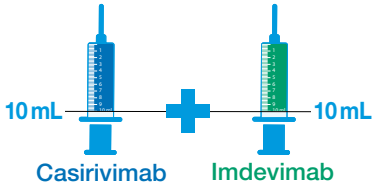
Infusion bag may be 50mL, 100 mL, 150 mL, or 250 mL of 0.9% sodium chloride or 5% dextrose injection.
If total dose of monoclonal antibody administered is 8000 mg use infusion bag > 150 mL.

DILUTION INSTRUCTIONS

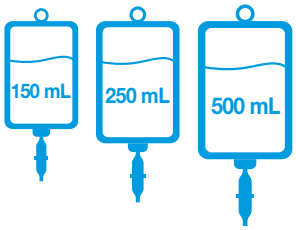
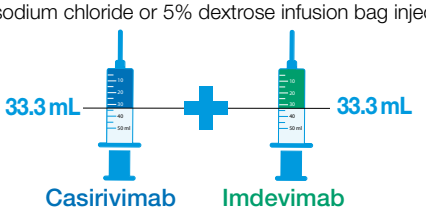
Casirivimab 600 mg + imdevimab 600 mg for intravenous infusion (total dose 1200 mg)

Size of prefilled infusion bag	Preparing casirivimab and imdevimab using individual vials[a]
	Into a prefilled 0.9% sodium chloride or 5% dextrose infusion bag inject  **5 mL of casirivimab** (use two 6-mL vials of casirivimab **OR** 5-mL of one 20-mL vial) **AND** **5 mL of imdevimab** (use two 6-mL vials of imdevimab **OR** 5-mL of one 20-mL vial)

Casirivimab 1200 mg + imdevimab 1200 mg for intravenous infusion (total dose 2400 mg)

Size of prefilled infusion bag	Preparing casirivimab and imdevimab using individual vials[a]
	Into a prefilled 0.9% sodium chloride or 5% dextrose infusion bag inject  **10 mL of casirivimab** (use four 6-mL vials of casirivimab **OR** 10-mL of one 20-mL vial) **AND** **10 mL of imdevimab** (use four 6-mL vials of imdevimab **OR** 10-mL of one 20-mL vial)

Casirivimab 4000 mg + imdevimab 4000 mg for intravenous infusion (total dose 8000 mg)

Size of prefilled infusion bag	Preparing casirivimab and imdevimab using individual vials[a]
	Into a prefilled 0.9% sodium chloride or 5% dextrose infusion bag inject  **33.3 mL of casirivimab** (use three 20-mL vials of casirivimab) **AND** **33.3 mL of imdevimab** (use three 20-mL vials of imdevimab)

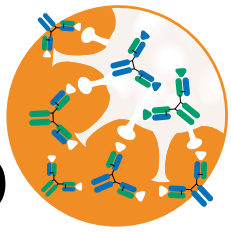
[a] Each 6-mL vial contains 2.5 mL of product. Concentration: 300 mg per 2.5 mL (120 mg/mL).
Each 20-mL vial contains 11.1 mL of product. Concentration: 1332 mg per 11.1 mL (120 mg/mL).

World Health Organization

For detailed information, see WHO *Therapeutics and COVID-19: living guideline* – scan QR code.

https://www.who.int/publications/i/item/WHO-2019-nCoV-therapeutics-2021.4

Infusion of Intravenous casirivimab and imdevimab for **COVID-19**



Guidance for health care workers

PREPARATION

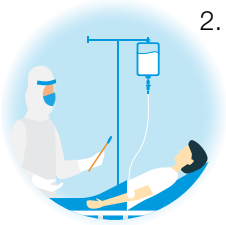
Casirivimab and Imdevimab should be administered by a qualified healthcare professional in a monitored setting.

Materials needed

- Polyvinyl chloride or polyurethane infusion set.
- In-line or add-on 0.2 micron polyethersulfone filter.

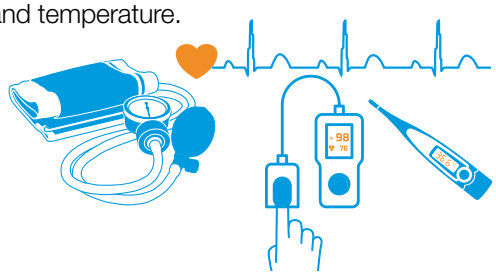
Instructions

1. Attach the infusion set to the infusion bag.
2. Prime the infusion set.
3. Administer the entire infusion solution in the infusion bag via pump or gravity through an intravenous line containing a sterile in-line or add-on 0.2 micron filter.

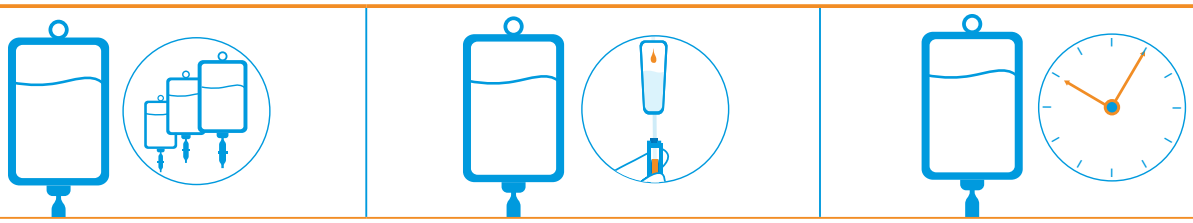


4. Do **NOT** administer the infusion solution with another medication.

5. Once the infusion is complete, flush the line with 0.9% sodium chloride or 5% dextrose.
6. **Clinically monitor** patient **during infusion** and for 1 hour **post infusion** at **15-minute intervals**.
   - Check blood pressure, heart rate, oxygen saturation and temperature.



ADMINISTRATION INSTRUCTIONS



Administration rate for casirivimab 600 mg + imdevimab 600 mg for intravenous infusion (total dose 1200 mg)

Size of prefilled infusion bag	Maximum infusion rate	Minimum infusion time
50 mL	150 mL/hour	20 minutes
100 mL	300 mL/hour	20 minutes
150 mL	450 mL/hour	20 minutes
250 mL	500 mL/hour	30 minutes

Administration rate for casirivimab 1200 mg + imdevimab 1200 mg for intravenous infusion (total dose 2400 mg)

Size of prefilled infusion bag	Maximum infusion rate	Minimum infusion time
50 mL	150 mL/hour	20 minutes
100 mL	300 mL/hour	20 minutes
150 mL	450 mL/hour	20 minutes
250 mL	500 mL/hour	30 minutes

Administration rate for casirivimab 4000 mg + imdevimab 4000 mg for intravenous infusion (total dose 8000 mg)

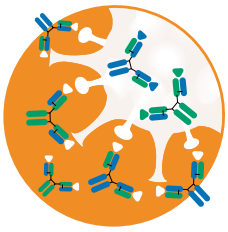
Size of prefilled infusion bag	Maximum infusion rate	Minimum infusion time
150 mL	150 mL/hour	60 minutes
250 mL	250 mL/hour	60 minutes
500 mL	500 mL/hour	60 minutes

World Health Organization

For detailed information, see WHO *Therapeutics and COVID-19: living guideline* – scan QR code.

https://www.who.int/publications/i/item/WHO-2019-nCoV-therapeutics-2021.4

Preparation and administration of subcutaneous casirivimab and imdevimab for **COVID-19**



Guidance for health care workers

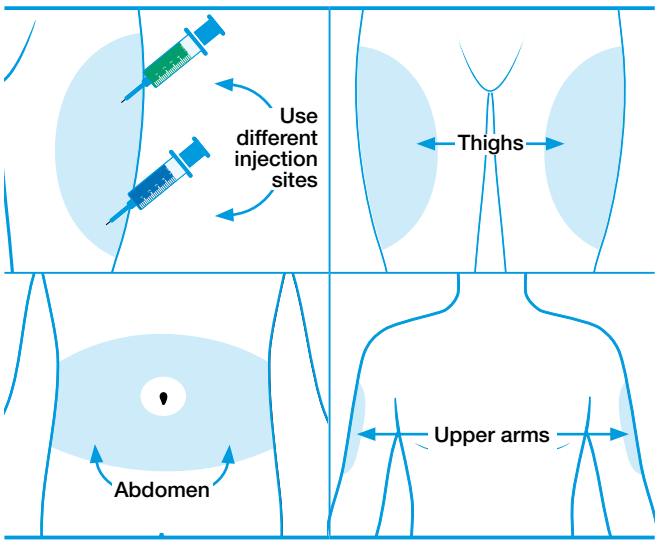
PREPARATION

1. Wash hands per protocol and remove casirivimab and imdevimab vials from the refrigerator.
2. Allow to equilibrate to room temperature for **20 minutes** prior to preparation.
   - Ensure there is no discolouration or particulate matter of the product prior to administration.
   - If observed then discard.
3. Subcutaneous (SC) injections of casirivimab and imdevimab should be administered **Independently** and not be mixed.
4. Withdraw the appropriate amount of casirivimab and imdevimab into **separate 3ml** or **5ml** syringes using **21-guage** transfer needles.
5. Replace the transfer needles with **25-guage** to **27-guage** needles for SC injection.
6. **Immediately administer the product.**
   - If unable to immediately administer, the prepared syringes can be stored at **room temperature** for up to **4 hours**.

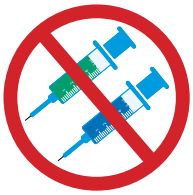
The maximum total dose of casirivimab and indevimab is 1200 mg SC.

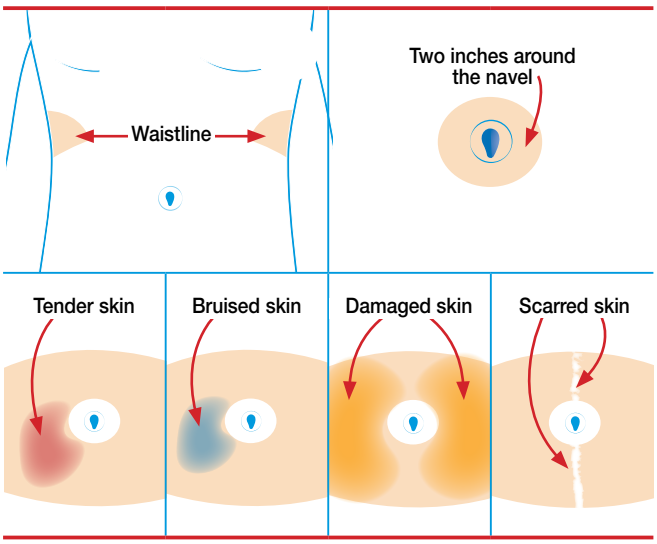
ADMINISTRATION INSTRUCTIONS

1. Administer **subcutaneous** injection of casirivimab and imdevimab consecutively at a different injection sites in the **thigh, abdomen** and **upper arm.**

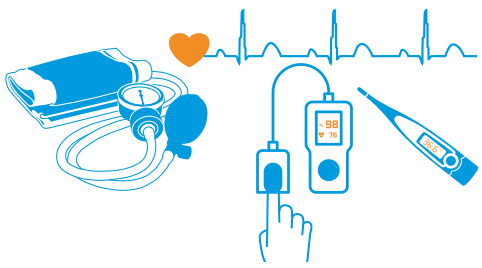


2. **Areas to avoid** include:
   - **waistline**
   - **two inches around the navel**
   - **skin that is tender**, **damaged**, **bruised** or **scarred**.





3. **Clinically monitor** patient **during infusion** and for 1 hour **post infusion** at **15-minute intervals.**
   - Check blood pressure, heart rate, oxygen saturation and temperature.

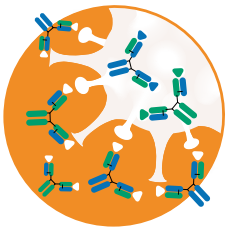


World Health Organization

For detailed information, see WHO *Therapeutics and COVID-19: living guideline* – scan QR code.

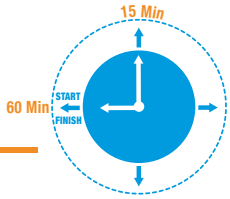
https://www.who.int/publications/i/item/WHO-2019-nCoV-therapeutics-2021.4

Safety and monitoring in patients receiving casirivimab and imdevimab for **COVID-19**



Guidance for health care workers

GENERAL MONITORING



- **Clinically monitor** patient **during infusion** and for 1 hour **post infusion** at **15-minute intervals.**
  - Check blood pressure, heart rate, oxygen saturation and temperature.

HYPERSENSITIVITY

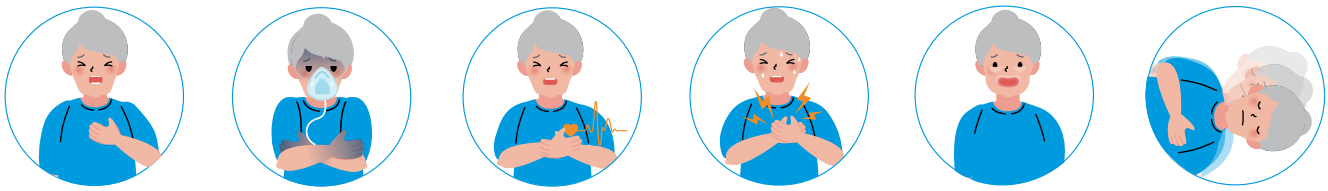
- Serious hypersensitivity reactions, including **anaphylaxis** have been reported with casirivimab and imdevimab.
- Hypersensitivity reactions occurring **> 24 hours** after administration of casirivimab and imdevimab have been reported.
- If signs or symptoms of a clinically significant hypersensitivity reaction or anaphylaxis occur, **immediately discontinue the infusion** and initiate appropriate medications, supportive therapy, and airway management.

MANAGEMENT OF ANAPHYLAXIS

- **Severe allergic reactions** can cause swelling of the airway and lead to trouble breathing.
- Give intramuscular adrenaline for airway obstruction, severe wheezing or shock. Since adrenaline can wear off in minutes, be prepared to administer additional doses. *(For further information please refer to QR code/link below.)*
- Make sure the patient has an IV for administration of intravenous fluids.
- Continue to (re)assess airway and administer oxygen as needed.
- If patient has severe anaphylaxis or is not improving, consider transferring to a higher level of care for further management.

INFUSION RELATED REACTIONS

- **Infusion related reactions** occurring during infusion and up to **24 hours** post infusion have been observed.
- They may be severe or life-threatening and you should consider slowing or stopping the infusion and providing appropriate medications and supportive care.
- These reactions may include (severe to mild)
  - Difficulty breathing
  - Bronchospasm
  - Hypotension
  - Angioedema
  - Syncope
  - Irregular heart beat
  - Reduced oxygenation
  - Chest pain or discomfort
  - Hypertension
  - Chills
  - Fever
  - Diaphoresis
  - Dizziness
  - Headache
  - Muscle aches
  - Throat irritation
  - Nausea
  - Fatigue
  - Weakness
  - Rash/pruritis



VACCINE ADMINISTRATION

- As a precautionary measure, vaccination for SARS-CoV-2 should be deferred for ≥ **90 days** in people who have received casirivimab and imdevimab. The antibody treatment may interfere with vaccine-induced immune responses.

REPORTING OF ADVERSE EVENTS

- **Report** all adverse events through local or national reporting system and to the manufacturer https://medinfo.roche.com/en/adverse-event.html

World Health Organization

Further details on basic emergency care can be accessed at https://www.who.int/publications/i/item/basic-emergency-care-approach-to-the-acutely-ill-and-injured

For detailed information, see WHO *Therapeutics and COVID-19: living guideline* – scan QR code. https://www.who.int/publications/i/item/WHO-2019-nCoV-therapeutics-2021.4