Anti-SARS-CoV-2 Monoclonal Antibodies (mAb)

Investigational medications approved for emergency use in patients by the FDA

May reduce progression to severe disease and shorten recovery in high-risk patients

**INDICATIONS**
- For **treatment** of patients (>12 years) with **mild to moderate** COVID-19 and **NOT requiring hospitalization or supplemental oxygen**
- For **post-exposure prophylaxis (PEP)** in patients (>12 years) who are nonvaccinated, incompletely vaccinated, or immunocompromised
- Must be given **within 10 days** of first symptoms of COVID-19 (or exposure for PEP)
- Treatment is usually IV; good evidence for SC administration for PEP and can be given SC if IV not feasible for treatment

**TYPES AVAILABLE IN THE US**

<table>
<thead>
<tr>
<th>Antibody Combination</th>
<th>Description</th>
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<tr>
<td>Bamlanivimab plus etesevimab</td>
<td>Neutralizing mAbs that bind to different, but overlapping, epitopes in the spike protein of SARS-CoV-2</td>
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<tr>
<td>Casirivimab plus imdevimab (REGEN-COV)</td>
<td>Recombinant human mAbs that bind to nonoverlapping epitopes in the spike protein of SARS-CoV-2</td>
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<tr>
<td>Sotrovimab</td>
<td>Originally identified in 2003 from a SARS survivor; targets an epitope in the spike protein that is conserved between SARS-CoV-1 and SARS-CoV-2</td>
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**SEVERAL MECHANISMS OF ACTION**

- **Neutralization**
  - Neutralizing antibody can prevent viral binding to cell
  - Binds (or opsonizes) the virions or infected cells to make phagocytic uptake easier

- **Opsonization**
  - Neutralization
  - Antibody-dependent cellular cytotoxicity

- **Complement-dependent cytotoxicity**
  - Can cause apoptosis or necrosis of the infected cell through complement fixation and membrane attack complex activation or antibody-dependent cytotoxicity
  - Release of granzyme and perforin-mediated cell apoptosis

**NIH GUIDELINES: WHO SHOULD GET mAb THERAPY?**
- Aged ≥65 years
- Obesity (BMI >30)
- Diabetes mellitus
- Cardiovascular disease
- Chronic lung diseases
- An immunocompromising condition or immunosuppressive treatment (eg, transplant, rheumatic diseases, HIV infection)
- Chronic kidney disease
- Pregnancy
- Sickle cell disease
- Neurodevelopmental disorders (eg, cerebral palsy) or other conditions that confer medical complexity (eg, genetic or metabolic syndromes and severe congenital anomalies)
- Medical-related technological dependence (eg, tracheostomy, gastrostomy, or positive pressure ventilation that is not related to COVID-19)