








REVIEWED

By Anne Nord at 2:49 pm, Nov 20, 2019

11/12/2019

Worklist: 3819

<u>LAB CASE</u>	<u>ITEM</u>	<u>ITEM TYPE</u>	<u>DESCRIPTION</u>	
M2019-4402	4	UCK	AM 27 Blood THC Quant by LC-QQQ	
M2019-4427	3	UCK	AM 27 Blood THC Quant by LC-QQQ	
M2019-4505	4	UCK	AM 27 Blood THC Quant by LC-QQQ	
M2019-4632	3	UCK	AM 27 Blood THC Quant by LC-QQQ	
P2019-3129	1	UCK	AM 27 Blood THC Quant by LC-QQQ	
P2019-3130	1	UCK	AM 27 Blood THC Quant by LC-QQQ	
P2019-3152	1	UCK	AM 27 Blood THC Quant by LC-QQQ	

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

Extraction Date: 11/15/2019

Plate lot#: 190716

Mobile phase A: 0.1% Formic Acid in LCMS Water

Blank Blood Lot: 445283-3

LCMS-QQQ ID: 069901

Analyst: Celena Shrum

Plate Expiration: 01/16/2020

Mobile phase B: 0.1% Formic acid in Acetonitrile

Column: UCT Selectra DA 100 x 2.1mm 3um

Blank Urine Lot: POC031319

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 1.5mL urine to blank plate, add 250µl 1N KOH. Shake and incubate at 40 degrees for 15 minutes. Using a calibrated pipette, add **1000µl blood and urine (if applicable) (calibrated pipette)** into the appropriate wells of analytical (standards) plate. **Pipette ID: #3**
- 3. Place on shaking incubator at ambient temp., 900rpm for 15 minutes. *Shaker ID: 067105*
- 4. Pipette **500µL 0.1% formic acid in water blood sample, 500 µL 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: 067104
- 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: 067103*
- 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 r^2 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
- 4. Case sample response for THC and OH-THC 3ng/mL (quantitative), Carboxy-THC: 10ng/mL (qualitative only) will be reported. 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, describe in comments section)
- 6. Enter QCs into control charting.
- 7. Central File Packet to include: LIMS Worklist, Method Checklist, Calibration and Control Reports

COMMENTS: Curve ranges are THC: 3-100, THC-COOH: 5-250, and THC-OH: not evaluated due to co-eluting peaks. The samples were extracted on 11/7/19 but the negative control failed. The samples were re-extracted. This is the re-extraction run. M2019-4402-4 and M2019-4632-3 were included in the original extraction that failed and were not included in the re-extract done on 11/15/19 but were included in the extraction done under worklist 3818.



Idaho State Police Forensic Services

AM #27 Quantitative Analysis of THC and Metabolites in Blood and Urine by LCMS-QQQ

Methanol External Control Solution (Lot: WS041619)

10 ul of 1mg/mL THC, 100 ul of 100 ug/mL THC-OH, C-THC in 9790 ul MeOH
Approximate concentration 1ug/mL.

Component	Source	Source Lot Number	Expiration Date
Methanol (LCMS)	Fisher	184782	
THC	Cerilliant	FE09101501	11/30/2020
C-THC	Cerilliant	FE07171501	09/30/2020
THC-OH	Cerilliant	FE01121503	01/31/2020
Prepared:	04/16/2019		
Prepared By:	Tamara Salazar		
Expires:	01/31/2020		

Urine External Control Solution (Lot: 111519)

200 ul of methanol external control solution was added to 9800 ul of urine.
Approximately 20ng/mL of each compound.

Component	Source	Source Lot Number
Negative Urine	Pocatello Lab	POC031319
Methanol External Control Solution	-	WS041619
Prepared:	11/15/19	
Prepared by:	Celena Shrum	
Expires:	01/31/2020	

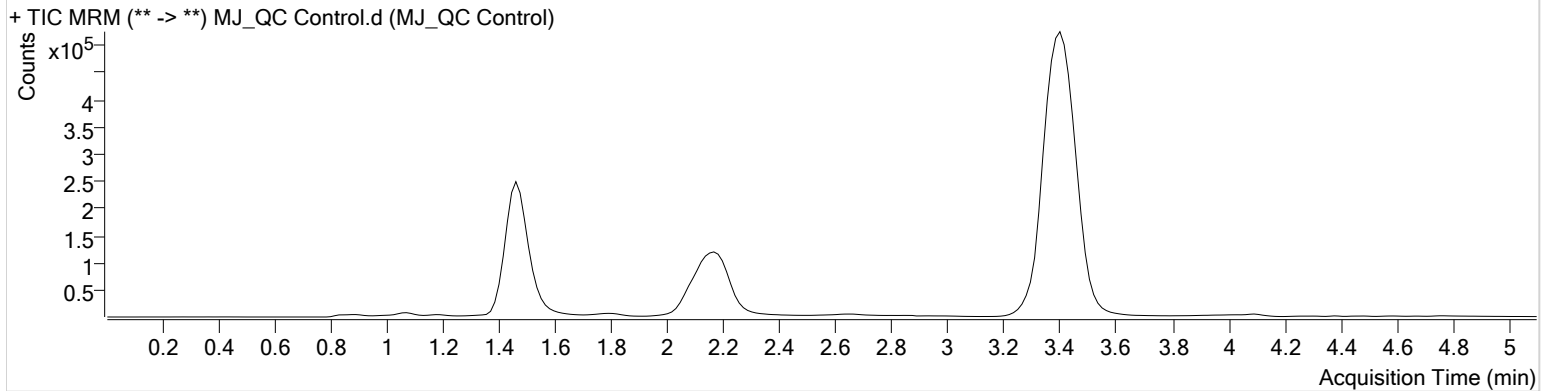
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2019\AM 27\AM 27 Urines 111519 CS\QuantResults\AM 27 111519 CS without THC-OH.batch.bin
Calibration Last Update 11/20/2019 2:22:07 PM

Instrument	Falco	Data File	MJ_QC Control.d
Type	Sample	Sample	MJ_QC Control
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-A6	Comment	
Injection Volume	10		
Acq. Date-Time	11/15/2019 4:06:01 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-COOH	1.504	87386	270.77	56.1	822.26	256375	14.0635 ng/ml
THC	3.420	146280	1645.29	28.9	763.85	4080871	4.4576 ng/ml

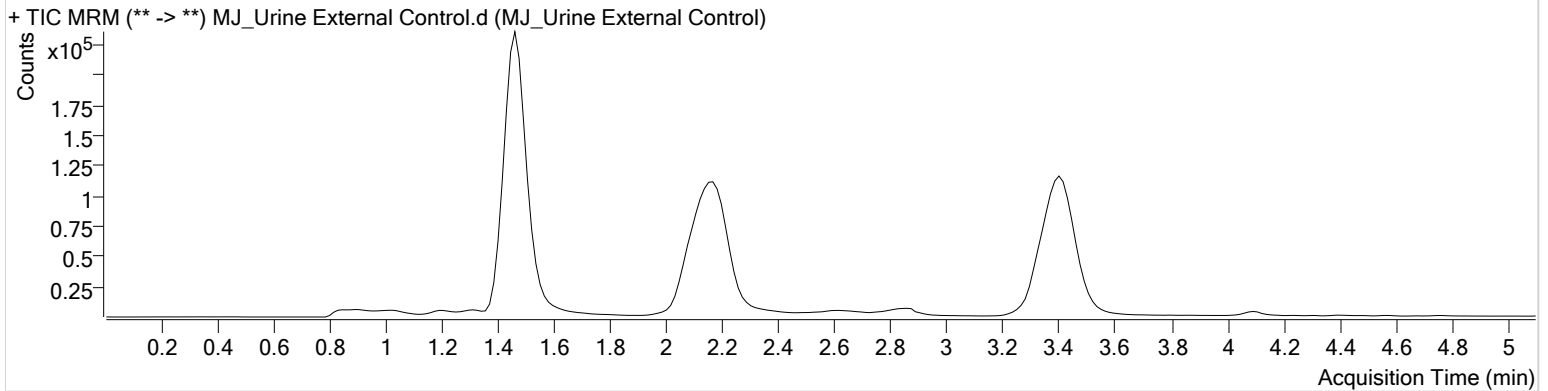
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2019\AM 27\AM 27 Urines 111519 CS\QuantResults\AM 27 111519 CS without THC-OH.batch.bin
Calibration Last Update 11/20/2019 2:22:07 PM

Instrument	Falco	Data File	MJ_Urine External Control.d
Type	Sample	Sample	MJ_Urine External Control
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-C5	Comment	
Injection Volume	10		
Acq. Date-Time	11/15/2019 4:51:36 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-COOH	1.504	64910	209.05	60.6	267.18	199017	13.4263 ng/ml
THC	3.420	102496	406.79	28.7	68.77	857168	14.1553 ng/ml

AM #27 Cannabinoid Quant. Results

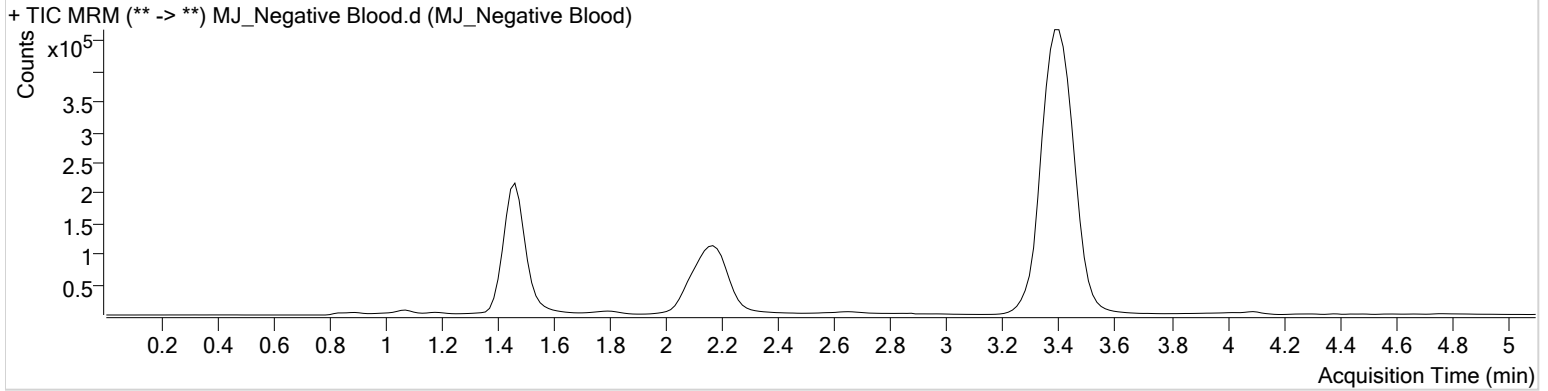


Batch results D:\MassHunter\Data\2019\AM 27\AM 27 Urines 111519 CS\QuantResults\AM 27 111519 CS without THC-OH.batch.bin

Calibration Last Update 11/20/2019 2:22:07 PM

Instrument	Falco	Data File	MJ_Negative Blood.d
Type	Sample	Sample	MJ_Negative Blood
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-A5	Comment	
Injection Volume	10		
Acq. Date-Time	11/15/2019 4:21:12 PM		
Sample Info.			

Sample Chromatogram



AM #27 Cannabinoid Quant. Results

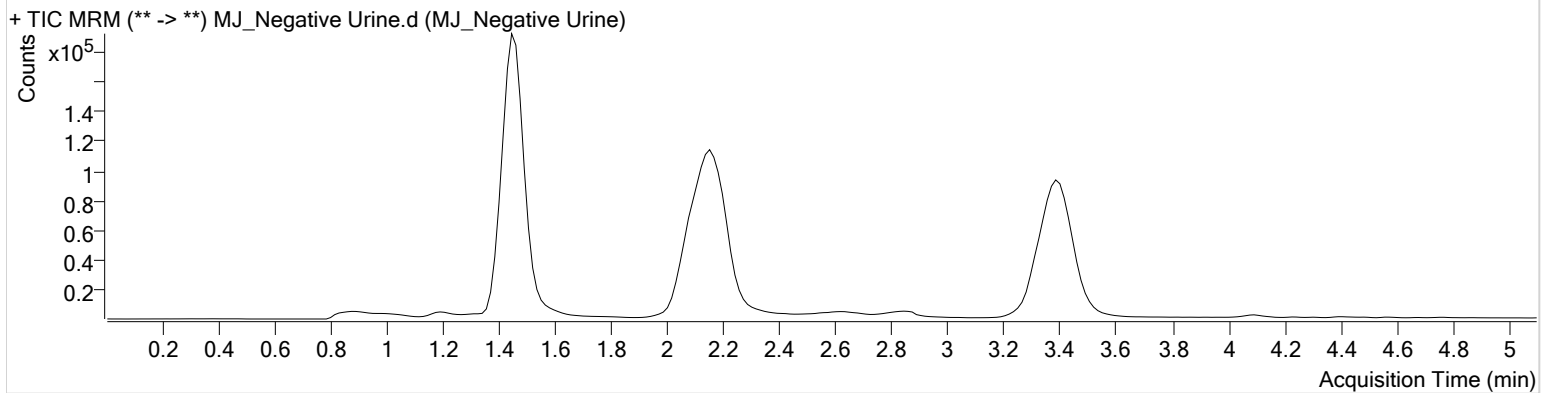


Batch results D:\MassHunter\Data\2019\AM 27\AM 27 Urines 111519 CS\QuantResults\AM 27 111519 CS without THC-OH.batch.bin

Calibration Last Update 11/20/2019 2:22:07 PM

Instrument	Falco	Data File	MJ_Negative Urine.d
Type	Sample	Sample	MJ_Negative Urine
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-B5	Comment	
Injection Volume	10		
Acq. Date-Time	11/15/2019 4:36:25 PM		
Sample Info.			

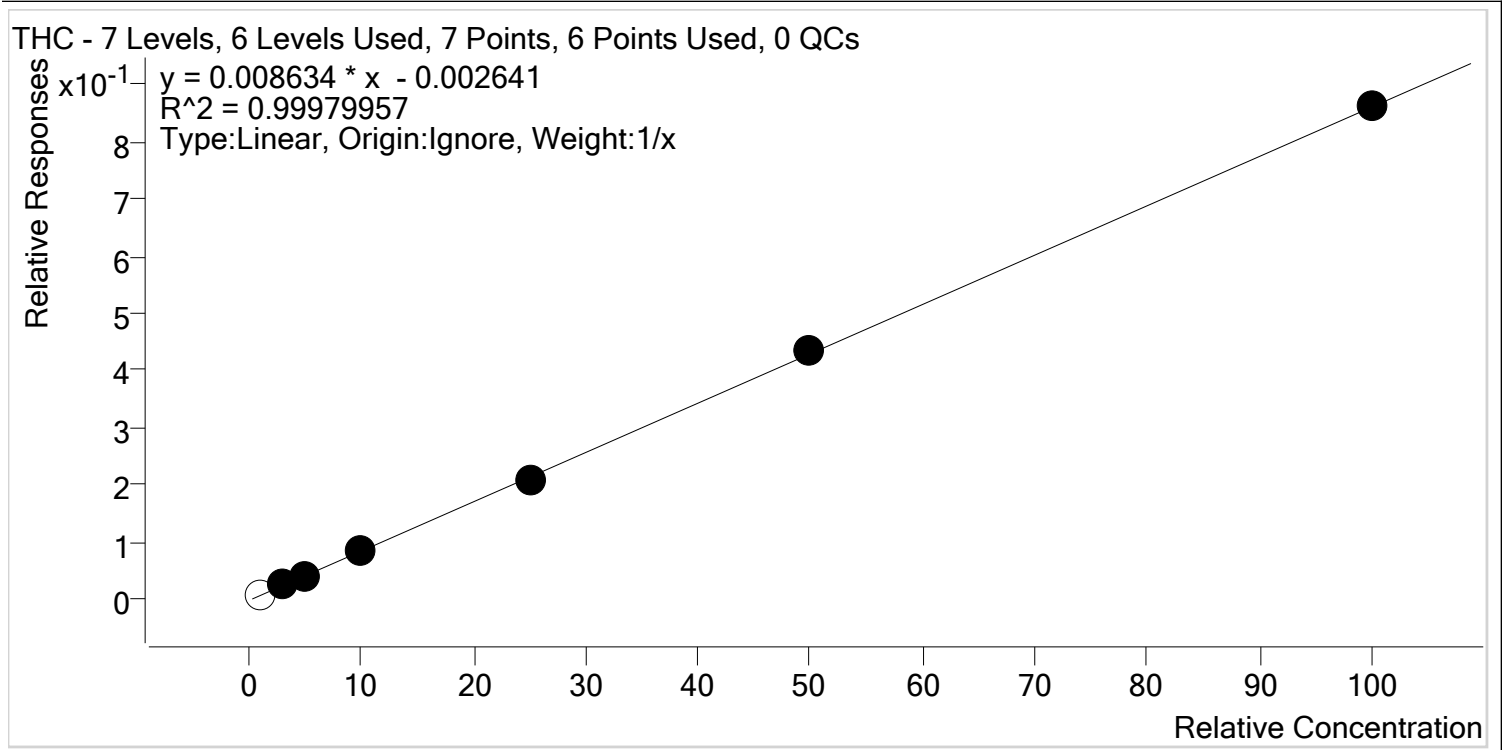
Sample Chromatogram





AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results D:\MassHunter\Data\2019\AM 27\AM 27 Urines 111519 CS\QuantResults\AM 27 111519 CS without THC-OH.batch.bin
Last Cal. Update 11/20/2019 2:22 PM
Analyst Name ISP\datastor
Analyte THC **Internal Standard** THC-D3

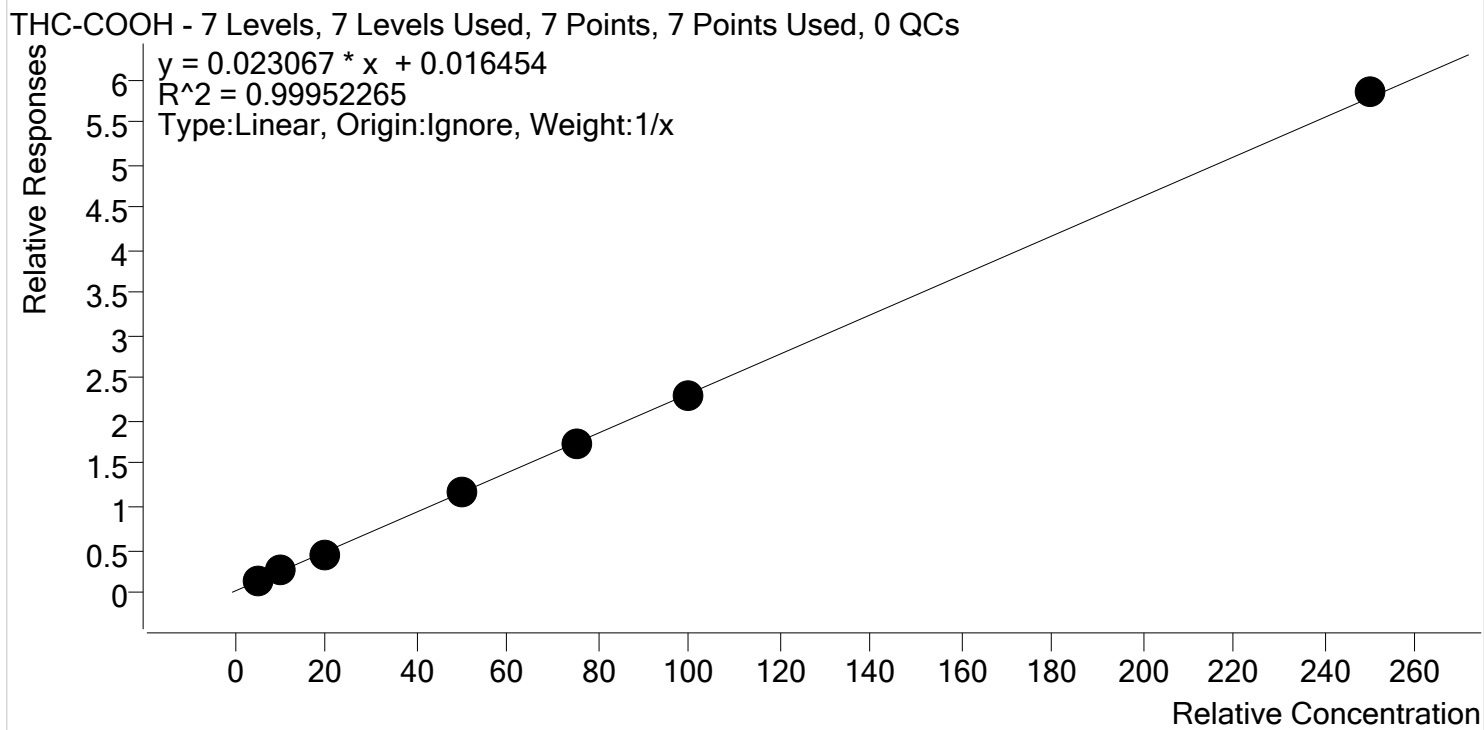


Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
MJ_Cal 1	1	x	1.0	1.3	125.1
MJ_Cal 2	2	✓	3.0	3.1	104.1
MJ_Cal 3	3	✓	5.0	4.8	96.9
MJ_Cal 4	4	✓	10.0	10.0	100.4
MJ_Cal 5	5	✓	25.0	24.4	97.6
MJ_Cal 6	6	✓	50.0	50.5	100.9
MJ_Cal 7	7	✓	100.0	100.1	100.1



AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results D:\MassHunter\Data\2019\AM 27\AM 27 Urines 111519 CS\QuantResults\AM 27 111519 CS without THC-OH.batch.bin
Last Cal. Update 11/20/2019 2:22 PM
Analyst Name ISP\datastor
Analyte THC-COOH **Internal Standard** THC-COOH-D9



Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
MJ_Cal 1	1	✓	5.0	5.4	107.1
MJ_Cal 2	2	✓	10.0	10.0	99.9
MJ_Cal 3	3	✓	20.0	18.7	93.3
MJ_Cal 4	4	✓	50.0	50.7	101.3
MJ_Cal 5	5	✓	75.0	74.0	98.6
MJ_Cal 6	6	✓	100.0	98.6	98.6
MJ_Cal 7	7	✓	250.0	252.7	101.1

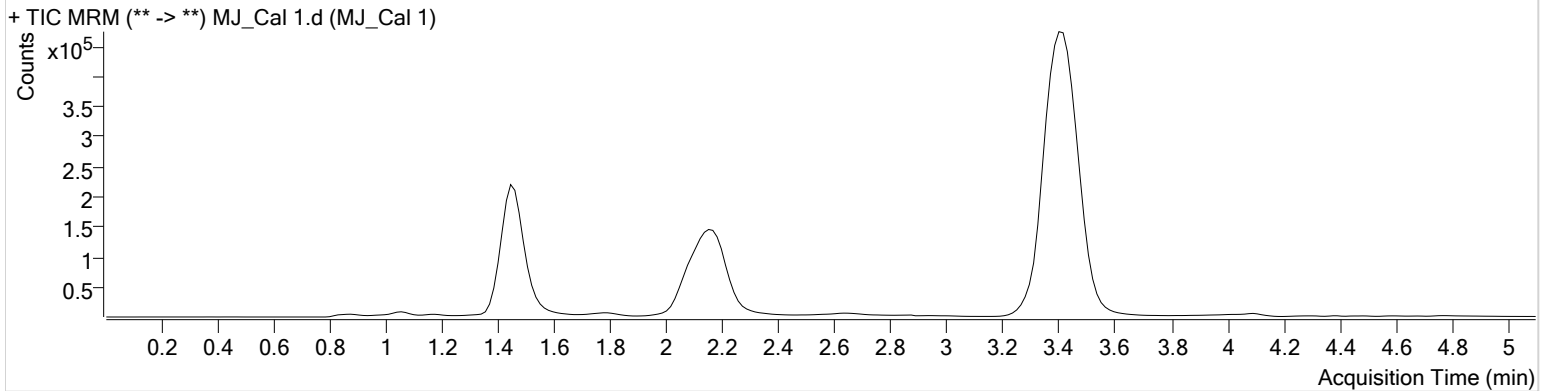
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2019\AM 27\AM 27 Urines 111519 CS\QuantResults\AM 27 111519 CS without THC-OH.batch.bin
Calibration Last Update 11/20/2019 2:22:07 PM

Instrument	Falco	Data File	MJ_Cal 1.d
Type	Cal	Sample	MJ_Cal 1
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-B6	Comment	
Injection Volume	10		
Acq. Date-Time	11/15/2019 3:05:11 PM		

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-COOH	1.489	35721	∞	47.6	∞	255260	5.3534 ng/ml Low
THC	3.435	33053	290.23	42.7 High	27.22	4051972	1.2507 ng/ml Low

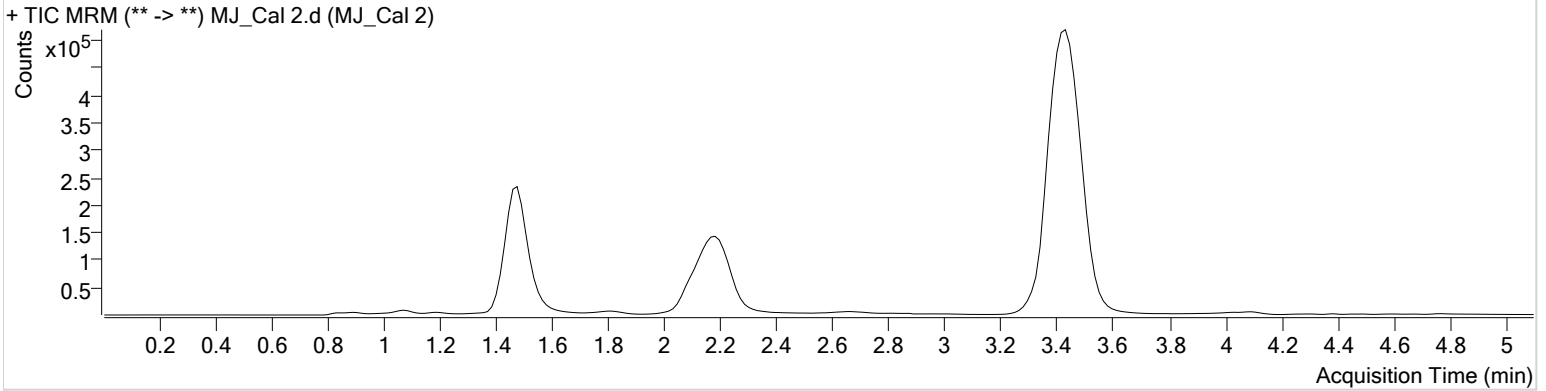
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2019\AM 27\AM 27 Urines 111519 CS\QuantResults\AM 27 111519 CS without THC-OH.batch.bin
Calibration Last Update 11/20/2019 2:22:07 PM

Instrument	Falco	Data File	MJ_Cal 2.d
Type	Cal	Sample	MJ_Cal 2
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-C6	Comment	
Injection Volume	10		
Acq. Date-Time	11/15/2019 3:12:56 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-COOH	1.519	62677	132.98	55.0	307.45	253864	9.9901 ng/ml Low -OK
THC	3.450	101788	752.57	29.0	180.54	4186817	3.1217 ng/ml

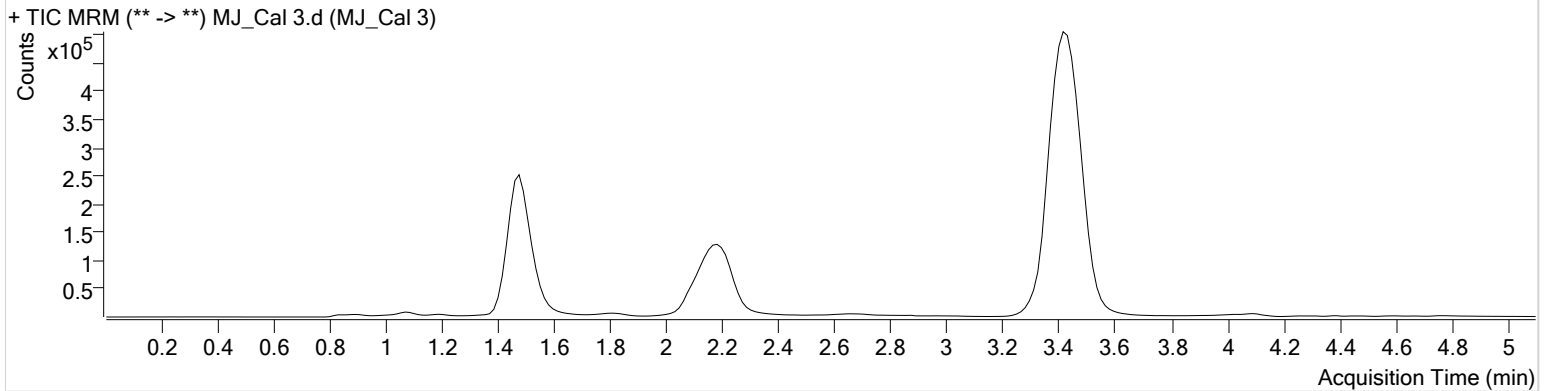
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2019\AM 27\AM 27 Urines 111519 CS\QuantResults\AM 27 111519 CS without THC-OH.batch.bin
Calibration Last Update 11/20/2019 2:22:07 PM

Instrument	Falco	Data File	MJ_Cal 3.d
Type	Cal	Sample	MJ_Cal 3
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-D6	Comment	
Injection Volume	10		
Acq. Date-Time	11/15/2019 3:20:30 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-COOH	1.519	112935	565.64	60.2	686.54	252635	18.6665 ng/ml
THC	3.435	153586	1067.69	28.9	∞	3919129	4.8448 ng/ml

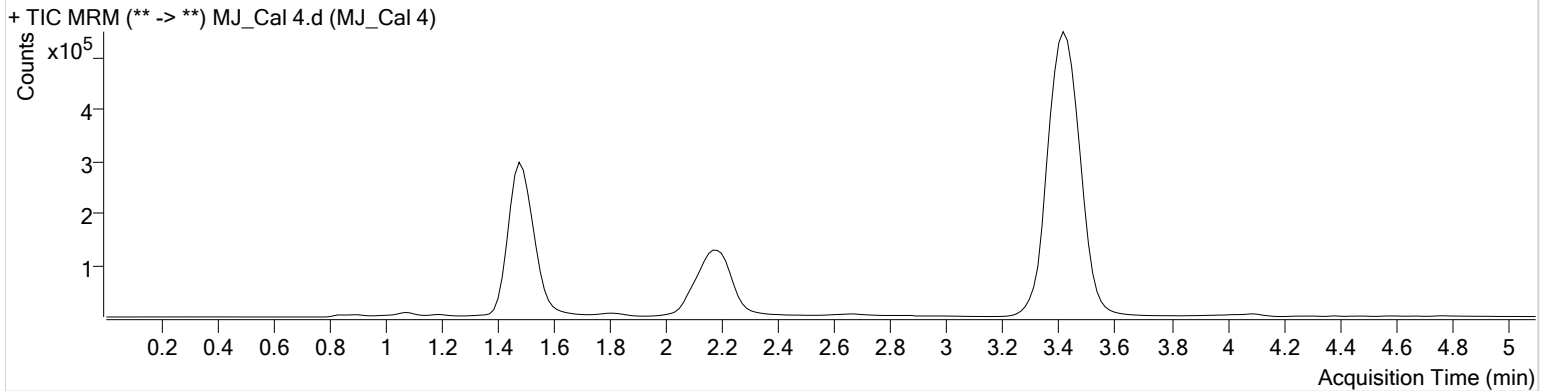
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2019\AM 27\AM 27 Urines 111519 CS\QuantResults\AM 27 111519 CS without THC-OH.batch.bin
Calibration Last Update 11/20/2019 2:22:07 PM

Instrument	Falco	Data File	MJ_Cal 4.d
Type	Cal	Sample	MJ_Cal 4
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-E6	Comment	
Injection Volume	10		
Acq. Date-Time	11/15/2019 3:28:05 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-COOH	1.519	294370	733.37	60.1	1787.33	248357	50.6712 ng/ml
THC	3.435	335847	2815.03	27.7	468.17	3997169	10.0374 ng/ml

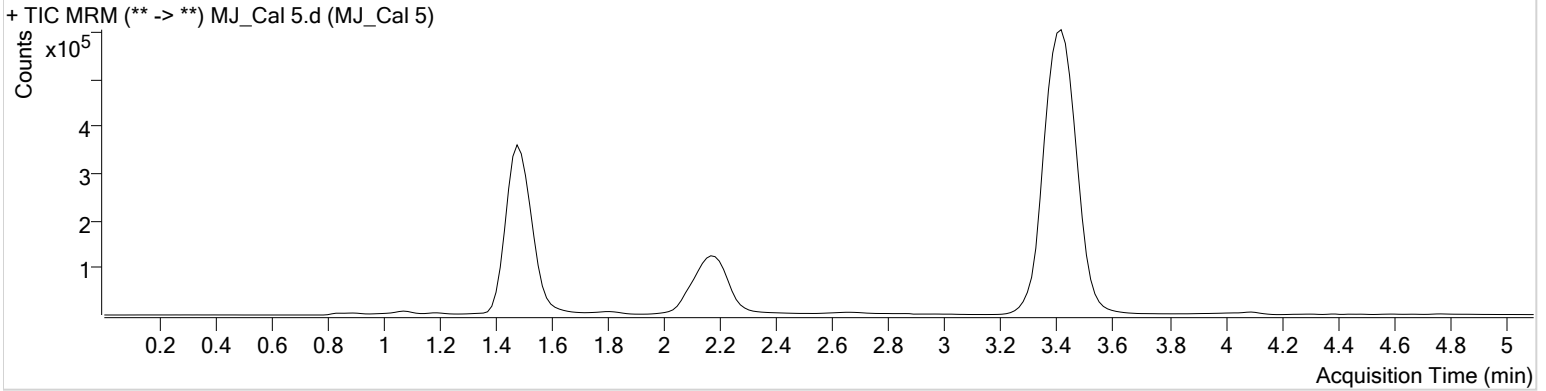
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2019\AM 27\AM 27 Urines 111519 CS\QuantResults\AM 27 111519 CS without THC-OH.batch.bin
Calibration Last Update 11/20/2019 2:22:07 PM

Instrument	Falco	Data File	MJ_Cal 5.d
Type	Cal	Sample	MJ_Cal 5
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-F6	Comment	
Injection Volume	10		
Acq. Date-Time	11/15/2019 3:35:39 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-COOH	1.504	422766	934.60	60.6	4338.81	245378	73.9796 ng/ml
THC	3.420	815779	1993.98	26.9	∞	3920594	24.4056 ng/ml

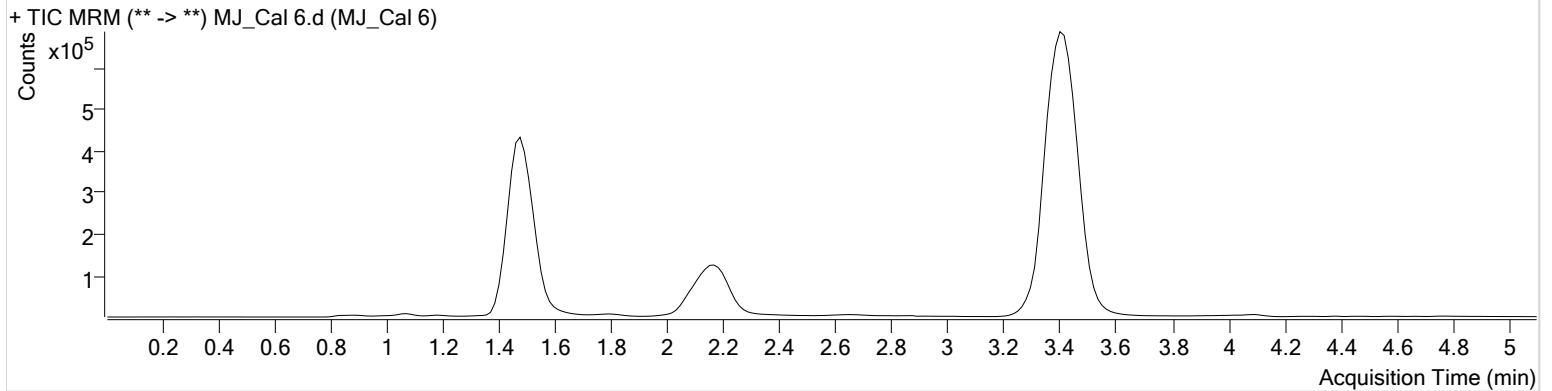
AM #27 Cannabinoid Quant. Results



Batch results D:\MassHunter\Data\2019\AM 27\AM 27 Urines 111519 CS\QuantResults\AM 27 111519 CS without THC-OH.batch.bin
Calibration Last Update 11/20/2019 2:22:07 PM

Instrument	Falco	Data File	MJ_Cal 6.d
Type	Cal	Sample	MJ_Cal 6
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-G6	Comment	
Injection Volume	10		
Acq. Date-Time	11/15/2019 3:43:15 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-COOH	1.504	541950	1528.07	60.2	6949.06	236490	98.6353 ng/ml
THC	3.420	1591408	∞	26.5	1165.67	3675068	50.4600 ng/ml

AM #27 Cannabinoid Quant. Results

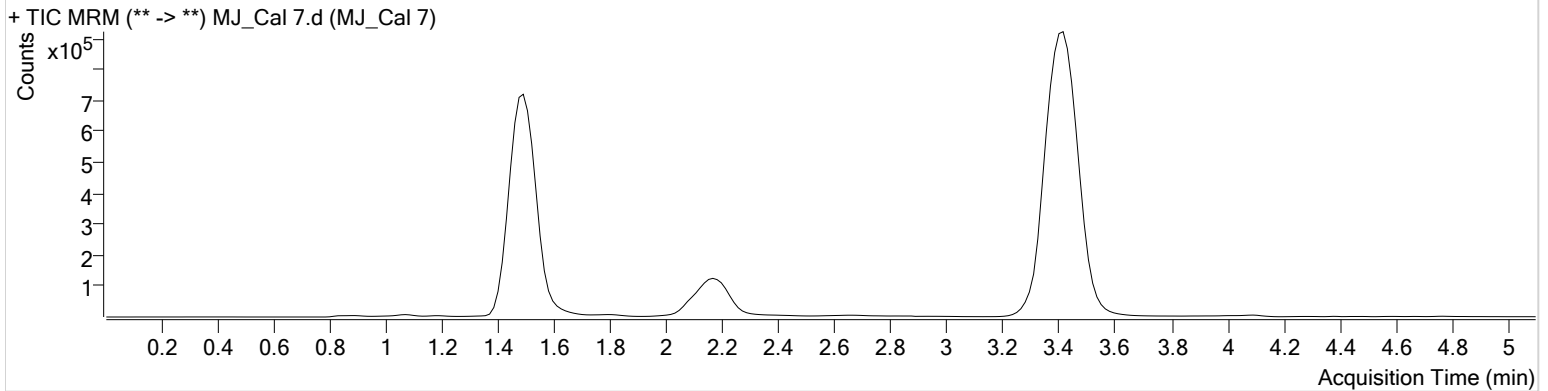


Batch results D:\MassHunter\Data\2019\AM 27\AM 27 Urines 111519 CS\QuantResults\AM 27 111519 CS without THC-OH.batch.bin

Calibration Last Update 11/20/2019 2:22:07 PM

Instrument	Falco	Data File	MJ_Cal 7.d
Type	Cal	Sample	MJ_Cal 7
Acq. Method	AM 27 THC quant.m	Operator	Celena Shrum
Sample Position	P3-H6	Comment	
Injection Volume	10		
Acq. Date-Time	11/15/2019 3:50:50 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.
THC-COOH	1.504	1289149	2349.31	61.2	∞	220538	252.7040 ng/ml
THC	3.420	3148749	∞	26.8	1162.63	3653347	100.1305 ng/ml