



NMS Labs

CONFIDENTIAL

200 Welsh Road, Horsham, PA 19044-2208

Phone: (215) 657-4900 Fax: (215) 657-2972

e-mail: nms@nmslabs.com

Robert A. Middleberg, PhD, F-ABFT, DABCC-TC, Laboratory Director

Toxicology Report

Report Issued 03/20/2025 11:07

To: 10439

Bonneville County Coroner
Attn: Shante Sanchez
605 N Capitol
Idaho Falls, ID 83402

Patient Name Rustici, Kielee
Patient ID 250303-71
Chain 250303-71
DOB 08/20/2001
Sex Female
Workorder 25101111

Page 1 of 4

Positive Findings:

Analyte	Result	Units	Matrix Source
Cotinine	Presump Pos	ng/mL	001 - Postmortem Blood
Nicotine	Presump Pos	ng/mL	001 - Postmortem Blood
Sertraline	690	ng/mL	001 - Postmortem Blood
Desmethylsertraline	670	ng/mL	001 - Postmortem Blood
Mitragynine	3100	ng/mL	001 - Postmortem Blood

See Detailed Findings section for additional information

Agency Case Number: 250303-71

Testing Requested:

Test	Test Name
1009B	Carbon Monoxide Exposure, Blood
8042B	Postmortem, Expanded w/Vitreous Alcohol Confirmation, Blood (Forensic)

Specimens Received:

ID	Tube/Container	Volume/ Mass	Collection Date/Time	Matrix Source	Labeled As
001	Gray Stopper Glass Tube	7.75 mL	03/04/2025 10:25	Postmortem Blood	250303-71
002	Gray Stopper Glass Tube	6.75 mL	03/04/2025 10:25	Postmortem Blood	250303-71
003	Lavender (Purple) Stopper Plastic Tube	4.75 mL	03/04/2025 10:25	Postmortem Blood	250303-71
004	White Cap Plastic Tube	2.5 mL	03/04/2025 10:25	Vitreous Fluid	250303-71

001 FEMORAL

002 FEMORAL

003 HEART

All sample volumes/weights are approximations.

Specimens received on 03/05/2025.

Detailed Findings:

Analysis and Comments	Result	Units	Rpt. Limit	Specimen Source	Analysis By
Cotinine	Presump Pos	ng/mL	200	001 - Postmortem Blood	LC/TOF-MS
This test is an unconfirmed screen. Confirmation by a more definitive technique is recommended.					
Nicotine	Presump Pos	ng/mL	100	001 - Postmortem Blood	LC/TOF-MS
This test is an unconfirmed screen. Confirmation by a more definitive technique is recommended.					
Sertraline	690	ng/mL	10	001 - Postmortem Blood	LC-MS/MS
Desmethylsertraline	670	ng/mL	20	001 - Postmortem Blood	LC-MS/MS
Mitragynine	3100	ng/mL	50	001 - Postmortem Blood	LC-MS/MS

Examination of the specimen(s) submitted did not reveal any reportable findings by procedure(s) outlined in the accompanying Analysis Summary, other than those listed above. Interpretation of reported findings should be based on the totality of available case information. Reference information is not case-specific but is provided as a general guide.

Reference Comments:

1. Desmethylsertraline (Norsertraline; Sertraline Metabolite) - Postmortem Blood:

Desmethylsertraline is the principal metabolite of sertraline and has about 10 to 20% of the pharmacologic activity of the parent analyte. Fifteen adults taking 200 mg daily sertraline had mean trough serum concentrations of 87 ng/mL desmethylsertraline (range 40-189 ng/mL).

In a report of seven postmortem cases in which sertraline was not related to the cause of death, desmethylsertraline concentrations were 80-990 ng/mL in heart blood. A patient survived an acute overdose with a serum concentration of 1700 ng/mL desmethylsertraline. Her symptoms included confusion, agitation, fever and seizures.

The blood to serum or plasma ratio is unknown.

2. Mitragynine (Kratom) - Postmortem Blood:

Mitragynine is an alkaloid found in the plant Kratom which originates from Asia and is considered an atypical opioid agonist. The leaves of the plant are traditionally chewed or brewed into a tea, however, Kratom powders and leaf extracts are also sold and may be subject to abuse. The effects of Kratom are dose dependent, with lower doses resulting in stimulant-type effects and higher doses resulting in opioid-type effects. Reported adverse effects include seizures, psychosis, and liver toxicity.

Over a 27 month-period, mitragynine was reported in 1001 blood specimens submitted during the course of medicolegal investigations; concentrations ranged from 5.6-29,000 ng/mL. In three cases which ruled mitragynine as the sole drug in the cause of death, postmortem peripheral blood concentrations ranged from 1590-3420 ng/mL.

3. Sertraline (Zoloft®) - Postmortem Blood:

Sertraline is a selective serotonin reuptake inhibitor used in the treatment of depression. The initial adult dosage is 50 mg daily and can be increased to a maximum of 200 mg daily. Sertraline is subject to significant first pass metabolism with desmethylsertraline as the principal metabolite. Overdose with sertraline may cause sleepiness, nausea, tachycardia, and mydriasis. Fifteen adults taking 200 mg daily sertraline had mean trough serum concentrations of 29 ng/mL (range 9-82 ng/mL) sertraline. The blood to serum or plasma ratio is approximately 1.2.

In a report of seven postmortem cases in which sertraline was not related to the cause of death, sertraline concentrations were 230-460 ng/mL in heart blood. Postmortem blood sertraline concentrations greater than 1,500 ng/mL were considered to be contributory to death in a review of 75 cases. A patient survived an acute overdose with a serum concentration of 2,900 ng/mL sertraline. Her symptoms included confusion, agitation, fever and seizures.

**Sample Comments:**

001 Autopsy ID: 250303-71
001 Physician/Pathologist Name: Garth Warren

Unless alternate arrangements are made by you, the remainder of the submitted specimens will be discarded one (1) year from the date of this report; and generated data will be discarded five (5) years from the date the analyses were performed.

Workorder 25101111 was electronically
signed on 03/20/2025 10:56 by:

Chelsey N. Deisher, M.S., D-ABFT-FT
Forensic Toxicologist

Analysis Summary and Reporting Limits:

The following test(s) were performed for this case; the scope of each test includes the analyte(s) listed along with the associated reporting limit(s). The reporting limit is the lowest concentration of the analyte that will be reported as positive. Only results that meet reporting criteria at or above the reporting limit appear in the Positive Findings section of the report.

Test 1009B - Carbon Monoxide Exposure, Blood: 001 - Postmortem Blood

-Analysis by Gas Chromatography/Mass Spectrometry (GC/MS) for:

<u>Analyte</u>	<u>Rpt. Limit</u>	<u>Analyte</u>	<u>Rpt. Limit</u>
Carboxyhemoglobin	2 %Saturation		

Test 52116B - Sertraline and Desmethylsertraline Confirmation, Blood: 001 - Postmortem Blood

-Analysis by High Performance Liquid Chromatography/ Tandem Mass Spectrometry (LC-MS/MS) for:

<u>Analyte</u>	<u>Rpt. Limit</u>	<u>Analyte</u>	<u>Rpt. Limit</u>
Desmethylsertraline	20 ng/mL	Sertraline	10 ng/mL

Test 52495B - Mitragynine Confirmation, Blood: 001 - Postmortem Blood

-Analysis by High Performance Liquid Chromatography/ Tandem Mass Spectrometry (LC-MS/MS) for:

<u>Analyte</u>	<u>Rpt. Limit</u>	<u>Analyte</u>	<u>Rpt. Limit</u>
Mitragynine	50 ng/mL		

Test 8042B - Postmortem, Expanded w/Vitreous Alcohol Confirmation, Blood (Forensic): 001 - Postmortem Blood

-Analysis by Enzyme-Linked Immunosorbent Assay (ELISA) for:

<u>Analyte</u>	<u>Rpt. Limit</u>	<u>Analyte</u>	<u>Rpt. Limit</u>
Barbiturates	0.040 mcg/mL	Gabapentin	5.0 mcg/mL
Cannabinoids	10 ng/mL	Salicylates	120 mcg/mL

-Analysis by Headspace Gas Chromatography (GC) for:

<u>Analyte</u>	<u>Rpt. Limit</u>	<u>Analyte</u>	<u>Rpt. Limit</u>
Acetone	5.0 mg/dL	Isopropanol	5.0 mg/dL
Ethanol	10 mg/dL	Methanol	10 mg/dL



CONFIDENTIAL

Workorder 25101111
Chain 250303-71
Patient ID 250303-71

Page 4 of 4

Analysis Summary and Reporting Limits:

-Analysis by High Performance Liquid Chromatography/Time of Flight-Mass Spectrometry (LC/TOF-MS) for: The following is a general list of analyte classes included in this screen. The detection of any specific analyte is concentration-dependent. Note, not all known analytes in each specified analyte class are included. Some specific analytes outside of these classes are also included. For a detailed list of all analytes and reporting limits, please contact NMS Labs. Amphetamines, Anticonvulsants, Antidepressants, Antihistamines, Antipsychotics, Benzodiazepines, CNS Stimulants, Cocaine and Metabolites, Hallucinogens, Hypnotosedatives, Muscle Relaxants, Non-Steroidal Anti-Inflammatory Agents, Opiates and Opioids.