

REVIEWED

By Celena Shrum at 2:11 pm, Jun 20, 2023

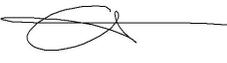


6/15/2023

Worklist: 6408

<u>LAB_CASE</u>	<u>ITEM</u>	<u>ITEM_TYPE</u>	<u>DESCRIPTION</u>
C2023-0991	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ
C2023-1048	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ
C2023-1144	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ





AM# 27: Quantitation of THC and Metabolites in Blood and Urine by LC-MS/MS

Extraction Date 6/14/23
Plate lot#: 220802

Analyst: Anne Nord
Plate re-test: 7/23/23

Mobile phase A: 0.1% Formic Acid in LCMS Water MTBE
Mobile phase B: 0.1% Formic acid in Acetonitrile Hexane
LCMS Methanol

Blank Blood Lot: 23C57106 **Urine Blank:** 12522 **Column:** UCT Selectra DA 100 x 2.1mm 3um
LCMS-QQQ ID: 69679

Pre-Analytic:

- 1. Check levels of mobile phases and needle wash refill as needed. Ensure waste is not full.
- 2. Ensure correct column is installed and begin mobile phase flow allow to equilibrate ~ 30 minutes.

Analytic:

- 1. Remove standards, plate, controls, and samples from cold storage. Allow to reach room temperature.
- 2. Urine hydrolysis: add 1.5 ml urine to blank plate, add 250 ul 1N KOH mix and incubate at 40 degrees for 15 minutes.
Pipette 1000µL (calibrated pipette) blood or 1000µL hydrolyzed urine Pipette ID: K52558G in wells of analytical (standards) plate.
- 3. Place on shaking incubator at ambient temp., 900rpm for 15 minutes.
- 4. Pipette 500µL 0.1% formic acid in water blood sample, 500 ul saturated phosphate buffer in urine in wells of analytical plate.
- 5. Place on shaking incubator at ambient temp., 900rpm for 15 minutes.
- 6. Transfer 800µL of blood+acid or urine acid mixture to corresponding wells of SLE+ plate.
- 7. Apply positive pressure for approx. 10-15 seconds (or until no liquid remains on top of sorbent).
(Load at 85-100 PSI- Selector to the right) Manifold ID: 66792
- 8. Wait 5 minutes.
- 9. Add 2.25mL MTBE. (Add in 3 increments of 750uL)
- 10. Wait 5 minutes.
- 11. Apply positive pressure for approx. 15 seconds. (10-15 PSI- Selector to the left).
- 12. Add 2.25mL Hexane. (Add in 3 increments of 750uL)
- 13. Wait 5 minutes.
- 14. Apply positive pressure for approx. 15 seconds. (10-15 PSI- Selector to the left).
- 15. Remove plate containing eluate. Place on SPE Dry and evaporate to dryness at approx. 35°C.
SPE Dry ID: 66819
- 16. Reconstitute in 100µL 100% MeOH and heat seal plate with foil. Place in autosampler and run worklist.

Post-Analytic

- 1. Create batch and process data.
- 2. Make any necessary integration changes, Curve weighting of Linear 1/x with r² values ≥0.98 for each analyte
- 3. RT +/- 3% or 0.100 min, whichever is greater, +/- 20% Accuracy for greater than (+/- 30% for 10ng/ml or less). Ion ratios must be within +/- 20% of the averaged calibrators. SN > 10
- 4. Case sample response for THC 1ng/ml LOD 3ng/ml LOQ, OH-THC 3ng/mL LOD and LOQ, Carboxy-THC: 5 ng/mL (qualitative only). Samples with a THC or OH-THC response over 50 ng/mL will be reported out as greater than 50 ng/mL.
- 5. Did all QCs pass for each analyte? (if not is it describe in comments section)
- 6. Central File Packet to include: LIMS Worklist, Method Checklist, Calibration and Control Reports

COMMENTS: . THC was not evaluated in this run due to interfering peaks.
THC-OH 3-100 1ng cal dropped due to poor peak shape and response

Only urine case samples were run in this batch.

The case samples run in this batch were originally run with worklist 6398 Carboxy-THC was not evaluated in that run these samples were re-extracted and evaluated for Carboxy-THC in this run.



	1	2	3	4	5	6
a	cal 1	Internal control urine				
b	cal 2	negative blood				
c	cal 3	negative urine				
d	cal 4	991-1				
e	Cal 5	1048-1				
f	cal 6	1144-1				
g	cal 7	external control urine				
h	Internal control (blood)					

Plate position 3

c2023-____-__



Idaho State Police Forensic Services

AM #26 Screening of THC and Metabolites and AM #27 Confirmation of THC and Metabolites Control Prep Sheet

Methanol External Control Solution (Lot: WS61423)

150 µL of 100 µg/mL C-THC and THC-OH, 7.5 ul 1mg/ml THC in ~9692.5 µL MeOH
Approximate concentration 1500ng/ml C-THC, THC-OH and 750 ng/ml THC

<i>Component</i>	<i>Source</i>	<i>Source Lot Number</i>	<i>Expiration Date</i>
C-THC	Cerilliant	FE04151901	6/1/2024
THC-OH	Cerilliant	FE06152002	6/1/2025
THC	Cerilliant	FE04222001	5/1/2025
Prepared:	06/14/2023		
Expires:	6/1/2024		
Prepared By:	Anne Nord		

Urine External Control Solution

*400 ul of methanol external control solution to 9600 ul of urine.
Approximately 30 ng/ml THC, 60 ng/ml C-THC and THC-OH*

<i>Negative urine source and lot number</i>	<i>Date prepared</i>	<i>Expiration</i>	<i>Lot number</i>	<i>Prepared by</i>	<i>Out of use</i>
In house 61423	06-14-23	06-01-24	U61423	Anne Nord	

Blood External Control Solution

*100 ul of methanol external control solution to 9900 ul of blood.
Approximately 7.5 ng/ml THC, 15 ng/ml C-THC and THC-OH*

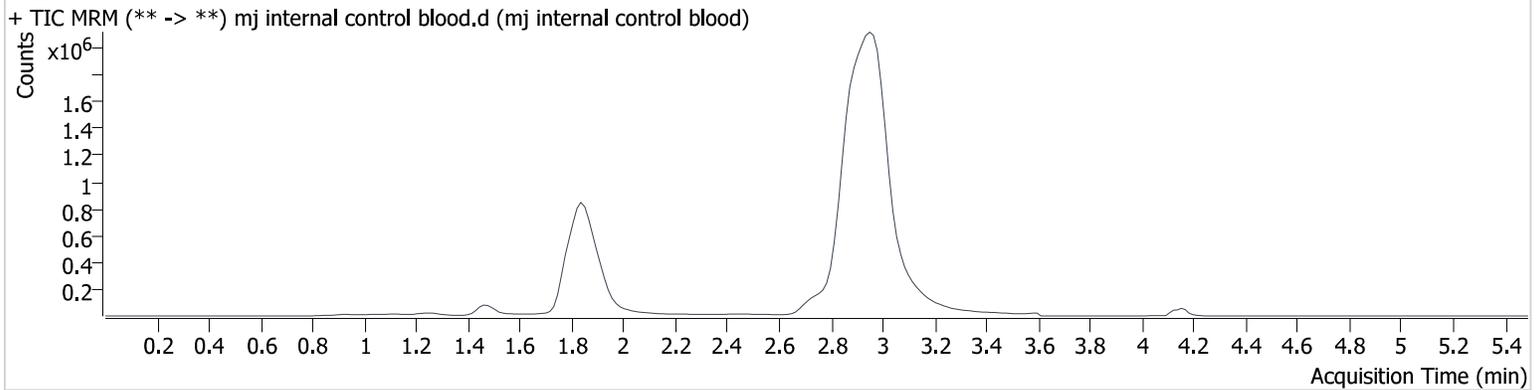
<i>Negative blood source and lot number</i>	<i>Date prepared</i>	<i>Expiration</i>	<i>Lot number</i>	<i>Prepared by</i>	<i>Out of use</i>

AM #27 Cannabinoids

Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Calibration Last Update 6/15/2023 7:29:17 AM

Instrument	69679	Data File	mj internal control blood.d
Type	QC	Sample	mj internal control blood
Acq. Method	am 27 67.m	Operator	Anne Nord
Sample Position	P3-H1	Comment	Only drugs and concentrations listed on the laboratory report itself are appropriate to be used for interpretation purposes. Any drugs or values included in the notes but not included on the report are used by laboratory personnel to make determinations/reach conclusions within the confines of the methods
Injection Volume	10		
Acq. Date-Time	6/14/2023 8:31:58 PM		
Sample Info.			

Sample Chromatogram



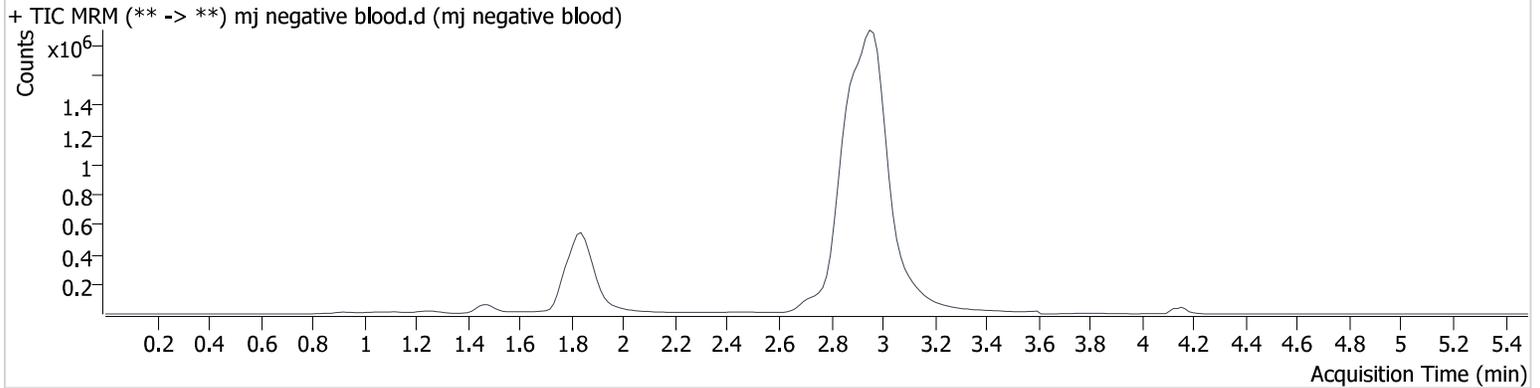
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.840	56215	∞	854.14	∞	3672747	4.820 ng/ml
THC-COOH	1.897	128211	∞	266.31	∞	1409118	14.532 ng/ml

AM #27 Cannabinoids

Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Calibration Last Update 6/15/2023 7:29:17 AM

Instrument	69679	Data File	mj negative blood.d
Type	Sample	Sample	mj negative blood
Acq. Method	am 27 67.m	Operator	Anne Nord
Sample Position	P3-B2	Comment	Only drugs and concentrations listed on the laboratory report itself are appropriate to be used for interpretation purposes. Any drugs or values included in the notes but not included on the report are used by laboratory personnel to make determinations/reach conclusions within the confines of the methods
Injection Volume	10		
Acq. Date-Time	6/14/2023 8:38:32 PM		
Sample Info.			

Sample Chromatogram

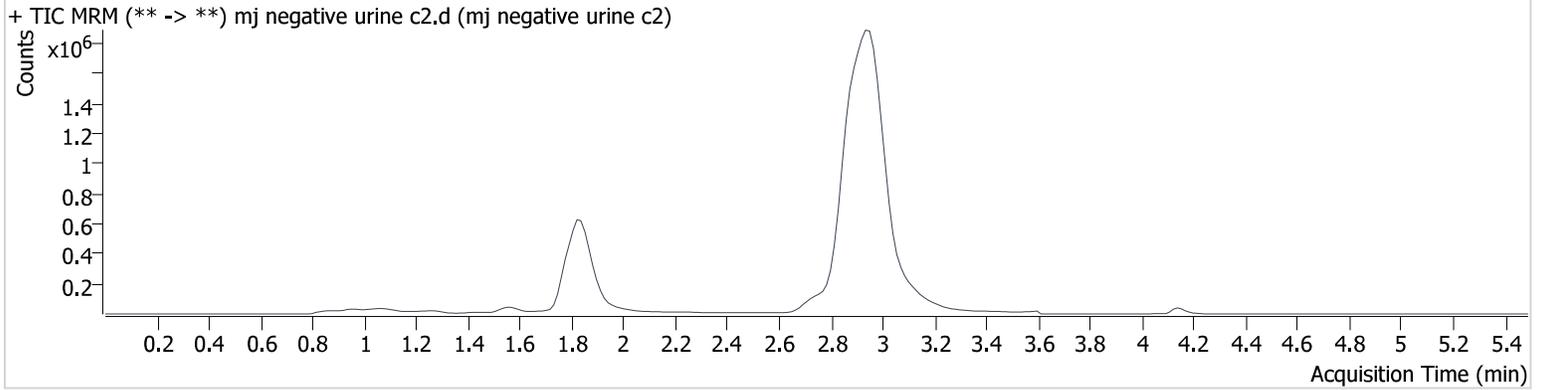


AM #27 Cannabinoids

Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Calibration Last Update 6/15/2023 7:29:17 AM

Instrument	69679	Data File	mj negative urine c2.d
Type	Sample	Sample	mj negative urine c2
Acq. Method	am 27 67.m	Operator	Anne Nord
Sample Position	P3-C2	Comment	Only drugs and concentrations listed on the laboratory report itself are appropriate to be used for interpretation purposes. Any drugs or values included in the notes but not included on the report are used by laboratory personnel to make determinations/reach conclusions within the confines of the methods
Injection Volume	10		
Acq. Date-Time	6/14/2023 8:45:08 PM		
Sample Info.			

Sample Chromatogram

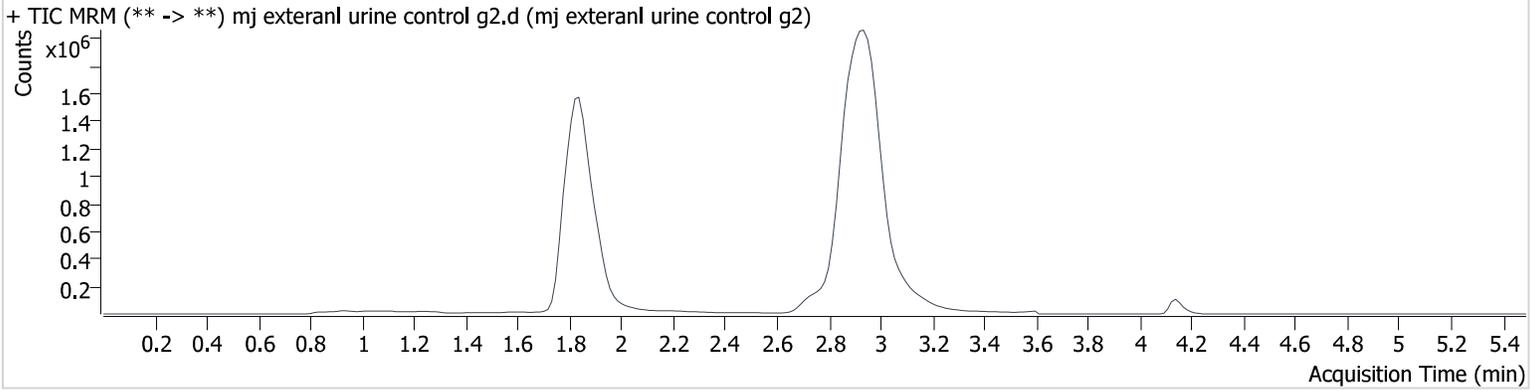


AM #27 Cannabinoids

Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Calibration Last Update 6/15/2023 7:29:17 AM

Instrument	69679	Data File	mj exteranl urine control g2.d
Type	Sample	Sample	mj exteranl urine control g2
Acq. Method	am 27 67.m	Operator	Anne Nord
Sample Position	P3-G2	Comment	Only drugs and concentrations listed on the laboratory report itself are appropriate to be used for interpretation purposes. Any drugs or values included in the notes but not included on the report are used by laboratory personnel to make determinations/reach conclusions within the confines of the methods
Injection Volume	10		
Acq. Date-Time	6/14/2023 9:31:19 PM		
Sample Info.			

Sample Chromatogram



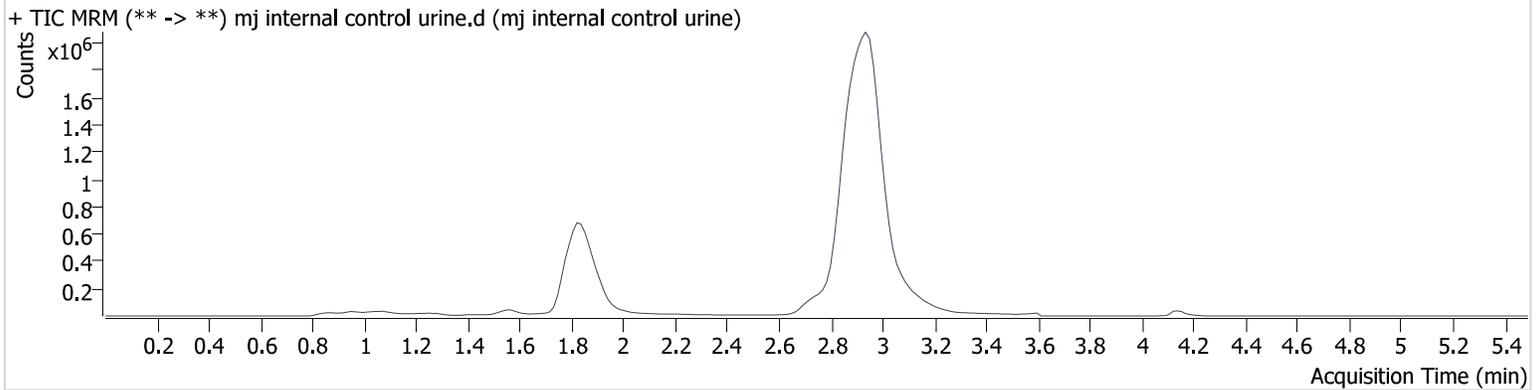
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.825	576332	∞	842.42	∞	3425130	45.133 ng/ml
THC-COOH	1.897	257653	∞	282.31	∞	989572	38.647 ng/ml

AM #27 Cannabinoids

Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Calibration Last Update 6/15/2023 7:29:17 AM

Instrument	69679	Data File	mj internal control urine.d
Type	Sample	Sample	mj internal control urine
Acq. Method	am 27 67.m	Operator	Anne Nord
Sample Position	P3-A2	Comment	Only drugs and concentrations listed on the laboratory report itself are appropriate to be used for interpretation purposes. Any drugs or values included in the notes but not included on the report are used by laboratory personnel to make determinations/reach conclusions within the confines of the methods
Injection Volume	10		
Acq. Date-Time	6/14/2023 9:37:53 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.825	48448	∞	815.70	∞	3075879	4.937 ng/ml
THC-COOH	1.897	83085	∞	305.79	∞	928576	14.317 ng/ml

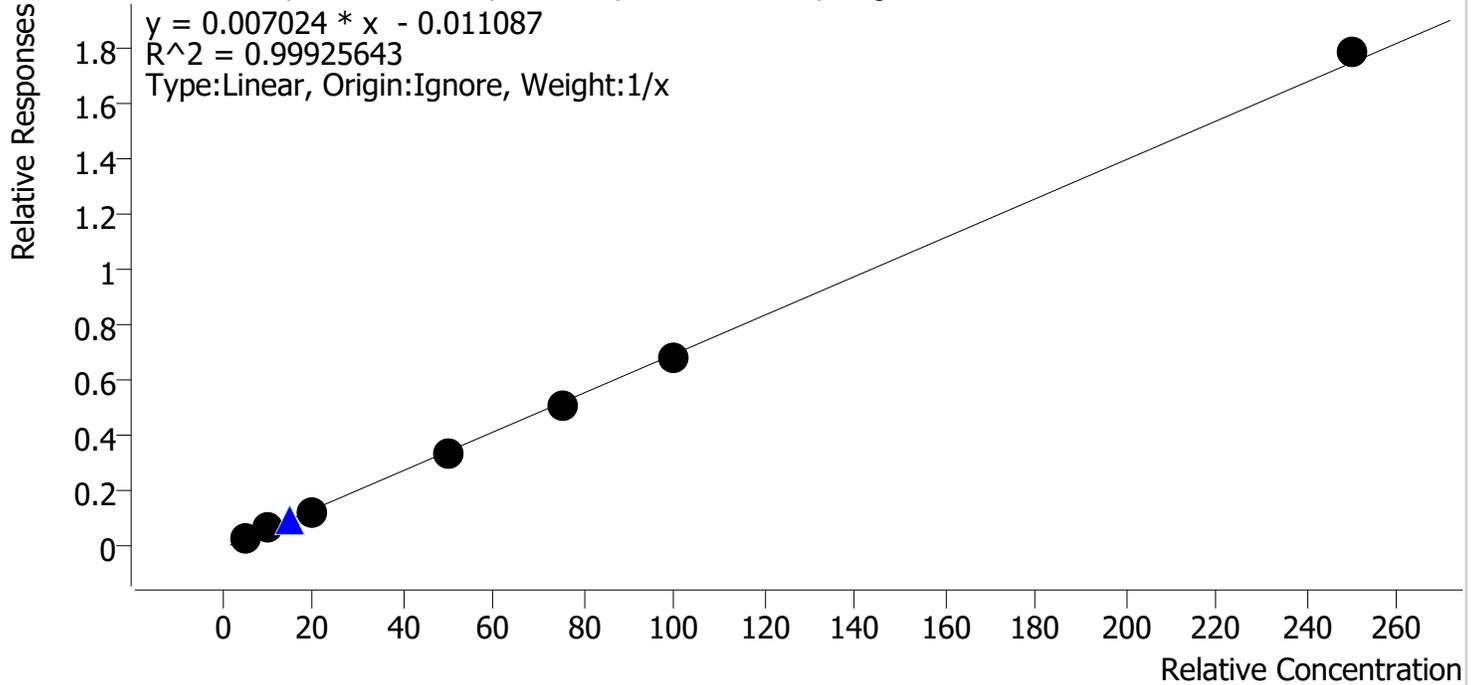
Compound Calibration Report



Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Last Cal. Update 6/15/2023 7:29 AM
Analyst Name ISP\datastor
Analyte THC-COOH

Internal Standard THC-COOH-d9

THC-COOH - 7 Levels, 7 Levels Used, 7 Points, 7 Points Used, 1 QCs



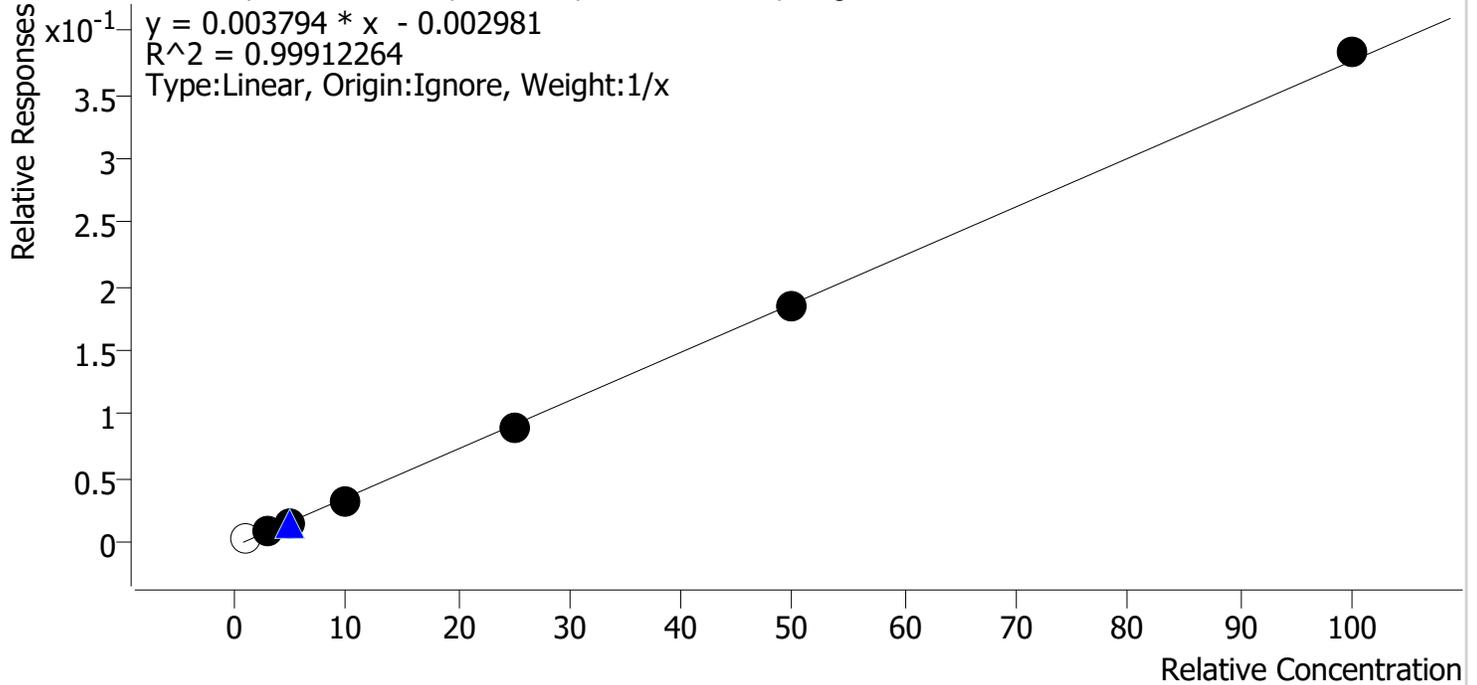
Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
mj cal 1	1	✓	5.0	5.4	108.2
mj cal 2	2	✓	10.0	10.1	100.8
mj cal 3	3	✓	20.0	19.1	95.6
mj cal 4	4	✓	50.0	48.7	97.4
mj cal 5	5	✓	75.0	73.1	97.5
mj cal 6	6	✓	100.0	98.3	98.3
mj cal 7	7	✓	250.0	255.2	102.1

Compound Calibration Report



Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Last Cal. Update 6/15/2023 7:29 AM
Analyst Name ISP\datastor
Analyte THC-OH **Internal Standard** THC-OH-d3

THC-OH - 7 Levels, 6 Levels Used, 7 Points, 6 Points Used, 1 QCs



Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
mj cal 1	1	x	1.0	1.7	173.3
mj cal 2	2	✓	3.0	3.3	108.9
mj cal 3	3	✓	5.0	5.0	99.5
mj cal 4	4	✓	10.0	9.5	94.8
mj cal 5	5	✓	25.0	24.0	96.2
mj cal 6	6	✓	50.0	49.5	99.0
mj cal 7	7	✓	100.0	101.8	101.8

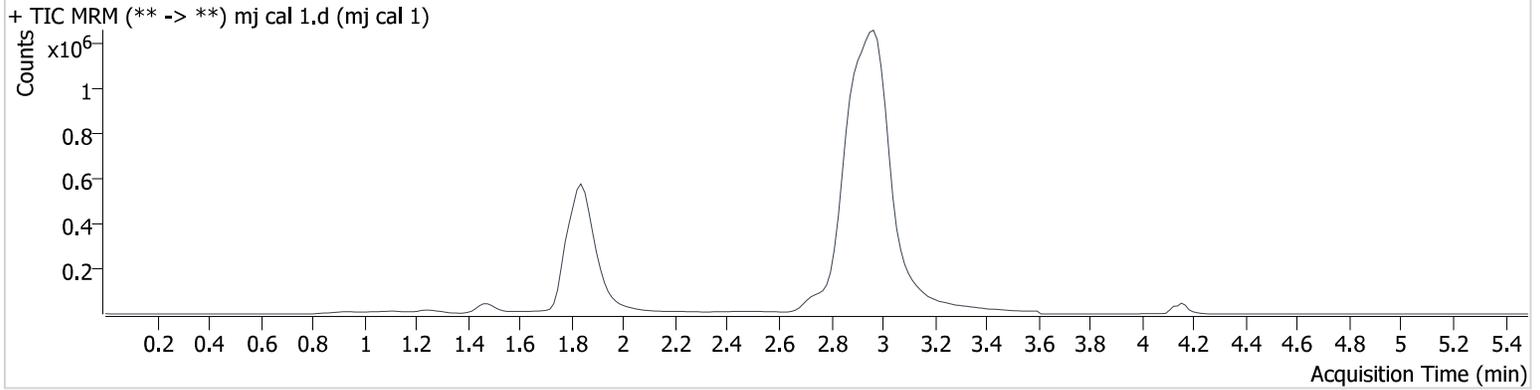
AM #27 Cannabinoids

Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Calibration Last Update 6/15/2023 7:29:17 AM

Instrument 69679
Type Cal
Acq. Method am 27 67.m
Sample Position P3-A1
Injection Volume 10
Acq. Date-Time 6/14/2023 7:45:43 PM
Sample Info.

Data File mj cal 1.d
Sample mj cal 1
Operator Anne Nord
Comment Only drugs and concentrations listed on the laboratory report itself are appropriate to be used for interpretation purposes. Any drugs or values included in the notes but not included on the report are used by laboratory personnel to make determinations/reach conclusions within the confines of the methods

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-OH	1.840	10797	∞	522.64 Low	∞	3005597	1.733 ng/ml	Low
THC-COOH	1.912	24684	290.6	283.52	∞	916910	5.411 ng/ml	

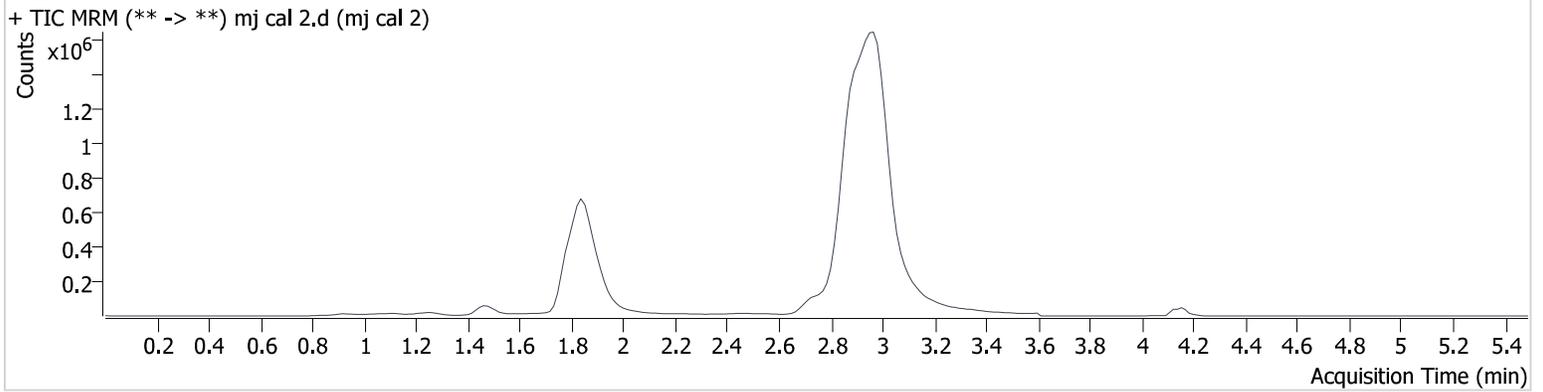
AM #27 Cannabinoids

Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Calibration Last Update 6/15/2023 7:29:17 AM

Instrument 69679
Type Cal
Acq. Method am 27 67.m
Sample Position P3-B1
Injection Volume 10
Acq. Date-Time 6/14/2023 7:52:27 PM
Sample Info.

Data File mj cal 2.d
Sample mj cal 2
Operator Anne Nord
Comment Only drugs and concentrations listed on the laboratory report itself are appropriate to be used for interpretation purposes. Any drugs or values included in the notes but not included on the report are used by laboratory personnel to make determinations/reach conclusions within the confines of the methods

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.840	29711	∞	805.62	1186.9	3156113	3.267 ng/ml
THC-COOH	1.912	66496	376.8	257.10	89.8	1113751	10.079 ng/ml

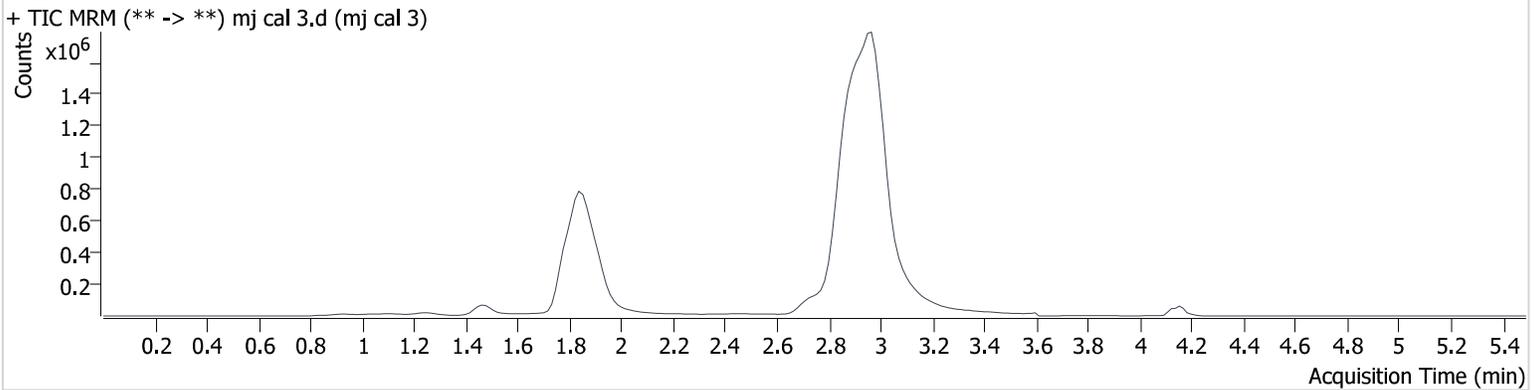
AM #27 Cannabinoids

Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Calibration Last Update 6/15/2023 7:29:17 AM

Instrument 69679
Type Cal
Acq. Method am 27 67.m
Sample Position P3-C1
Injection Volume 10
Acq. Date-Time 6/14/2023 7:59:01 PM
Sample Info.

Data File mj cal 3.d
Sample mj cal 3
Operator Anne Nord
Comment Only drugs and concentrations listed on the laboratory report itself are appropriate to be used for interpretation purposes. Any drugs or values included in the notes but not included on the report are used by laboratory personnel to make determinations/reach conclusions within the confines of the methods

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.840	53406	∞	860.57	∞	3361737	4.973 ng/ml
THC-COOH	1.897	152478	∞	266.08	∞	1237020	19.128 ng/ml

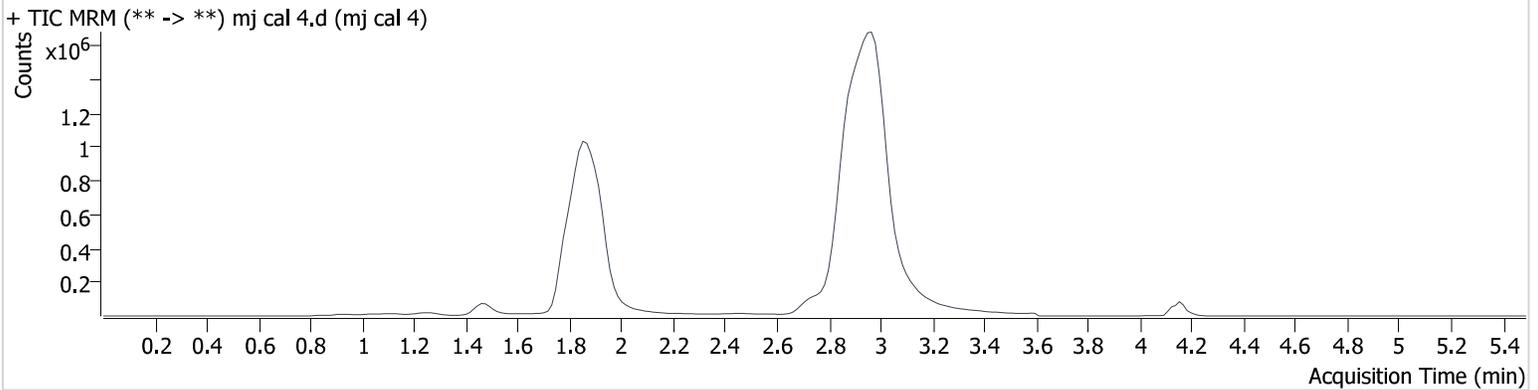
AM #27 Cannabinoids

Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Calibration Last Update 6/15/2023 7:29:17 AM

Instrument 69679
Type Cal
Acq. Method am 27 67.m
Sample Position P3-D1
Injection Volume 10
Acq. Date-Time 6/14/2023 8:05:37 PM
Sample Info.

Data File mj cal 4.d
Sample mj cal 4
Operator Anne Nord
Comment Only drugs and concentrations listed on the laboratory report itself are appropriate to be used for interpretation purposes. Any drugs or values included in the notes but not included on the report are used by laboratory personnel to make determinations/reach conclusions within the confines of the methods

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.840	114512	∞	863.54	∞	3472560	9.477 ng/ml
THC-COOH	1.897	422882	∞	262.58	∞	1277593	48.703 ng/ml

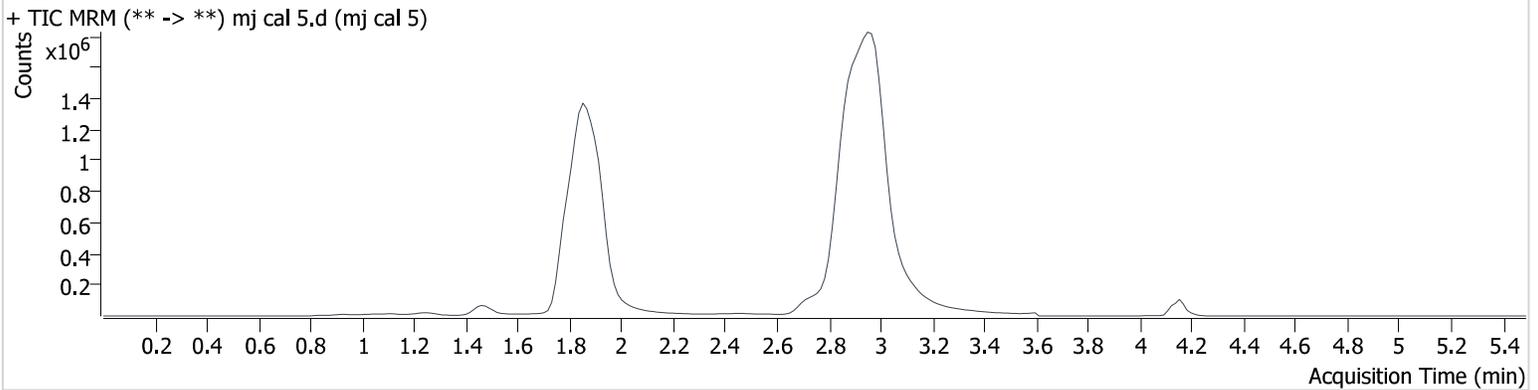
AM #27 Cannabinoids

Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Calibration Last Update 6/15/2023 7:29:17 AM

Instrument 69679
Type Cal
Acq. Method am 27 67.m
Sample Position P3-E1
Injection Volume 10
Acq. Date-Time 6/14/2023 8:12:13 PM
Sample Info.

Data File mj cal 5.d
Sample mj cal 5
Operator Anne Nord
Comment Only drugs and concentrations listed on the laboratory report itself are appropriate to be used for interpretation purposes. Any drugs or values included in the notes but not included on the report are used by laboratory personnel to make determinations/reach conclusions within the confines of the methods

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.840	293858	∞	845.11	∞	3330454	24.040 ng/ml
THC-COOH	1.897	616398	∞	259.98	∞	1226162	73.149 ng/ml

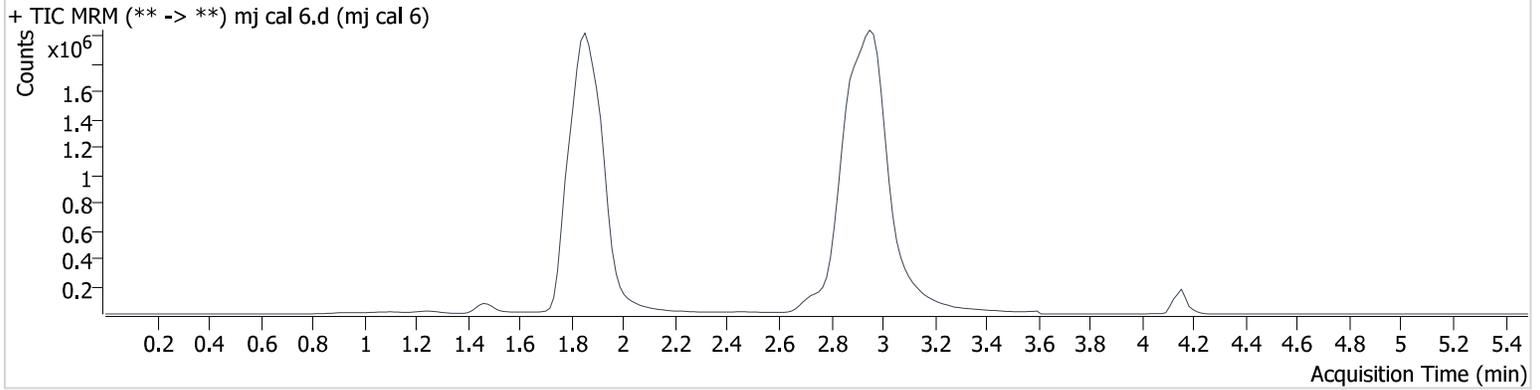
AM #27 Cannabinoids

Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Calibration Last Update 6/15/2023 7:29:17 AM

Instrument 69679
Type Cal
Acq. Method am 27 67.m
Sample Position P3-F1
Injection Volume 10
Acq. Date-Time 6/14/2023 8:18:49 PM
Sample Info.

Data File mj cal 6.d
Sample mj cal 6
Operator Anne Nord
Comment Only drugs and concentrations listed on the laboratory report itself are appropriate to be used for interpretation purposes. Any drugs or values included in the notes but not included on the report are used by laboratory personnel to make determinations/reach conclusions within the confines of the methods

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.825	670242	∞	834.13	∞	3627532	49.482 ng/ml
THC-COOH	1.897	900894	∞	256.40	∞	1325659	98.332 ng/ml

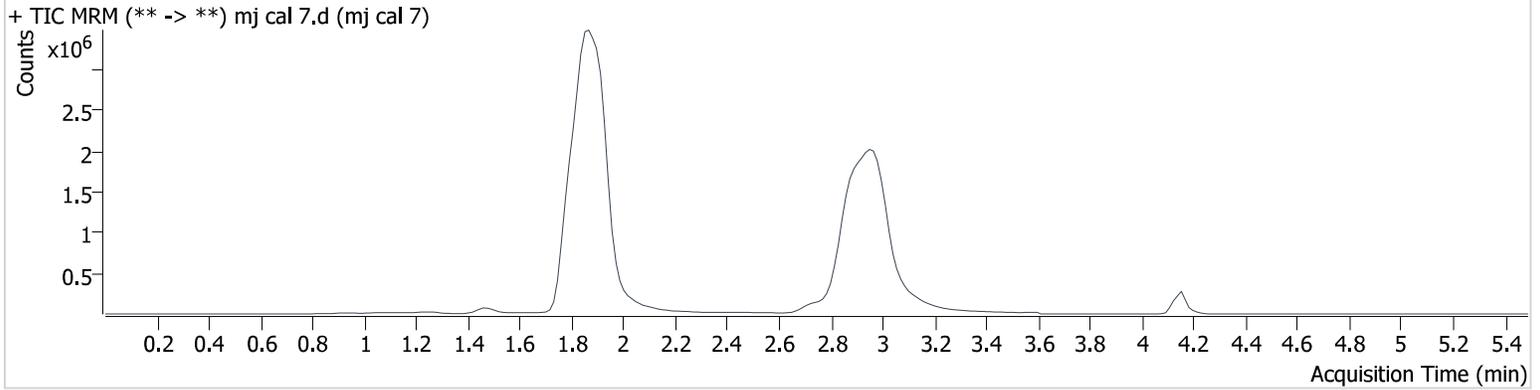
AM #27 Cannabinoids

Batch results D:\MassHunter\Data\2023\am 27-28\061423r\QuantResults\cann.batch.bin
Calibration Last Update 6/15/2023 7:29:17 AM

Instrument 69679
Type Cal
Acq. Method am 27 67.m
Sample Position P3-G1
Injection Volume 10
Acq. Date-Time 6/14/2023 8:25:24 PM
Sample Info.

Data File mj cal 7.d
Sample mj cal 7
Operator Anne Nord
Comment Only drugs and concentrations listed on the laboratory report itself are appropriate to be used for interpretation purposes. Any drugs or values included in the notes but not included on the report are used by laboratory personnel to make determinations/reach conclusions within the confines of the methods

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-OH	1.825	1303954	∞	816.45	∞	3403402	101.762 ng/ml
THC-COOH	1.897	2078805	∞	257.34	∞	1166951	255.198 ng/ml