

## Direct Thrombin Inhibitors

**Mechanism of Action:** This medication class blocks the action of thrombin, a blood protein that causes the formation of blood clots.

Medications	Dosing/Applications	Side Effects	Drug Interactions	Warnings/Contraindications	Additional Information
Desirudin (Iprivask)	Prevention of DVT: 15 mg subcutaneous injection every 12 hours for 9-12 days	<p>Common: Nausea, bleeding, injection site reaction, wound secretion</p> <p>Serious: Anaphylaxis, allergic reactions, major bleeding, thrombosis, hypotension, leg edema/pain.</p>	<p>Drugs that cause the breakdown of Iprivask in the liver and may reduce its effect: Rifampin, Amiodarone, Verapamil, Quinidine</p> <p>Medications that may alter anticoagulant effect: Apixaban, Dabigatran, estrogens/progestins, monoclonal antibodies</p> <p>Medications that may increase risk of bleeding: Clopidogrel (Plavix), Apixaban, Dabigatran, NSAIDs (Ex. Ibuprofen, naproxen)</p>	<p>Anaphylaxis, active bleeding, renal impairment, elderly, <b>Black Box Warning (BBW):</b></p> <p>Spinal/epidural hematoma with anesthesia/spinal puncture</p> <p>Risk of bleeding increases with use of spinal catheters for administration of analgesia or concurrent use of NSAIDs, platelet inhibitors, or other anticoagulants.</p> <p>Pregnancy Category: C</p>	<p>Cost: \$180 for a 15 mg vial</p> <p>Antidote: None – May use activated prothrombin complex concentrate (PCC) or Recombinant factor VIIa (rFVIIa)</p> <p>Monitoring: aPTT and serum creatinine</p>

<p>Bivalrudin (Angiomax)</p>	<p>Percutaneous transluminal coronary angioplasty (PTCA) or Percutaneous Coronary Intervention (PCI) with or without Heparin induced thrombocytopenia (HIT): 0.75 mg/kg IV bolus followed by 1.75 mg/kg/hr (IV) for duration of procedure up to 4 hours.</p> <p>Unstable angina/non-ST elevation myocardial infarction (UA/NSTEMI) undergoing invasive procedure (IV): During PCI: 0.75 mg/kg bolus before procedure followed by 1.75 mg/kg/hour.</p>	<p>Common: Hypotension, pain, headache, nausea, bleeding, back pain, and pain at injection site.</p> <p>Serious: Major bleeding, hypersensitivity reaction including anaphylaxis, renal failure and reduced platelets</p>	<p>Medications that may alter anticoagulant effect: Apixaban, Dabigatran, estrogens/progestins, monoclonal antibodies</p> <p>Medications that may increase risk of bleeding: Clopidogrel (Plavix), Apixaban, Dabigatran, NSAIDs (Ex. Ibuprofen, naproxen)</p>	<p>Bleeding, clot formation, angina/acute coronary syndrome, renal impairment.</p> <p>Not for intramuscular administration.</p> <p>Do not use if there is a hypersensitivity to Angiomax or any component of the formulation.</p> <p>Pregnancy Category: B</p>	<p>Cost: \$1,068.96 for a 250 mg vial of powder for injection</p> <p>Antidote: None.</p> <p>Off-label use: PCC or rFVIIa</p> <p>Monitoring: ACT or aPTT</p>
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Argatroban	<p>*Only direct thrombin inhibitor not excreted renally*</p> <p>Prevention or treatment of clots in patients with HIT: 2 to 10 mcg/kg/min IV. adjusted to aPPT to 1.5-3 times the baseline</p> <p>Moderate-severe hepatic impairment (Child-Pugh B/C): 0.5 mcg/kg/min</p>	<p>Common: Bleeding, headache, nausea, vomiting, and diarrhea</p> <p>Serious: Life-threatening bleed, cardiac arrest, bradycardia/tachycardia, decreased Hct/Hg.</p>	<p>Medications that may alter anticoagulant effect: Apixaban, Dabigatran, estrogens/progestins, monoclonal antibodies</p> <p>Medications that may increase risk of bleeding: Clopidogrel (Plavix), Apixaban, Dabigatran, NSAIDs (Ex. Ibuprofen, naproxen)</p>	<p>Bleeding, hepatic impairment, critically ill patients</p> <p>Do not use in patients with an active bleed or hypersensitivity to argatroban</p> <p>Pregnancy Category: B</p>	<p>Cost: 50 mg in 50 mL is \$272.40</p> <p>100 mg in 2.5 mL is \$1,576.20</p> <p>Antidote: None. Off-label use: PCC or rFVIIa</p> <p>Monitoring: aPTT</p>
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<p>Dabigatran <a href="#">(Pradaxa)</a></p>	<p>Prevention of blood clots in patients with non-valvular atrial fibrillation: 150 mg orally twice daily. 75 mg twice daily for patients with reduced renal function (CrCl 15-30 mL/min)</p>	<p>Common: Bleeding, inflammation of the lining of the stomach, abdominal pain.</p> <p>Serious: Life-threatening bleed, anaphylaxis reactions</p>	<p>Drugs that cause the breakdown of Pradaxa in the liver and may reduce its effect: Rifampin Amiodarone Verapamil Quinidine</p> <p>Medications that may increase risk of bleeding: Clopidogrel (Plavix), aspirin, NSAIDS (ex. Ibuprofen, naproxen)</p>	<p>Bleeding, liver impairment, renal impairment, valvular disease, elderly patients, and surgery or invasive procedures.</p> <p>Increased risk of clots if Pradaxa is stopped suddenly</p> <p>Spinal/epidural bleeding with anesthesia/spinal puncture</p> <p>Pregnancy category: C</p>	<p>Cost: \$148-\$160 for 30 capsules</p> <p><a href="#">Antidote:</a> None. Off-label use: PCC or rFVIIa, concentrates of factors II, IX or X, dialysis, activated charcoal is ingested within 2hrs</p> <p>Monitoring: aPTT</p> <p>Discard within 120 days of opening. Keep in original packaging or vial that</p>
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