

Kratom, Umbilical Cord Tissue, Qualitative

Last Literature Review: October 2022 Last Update: August 2023

Kratom is a botanical extract derived from *Mitragyna speciosa*, an evergreen tree found throughout Southeast Asia. When used regularly, dependency and withdrawal are possible. Some case studies also suggest an association between use of kratom during pregnancy and neonatal abstinence syndrome (NAS).¹ Testing to identify fetal exposure to kratom may be useful to inform patient management, particularly in cases of NAS.

The alkaloid content of kratom can vary significantly based on several factors (eg, country of origin), though mitragynine (MG) is thought to be a highly prevalent alkaloid. Speciociliatine (SC) is another useful biomarker of exposure to kratom.¹ Including two unique analytes increases the likelihood of detecting an exposure.

Test Interpretation

Analytic Sensitivity/Specificity

Analysis for two kratom biomarkers improves the sensitivity and specificity of testing. Refer to analyte cutoff concentrations below.

Analyte	Cutoff Concentrations (ng/g)
Mitragynine	0.08
Speciociliatine	0.08

Results

Result	Interpretation	Additional Information
Present	Concentrations of the analyte(s) in question met or exceeded the established cutoff	Suggests maternal kratom use and fetal exposure during pregnancy A positive result is not predictive of neonatal outcomes
Not detected	Concentrations of the analyte(s) in question were below the established cutoff	Does not exclude the possibility of maternal kratom use and fetal exposure during pregnancy

Limitations

- The pattern and frequency of kratom use during pregnancy cannot be determined by this test.
- A negative result does not exclude the possibility of kratom use during pregnancy.
- Detection of kratom alkaloids in umbilical cord tissue depends on the extent of maternal use, as well as stability, the unique characteristics of alkaloid deposition in umbilical cord tissue, and the performance of the analytic method used.

References

1. Hughs M, Kish-Trier E, O'Brien A, et al. [Analysis of mitragynine and speciociliatine in umbilical cord by LC-MS/MS for detecting prenatal exposure to kratom.](#) *J Anal Toxicol.* 2023;46(9):957-964.

Featured ARUP Testing

[Kratom, Umbilical Cord, Qualitative 3005874](#)

Method: Qualitative Liquid Chromatography-Tandem Mass Spectrometry

Use to detect and document fetal exposure to kratom during approximately the last trimester of a full-term pregnancy

Related Information

[Newborn Drug Screening - Meconium and Umbilical Cord Tissue](#)
[Newborn Drug Testing Algorithm](#)

ARUP Laboratories is a nonprofit enterprise of the University of Utah and its Department of Pathology. 500 Chipeta Way, Salt Lake City, UT 84108
(800) 522-2787 | (801) 583-2787 | aruplab.com | arupconsult.com