

# Ecarin

**Description:** Ecarin is a metalloprotease isolated from the venom of the saw-scaled viper (*Echis carinatus*) that activates prothrombin. Ecarin does not affect other clotting factors. The action of ecarin on prothrombin is independent of calcium, phospholipids and factor V. Moreover, Ecarin, in contrast to factor Xa, activates the acarboxy form of prothrombin present in plasma of patients undergoing oral anticoagulant therapy with vitamin K antagonists.

**Application:** Determination of prothrombin levels in patients undergoing anticoagulant therapy. Based on the interaction of hirudin with meizothrombin a simple ecarin clotting test for the monitoring of hirudin levels has been developed (Nowak and Bucha, 1993). Due to its action on acarboxy prothrombin, ecarin can be used for the determination of acarboxy prothrombin in the supernatant of barium sulfate treated patient plasma where normal carboxylated prothrombin has been removed by adsorption. Ecarin can be used for the detection of low prothrombin concentrations in plasma fractions for quality- and in-process control purposes. Ecarin, used in conjunction with the phospholipid- and calcium ion-dependent prothrombin activator Textarin® from *Pseudonaja textilis* venom, forms a highly sensitive and specific test system for lupus anticoagulant (Triplett et al., 1993).

**Origin:** *Echis carinatus* snake venom

**MW:** 55'000 to 60'000

**Package size:** Vial containing 50 U/ vial

**Code:** 116-01

**Reconstitution:** Reconstitute vial with HEPES-buffered saline (0.2 M) containing 0.025 M calcium chloride. Recommended final ecarin concentration: 4 - 8 U/ml.

**Stability:** Lyophilised in vials

**Storage:** May be used by the expiry date given on the label when stored unopened, protected from moisture, in the dark, 2° - 8°C. Avoid contamination of the reagents by micro-organisms. Shipment of product does not require cooling during the time of transportation.

**Storage after reconstitution:**

+2 to +8°C	7 days
- 20°C	6 months

The reconstituted product can be frozen immediately and stored at -20°C. Avoid refreezing.

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**References:** Triplett DA, Stocker KF, Unger GA, Barna LK. The Textarin/Ecarin ratio: a confirmatory test for lupus anticoagulants. *Thromb Haemost* 1993; 70: 925-31.

Nowak G. Monitoring of the action of antithrombin agents by ecarin clotting time. In: *New anticoagulants for the cardiovascular patient*. Pifarré R, ed. Philadelphia: Hanley & Belfus 1997; 539-48.

Pötzsch B, Madlener K, Seelig C, Riess CF, Greinacher A, Müller-Berghaus G. Monitoring of r-hirudin anticoagulation during cardiopulmonary bypass assessment of the whole blood ecarin clotting time. *Thromb Haemost* 1997; 77: 920-25.

Nowak G. Clinical Monitoring of Hirudin and Direct Thrombin Inhibitors. *Sem. Thromb Haemost* 2001; 27: 537-41.

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