

Everolimus Test Information

Everolimus is a derivative of Sirolimus that was developed to improve the pharmacokinetic characteristics (particularly the oral bioavailability) of Sirolimus. Everolimus has a mechanism of action similar to Sirolimus, which inhibits the mammalian target of rapamycin (mTOR) cellular signaling pathway. Everolimus is prescribed to organ, particularly kidney, transplant patients and may be used in patients with certain cancers. As one of the major immunosuppressive drugs (ISDs), therapeutic drug monitoring (TDM) of Everolimus is critical for the optimization of drug dosing and the minimization of drug toxicity. The recommended therapeutic range for Everolimus is 3 – 8 ng/mL in blood (1). Liquid chromatography-tandem mass spectrometry (LC-MS/MS) is currently the gold standard of quantification of whole blood Everolimus due to its superior specificity and sensitivity over traditional immunoassays (2). Our lab offers a fast and sensitive stable-isotope dilution LC-MS/MS assay of Everolimus based on a protein precipitation sample extraction method. Care should be taken to document the date, time, and amount of last Everolimus dose, as this information is important in the interpretation of Everolimus TDM data. For more information, call the lab at 513-636-4203.

Sample Type:

Whole blood (Lavender EDTA)

Volume:

3.0 mL

0.25 mL (minimum)

Specimen Preparation:

Whole blood, do not spin, refrigerate.

Unacceptable Specimens:

Serum, plasma, or clotted whole blood specimens.

Stability:

Ambient: 7 days

Refrigerated: 30 days

Methodology:

Liquid chromatography-tandem mass spectrometry (LC-MS/MS)

Reporting Units:

Quantitative: ng/mL

LC-MS/MS Calibration Range:

1 – 100 ng/mL

Therapeutic Range:

3 – 8 ng/mL

Shipping Conditions:

Refrigerated (cold pack), next day.

Testing Schedule:

Mon, Wed, Fri, 1st Shift (for testing outside this schedule, please call 513-636-4203). **Turnaround time:** 1 – 7 days.

CPT Code:

80169

Contact Information:

Clinical Mass Spectrometry

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Website: www.cincinnatichildrens.org/mass-spec

Shipping Address:

Clinical Mass Spectrometry Facility, MLC 7019

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References:

1. Kovarik JM, et al. Everolimus therapeutic concentration range defined from a prospective trial with reduced-exposure cyclosporine in de novo kidney transplantation. *Ther Drug Monit.* 2004 (26) 499-505.
2. McShane AJ, Bunch, DR, Wang S. Therapeutic drug monitoring of immunosuppressants by liquid chromatography-mass spectrometry. *Clinica Chimica Acta* 2016(454)1-5.