

# Sirolimus (Rapamycin) Test Information

Sirolimus, aka Rapamycin, is an immunosuppressive therapeutic drug that inhibits the mammalian target of rapamycin (mTOR) cellular signaling pathway. Sirolimus may be prescribed to organ, particularly kidney transplant patients, or patients with certain cancers. Patients that are administered Sirolimus therapy on an ongoing basis are monitored routinely for blood levels. The therapeutic range for Sirolimus is 5 – 15 ng/mL blood, and therapeutic drug monitoring (TDM) is an essential part of patient care. If a patient has a concentration of < 5 ng/mL, the dose may be too low to achieve the appropriate immunosuppression; if a patient has a concentration > 15 ng/mL, unwanted side-effects and toxicity may occur. Care should be taken to document the date, time, and amount of last Sirolimus dose, as this information is vitally important in the interpretation of Sirolimus TDM data. In addition to TDM, Sirolimus concentrations can also be evaluated in Pharmacokinetic (PK) studies. Liquid chromatography-tandem mass spectrometry (LC-MS/MS) delivers reliable Sirolimus concentrations, offering far greater specificity and sensitivity than immunoassays. 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 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:

5 – 15 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:

80195

## Contact Information:

Clinical Mass Spectrometry

Tel: 513-636-4203

Fax: 513-803-5014

Email: [pathology@cchmc.org](mailto:pathology@cchmc.org)

Website: <https://www.cincinnatichildrens.org/mass-spec>

## Shipping Address:

Clinical Mass Spectrometry Facility, MLC 7019

Department of Pathology and Laboratory Medicine

Cincinnati Children's Hospital Medical Center

240 Albert Sabin Way

Cincinnati, Ohio 45229-3039

## References:

1. Kahan BD, et al. Therapeutic drug monitoring of sirolimus: correlations with efficacy and toxicity. *Clin. Transplantation* 2000 (14):97-109.
2. McShane AJ, Bunch, DR, Wang S. Therapeutic drug monitoring of immunosuppressants by liquid chromatography-mass spectrometry. *Clinica Chimica Acta* 2016(454):1-5.
3. Jones K, et al. An immunoassay for the measurement of sirolimus. *Clin. Ther.* 2000(22) Suppl B. B49-61.
4. Yatscoff RW, et al. Measurement of rapamycin in whole blood using reverse-phase high-performance liquid chromatography. *Ther. Drug Monit.* 1992(14):138-141.