



Franklin County Forensic Science Center

Office of the Coroner

Anahi M. Ortiz, M.D.

2090 Frank Road
Columbus, Ohio 43223

Toxicology Report

Division of Toxicology

Daniel D. Baker, Chief Toxicologist

Casey Goodson

Case # LAB-20-5315

Date report completed: January 28, 2021

A systematic toxicological analysis has been performed and the following agents were detected.

Postmortem Blood:

Gray Top Thoracic

ELISA Screen	Acetaminophen	Not Detected
ELISA Screen	Barbiturates	Not Detected
ELISA Screen	Benzodiazepines	Not Detected
ELISA Screen	Benzoylcegonine	Not Detected
ELISA Screen	Buprenorphine	Not Detected
ELISA Screen	Cannabinoids	See Confirmation
ELISA Screen	Fentanyl	Not Detected
ELISA Screen	Methamphetamine	Not Detected
ELISA Screen	Naltrexone/Naloxone	Not Detected
ELISA Screen	Opiates	Not Detected
ELISA Screen	Oxycodone/Oxymorphone	Not Detected
ELISA Screen	Salicylates	Not Detected
ELISA Screen	Tricyclics	Not Detected

GC/FID	Ethanol	Not Detected
GC/MS	Acidic/Neutral Drugs	None Detected
GC/MS	Nicotine	Positive
GC/MS	Cotinine	Positive
Reference Lab	Delta-9-THC	13 ng/mL
Reference Lab	11-Hydroxy-Delta-9-THC	1.2 ng/mL
Reference Lab	11-Nor-9-Carboxy-Delta-9-THC	15 ng/mL

Postmortem Urine:

Gray Top Urine

GC/MS	Cotinine	Positive
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This report has been verified as accurate and complete by _____

Daniel D. Baker, M.S., F-ABFT

Cannabinoid quantitations in blood were performed by NMS Labs, Horsham, PA.

Postmortem Toxicology Scope of Analysis
Franklin County Coroner's Office Division of Toxicology

Enzyme Linked Immunosorbant Assay (ELISA) Blood Screen:

Qualitative Presumptive Compounds/Classes: Acetaminophen (cut-off 10 µg/mL), Benzodiazepines (cut-off 20 ng/mL), Benzoylcegonine (cut-off 50 ng/mL), Cannabinoids (cut-off 40 ng/mL), Fentanyl (cut-off 1 ng/mL), Methamphetamine/MDMA (cut-off 50 ng/mL), Opiates (cut-off 40 ng/mL), Oxycodone/Oxymorphone (cut-off 40 ng/mL), Salicylates (50 µg/mL).

LC/MS/MS Blood Screen:

Acetylfentanyl (LOD=0.25 ng/mL), Acrylfentanyl (LOD=0.25 ng/mL), Bupropion, Buprenorphine (LOD=1.0 ng/mL), Butyrylfentanyl (LOD=0.25 ng/mL), Carfentanil (LOD=0.05 ng/mL), Cyclopropylfentanyl (LOD=0.25 ng/mL), Fluoroisobutyrylfentanyl (LOD=0.25 ng/mL), Furanylfentanyl (LOD=0.25 ng/mL), Isotonitazine, Methoxyacetylfentanyl (LOD=0.25 ng/mL), 3-Methylfentanyl (LOD=0.25 ng/mL), Metonitazine, Mitragynine (LOD=5.0 ng/mL), Naltrexone (LOD=5.0 ng/mL) Phenylfentanyl (LOD=0.25 ng/mL), Sufentanyl (LOD=0.5 ng/mL), Tetrahydrofuranfentanyl (LOD 0.25 ng/mL), Thiophenefentanyl, U-47700 (LOD=0.25 ng/mL), U-48800, Valerylfentanyl (LOD=0.25 ng/mL), Xylazine (LOD=2.5 ng/mL).

Volatiles by Headspace Dual-Column GC/FID:

Compounds Quantified with a Limit of Quantitation (LOQ) of 0.01 g%: Acetone, Ethanol, Isopropanol, and Methanol.

Qualitative Compounds: Acetonitrile, Benzene, Butane, Chloroethane, Chloroform, Difluoroethane, Dichloromethane, Ethyl acetate, Formaldehyde/Methanol, Halothane, Isobutane, Methane, Methyl ethyl ketone, Propane, 1,1,1,2-Tetrafluoroethane, Trichloroethylene, and Toluene.

Clinical Chemistries/Electrolytes in Vitreous Humor by Nova Stat Profile pHox Ultra or Abbott i-Stat Analyzer:

Compounds Quantified: Sodium, Potassium, Chloride, Glucose, Urea Nitrogen, and Creatinine.

Glucose and Ketones in Urine by Keto-Diastix Reagent Strip:

Glucose (cut-off 2000 mg/dL), Ketones (cut-off 40 mg/dL).

Basic/Acidic/Neutral Drug Screen in Urine by Solid Phase Extraction and Full Scan GC/MS:

Amitriptyline (LOD=25 ng/mL), Atomoxetine (LOD=187.5 ng/mL), Benzotropine (LOD=62.5 ng/mL), Brompheniramine (LOD=12.5 ng/mL), Buspirone (LOD=187.5 ng/mL), Butalbital (LOD=125 ng/mL), Carbamazepine (LOD=250 ng/mL), Carbinoxamine (LOD=62.5 ng/mL) Carisoprodol (LOD=500 ng/mL), Cetirizine (LOD=100 ng/mL), Chlorpheniramine (LOD=25 ng/mL), Chlorpromazine (LOD=100 ng/mL), Citalopram (LOD=50 ng/mL), Clomipramine (LOD=50 ng/mL), Clozapine (LOD=187.5 ng/mL), Cocaethylene (LOD=12.5 ng/mL), Cocaine (LOD=12.5 ng/mL), Cyclobenzaprine (LOD=25 ng/mL), Desipramine (LOD=125 ng/mL), Dextromethorphan (LOD=100 ng/mL), Diltiazem (LOD=100 ng/mL), Diphenhydramine (LOD=187.5 ng/mL), Doxepin (LOD=50 ng/mL), Doxylamine (LOD=50 ng/mL), Fluoxetine (LOD=187.5 ng/mL), Haloperidol (LOD=250 ng/mL), Imipramine (LOD=100 ng/mL), Ketamine (LOD=25 ng/mL), Loxapine (LOD=50 ng/mL), Meclizine (LOD=25 ng/mL), Meperidine (LOD=25 ng/mL), Meprobamate (LOD=500 ng/mL), Metaxalone (LOD=500 ng/mL), Methadone (LOD=100 ng/mL), Methylphenidate (LOD=93.75 ng/mL), Mirtazapine (LOD=50 ng/mL), Norclomipramine (LOD=100 ng/mL), Nordoxepin (LOD=100 ng/mL), Norketamine (LOD=187.5 ng/mL), Olanzapine (LOD=100 ng/mL), Orphenadrine (LOD=50 ng/mL), Paroxetine (LOD=250 ng/mL), Pentobarbital (LOD=125 ng/mL), Phencyclidine (LOD=25 ng/mL), Pheniramine (LOD=125 ng/mL), Phenobarbital (LOD=250 ng/mL), Phenytoin (LOD=250 ng/mL), Primidone (LOD=500 ng/mL), Promethazine (LOD=125 ng/mL), Sertraline (LOD=50 ng/mL), Topiramate (LOD=500 ng/mL), Tramadol (LOD=125 ng/mL), Trazodone (LOD=375 ng/mL), Verapamil (LOD=187.5 ng/mL), Zolpidem (LOD=100 ng/mL). Additional drugs may be detected and reported when confirmed.

Basic Drugs in Blood by Solid Phase Extraction and Full Scan GC/MS. Target Ion Quantitation if applicable:

Amantadine (LOD=25 ng/mL), Amitriptyline (LOD=25 ng/mL), Amiodarone, Amoxapine (LOD=50 ng/mL), Amphetamine (LOD=50 ng/mL), Atomoxetine (LOD=100 ng/mL), Atropine, Antipyrine, Benzhydrol, 1-Benzylpiperazine (LOD=50 ng/mL), Benzotropine (LOD=50 ng/mL), Brompheniramine (LOD=25 ng/mL), Bupivacaine, Bupropion (LOD=12.5 ng/mL), Bupropion erythro metabolite (LOD=50 ng/mL), Bupropion threo metabolite (LOD=50 ng/mL), Buspirone (LOD=25 ng/mL), Carbinoxamine (LOD=12.5 ng/mL), Carboxyquetiapine, Cetirizine (LOD=25 ng/mL), Chlorcyclizine, Chlordiazepoxide (LOD=25 ng/mL), 4-Chloro-2,5-Dimethoxyamphetamine, Chloroquine, Chlorpheniramine (LOD=25 ng/mL), Chlorpromazine (LOD=50 ng/mL), Citalopram (LOD=50 ng/mL), Clindamycin, Clomipramine (LOD=25 ng/mL), Clopidogrel, Clozapine (LOD=25 ng/mL), Cocaethylene (LOD=12.5 ng/mL), Cocaine (LOD=25 ng/mL), Codeine (LOD=25 ng/mL), Cotinine, Cyclobenzaprine (LOD=12.5 ng/mL), Dapsone, Deacetyldiltiazem, Desalkylflurazepam, Desaminodisopyramide, Desethylchloroquine, Desethylidocaine, Desipramine (LOD=25 ng/mL), Desloratadine, Dextromethorphan (LOD=50 ng/mL), Dextropropion (dextromethorphan metabolite), Diazepam (LOD=25 ng/mL), Dicyclomine, Diltiazem (LOD=50 ng/mL), Diphenhydramine (LOD=50 ng/mL), Disopyramide, Dobutamine, Donepezil, Doxepin (LOD=25 ng/mL), Doxylamine (LOD=100 ng/mL), EDDP (LOD=25 ng/mL), Ethylecgonine, Ethylphenidate (LOQ=50 ng/mL), Ethylone, Etomidate, Flecaidine, Fluconazole, Fluoxetine (LOD=25 ng/mL), Gabapentin (LOD=0.5 µg/mL), Haloperidol (LOD=100 ng/mL), Hydroxyamitriptyline, Hydroxybupropion (LOD=50 ng/mL), 3-Hydroxycotinine, Hydroxychloroquine, 8-Hydroxychlorpromazine, Hydroxytramadol, Hydroxyzine (LOD=1500 ng/mL), Imipramine (LOD=25 ng/mL), Ketamine (LOD=50 ng/mL), Lamotrigine (LOD=100 ng/mL), Laudanosine, Levamisole, Lidocaine, Linezolid, Loxapine (LOD=25 ng/mL), MAPB (LOD=50 ng/mL), Maprotiline, meta-Chlorphenylpiperazine, MDA (LOD=50 ng/mL), MDMA (LOD=25 ng/mL), Meclizine (LOD=50 ng/mL), MEG-X, Memantine, Meperidine (LOD=25 ng/mL), Methadone (LOD=25 ng/mL), Methamphetamine (LOD=50 ng/mL), Methaqualone, Methylcgonine, Methylphenidate (LOD=25 ng/mL), Metoclopramide, Metoprolol (LOD=300 ng/mL), Metronidazole, Mirtazapine (LOD=25 ng/mL), Mitragynine, Modafinil, N-Dealkylidopyramide, N-Dealkylquetiapine, Nicotine, Norchlorcyclizine, Norchlordiazepoxide, Norcitalopram, Norclomipramine (LOD=25 ng/mL), Norclozapine, Nordiazepam (LOD=25 ng/mL), Nordoxepin (LOD=25 ng/mL), Norfluoxetine (LOD=250 ng/mL), Norketamine (LOD=25 ng/mL), Normeperidine (LOD=25 ng/mL), Normirtazapine, Norpromethazine, Norpropoxyphene (LOD=25 ng/mL), Norsertraline, N-Norcyclobenzaprine, N-Nortramadol, Nortriptyline (LOD=25 ng/mL), Norvenlafaxine (LOD=100 ng/mL), Norverapamil (LOD=25 ng/mL), Olanzapine (LOD=25 ng/mL), Ondansetron, O-Nortramadol, Orphenadrine (LOD=25 ng/mL), Oxybutynin, Paroxetine (LOD=25 ng/mL), Pentazocine (LOD=25 ng/mL), Pentedrone, Pentylone, Phencyclidine (LOD=25 ng/mL), Phendimetrazine (LOD=50 ng/mL), Phenethylamine, Pheniramine (LOD=25 ng/mL), Phenmetrazine (LOD=25 ng/mL), Phenothiazine, Phentermine (LOD=25 ng/mL), Phenylpropranolamine (LOD=50 ng/mL), PMA, Prochlorperazine, Promethazine (LOD=50 ng/mL), Propoxyphene (LOD=25 ng/mL), Pseudoephedrine/Ephedrine (LOD=2000 ng/mL), Pyrovalerone, alpha-PVP, Quinine (LOD=400 ng/mL), Ranitidine, Sertraline (LOD=50 ng/mL), Strychnine, Terbinafine, Thioridazine (LOD=50 ng/mL), Thioridazine metabolite, Ticlopidine, Tramadol (LOD=25 ng/mL), Tranlycypromine (LOD=50 ng/mL), Trazodone (LOD=75 ng/mL), Triamterene, Trihexyphenidyl (LOD=25 ng/mL), Trimethoprim, Trimipramine (LOD=50 ng/mL), Tryptamine, Tyramine, Venlafaxine (LOD=25 ng/mL), Venlafaxine metabolite, Verapamil (LOD=50 ng/mL), Zolpidem (LOD=100 ng/mL). Additional drugs may be detected and reported when confirmed.

Acidic/Neutral Drugs in Blood by Solid Phase Extraction and Full Scan GC/MS:

Amobarbital, Butalbital (LOD=0.50 µg/mL), Butobarbital, Caffeine, Carisoprodol (LOD=1.0 µg/mL) Carbamazapine (LOD=2.0 µg/mL), Carbamazepine-10,11-epoxide, Carisoprodol (LOD=1.0 µg/mL), Chlorzoxazone, DEET, Efavirenz, 10-Hydroxyoxcarbazepine, Meprobamate (LOD=1.0 µg/mL), Glutethimide, Guifenesin, Levettiracetam, Metaxalone (LOD=1.0 µg/mL), Methocarbamol (LOD=3.0 µg/mL), Oxcarbazepine, Pentobarbital (LOD=1.0 µg/mL), Pentoxifylline, Phenobarbital (LOD=1.0 µg/mL), Phenol, Phenytoin (LOD=1.0 µg/mL), Primidone (LOD=1.0 µg/mL), Propofol, Secobarbital, Theophylline (LOD=4.0 µg/mL), Topiramate (LOD=2.0 µg/mL).

Antidepressants and Antipsychotics Confirmation/Quantitation by LC/MS/MS:

Aripiprazole (LOQ=25 ng/mL), Bupropion (LOQ=25 ng/mL), Hydroxybupropion (LOQ=25 ng/mL), Citalopram (LOQ=25 ng/mL), Duloxetine (LOQ=12.5 ng/mL), Fluoxetine (LOQ=25 ng/mL), Haloperidol (LOQ=12.5 ng/mL), Lurasidone (LOQ=12.5 ng/mL), Mirtazepine (LOQ=12.5 ng/mL), Olanzapine (LOQ=12.5 ng/mL), Paliperidone/9-Hydroxyrisperidone (LOQ=12.5 ng/mL), Paroxetine (LOQ=12.5 ng/mL), Quetiapine (LOQ=25 ng/mL), Risperidone (LOQ=12.5 ng/mL), Sertraline (LOQ=25 ng/mL), Trazodone (LOQ=25 ng/mL), Venlafaxine (LOQ=25 ng/mL), O-Desmethylvenlafaxine (LOQ=25 ng/mL).

Benzodiazepine Confirmation/Quantitation by GC/MS-SIM:

Alprazolam (LOQ=10 ng/mL), Clonazepam (LOQ=10 ng/mL), 7-Aminoclonazepam (LOQ=10 ng/mL), Clobazam (LOQ=20 ng/mL), Diazepam (LOQ=20 ng/mL), Nordiazepam (LOQ=20 ng/mL), Temazepam (LOQ=20 ng/mL), Oxazepam (LOQ=20 ng/mL), Diclazepam (LOQ=5.0 ng/mL), Delorazepam (LOQ=5.0 ng/mL), Desalkylflurazepam (LOQ=10 ng/mL), Etizolam (LOQ=5.0 ng/mL), Flualprazolam (LOQ=5.0 ng/mL), Flubromazolam (LOD=5.0 ng/mL), Flunitrazepam (LOQ=5.0 ng/mL), Lorazepam (LOQ=20 ng/mL), Midazolam (LOQ=20 ng/mL), Triazolam (LOQ=5.0 ng/mL).

Buprenorphine and Norbuprenorphine Confirmation/Quantitation by LC/MS/MS:

Buprenorphine (LOQ=1.0 ng/mL), Norbuprenorphine (LOQ=1.0 ng/mL).

Cannabinoids Confirmation/Quantitation by LC/MS/MS:

Delta-9-THC (LOQ=2.0 ng/mL), 11-Hydroxy-Delta-9-THC (LOQ=0.5 ng/mL), 11-Nor-9-Carboxy-Delta-9-THC (LOQ=2.0 ng/mL).

Cocaine and Cocaine Metabolites Confirmation/Quantitation by GC/MS-SIM:

Cocaine (LOQ=25 ng/mL), Benzoylcegonine (LOQ=25 ng/mL), Methylecgonine (LOQ=10 ng/mL), Cocaethylene (LOQ=25 ng/mL).

Fentanyl and Novel Opioids Confirmation/Quantitation by LC/MS/MS:

Acetylfentanyl (LOD=0.25 ng/mL), Acrylfentanyl (LOD=0.25 ng/mL), Brorphine, Butyrylfentanyl (LOD=0.25 ng/mL), Carfentanil (LOD=0.05 ng/mL), Cyclopropylfentanyl (LOD=0.25 ng/mL), Fentanyl (LOQ=1.0 ng/mL), Norfentanyl (LOQ=1.0 ng/mL), Fluoroisobutyrylfentanyl (LOD=0.25 ng/mL), Furanylfentanyl (LOD=0.25 ng/mL), Isotonitazine, Methoxyacetylfentanyl (LOD=0.25 ng/mL), 3-Methylfentanyl (LOD=0.25 ng/mL), Metonitazine, Phenylfentanyl (LOD=0.25 ng/mL), Sufentanyl (LOQ=1.0 ng/mL), Tetrahydrofuranfentanyl (LOD 0.25 ng/mL), Thiophenefentanyl, U-47700 (LOD=0.25 ng/mL), U-48800, Valerylfentanyl (LOD=0.25 ng/mL), Xylazine (LOQ=5.0 ng/mL).

Methadone Confirmation/Quantitation by GC/MS-SIM:

Methadone (LOQ=25 ng/mL).

Opioid Confirmation/Quantitation by GC/MS-SIM:

Codeine (LOQ=20 ng/mL), Hydrocodone (LOQ=10 ng/mL), Dihydrocodeine (LOQ=20 ng/mL), Hydromorphone (LOQ=10 ng/mL), Meperidine (LOQ=25 ng/mL), Normeperidine (LOQ=25 ng/mL), 6-Monoacetylmorphine (heroin metabolite) (LOQ=10 ng/mL), Morphine (LOQ=20 ng/mL), Naloxone (LOQ=10 ng/mL), Naltrexone (LOQ=10 ng/mL) Oxycodone (LOQ=20 ng/mL), Oxymorphone (LOQ=10 ng/mL), Pentazocine (LOQ=25 ng/mL), Tapentadol (LOQ=25 ng/mL), Tramadol (LOQ=25 ng/mL), O-desmethyiltramadol (LOQ=25 ng/mL).

Sympathomimetic Amines Confirmation/Quantitation by GC/MS-SIM:

Amphetamine (LOQ=20 ng/mL), Methamphetamine (LOQ=20 ng/mL), MDMA (LOQ=20 ng/mL), MDA (LOQ=20 ng/mL), Ephedrine (LOQ=20 ng/mL), Pseudoephedrine (LOQ=20 ng/mL).

Tricyclic Antidepressants and Cyclobenzaprine Confirmation/Quantitation by LC/MS/MS

Amitriptyline (LOQ=25 ng/mL), Clomipramine (LOQ=25 ng/mL), Cyclobenzaprine (LOQ=12.5 ng/mL), Desipramine (LOQ=25 ng/mL), Doxepin (LOQ=12.5 ng/mL), Imipramine (LOQ=25 ng/mL), Norclomipramine (LOQ=25 ng/mL), Norcyclobenzaprine (LOQ=12.5 ng/mL), Nordoxepin (LOQ=12.5 ng/mL), Nortriptyline (LOQ=25 ng/mL).

***Carboxyhemoglobin Quantitation by CO-Oximetry:**

Carboxyhemoglobin (LOQ = 5% saturation). *BY REQUEST ONLY.

Reference Laboratory Services:

Drugs outside the above scope of analysis may be sent-out to an outside reference laboratory based on case circumstances or by request.

Abbreviations:

LRL = Lower Reporting Limit
LOD = Limit of Detection
LOQ = Limit of Quantitation
QNS = Quantity Not Sufficient

µg/mL = micrograms per milliliter
ng/mL = nanograms per milliliter
mg/dL = milligrams per deciliter
mmol/L = millimoles per liter

S = Sub-Therapeutic range
T = Therapeutic range
TH = High Therapeutic range
X = Toxic range
XL = Toxic to Lethal range
L = Lethal Range

g% = grams percent = grams per 100 milliliters = grams per deciliter

PLEASE NOTE: All biological specimens or other items that were submitted to the Division of Toxicology in this case will be retained at this laboratory for a period of one year at which time they will be destroyed; unless or until we receive a letter stating what other action you may require.