REVIEWED
By Tamara Salazar at 8:58 am, Feb 17, 2022

2/14/2022

Worklist: 5595

LAB_CASE	ITEM	ITEM_TYPE	DESCRIPTION	
M2022-0067	3	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
M2022-0181	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
M2022-0460	4	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2022-0191	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2022-0202	2	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2022-0307	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2022-0328	2	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2022-0349	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2022-0350	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: 2/11/2022
Plate lot#: 211018
Mobile phase A: 0.1% Formic Acid in LCMS Water
Blank Blood Lot: Lampire 22B52016-2
LCMS-QQQ ID: 069901

Analyst: Celena Shrum
Plate Retest Date: 04/18/2022
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. Using a calibrated pipette, add **1000µl blood and urine (if applicable) (calibrated pipette)** into the appropriate wells of analytical (standards) plate. **Pipette ID: #42**
☒ 3. Place on shaking incubator at ambient temp., 900rpm for 15 minutes.
☒ 4. Pipette **500µL 0.1% formic acid in water blood sample** 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)***
☒ 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.
☒ 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 1ng/mL and OH-THC 3ng/mL (quantitative), Carboxy-THC: 5ng/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: Only THC-COOH evaluated.

	1	2	3	4	5	6
a	cal 1ng	QC 2	P2022-0307-1			
b	cal 3 ng	NEG Blood	P2022-0328-2			
c	cal 5 ng	NEG Urine	P2022-0349-1			
d	cal 10ng	M2022-0067-3	P2022-0350-1			
e	cal 25 ng	M2022-0181-1				
f	cal 50 ng	M2022-0460-4				
g	cal 100 ng	P2022-0191-1				
h	QC 1	P2022-0202-2				

Added to central file on 3/3/2022. CS

IDAHO STATE POLICE

MEMORANDUM

DATE: 3/3/2022

TO: Toxicology Discipline/ Jason Crowe

FROM: Celena Shrum- Toxicology Discipline lead

SUBJECT: Use of internal control in lieu of external control

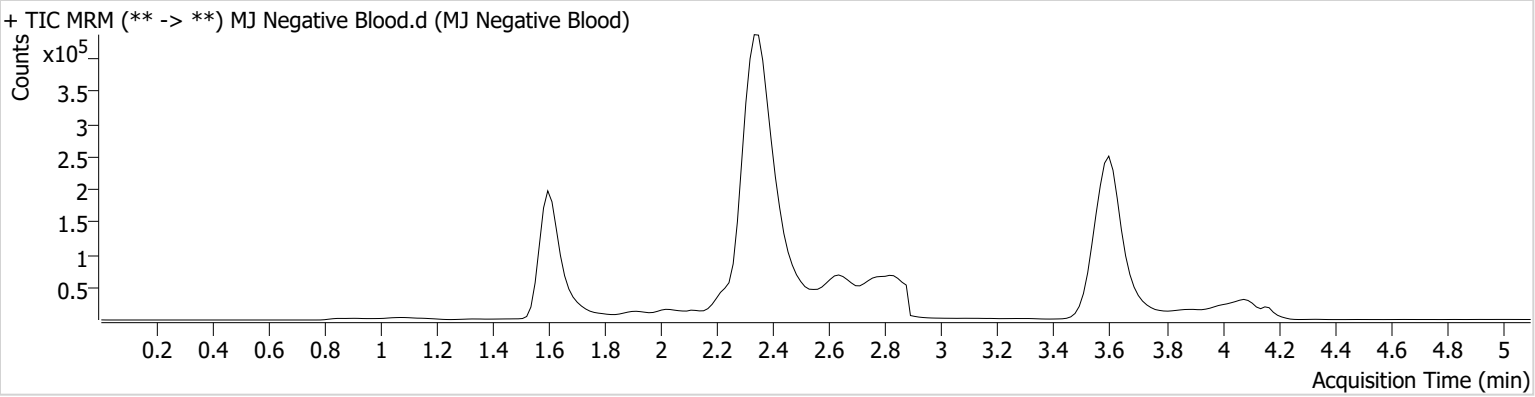
Toxicology Analytical Methods #25, 26, and 27 specify that if a run contains urine samples, a negative control and **external** urine control must also be included in the run. The purpose of this control is to demonstrate that the extraction worked as intended and to ensure that the results and concentrations obtained are accurate. It was decided in October 2021 that extra QC's would be included on the analytical plates so that they could be used as an internal control for runs with urine cases instead of continuing with including an external control. An internal control serves the same purpose as an external control but is prepared and placed on the analytical plate rather than being prepared in-house and placed on the plate at the time of testing. Utilizing internal controls versus external increases the efficacy of the controls used by ensuring consistent spiking and preparation, eliminating evaporation of compounds, etc. There is no quality issue with any of the cases, since an additional urine control was used that served the same purpose as the external control, but it was a violation of the wording specified in the method.

AM #27 Cannabinoid Quant. Results

Batch results	D:\MassHunter\Data\2022\AM 27-28\AM 27 28 Urines 2-11-22 CS\QuantResults\AM 27 MJ.batch.bin
Calibration Last Update	2/16/2022 8:05:42 AM

Instrument	Falco (069901)	**Data File**	MJ Negative Blood.d
Type	Sample	**Sample**	MJ Negative Blood
Acq. Method	AM 27 THCQ.m	**Operator**	Celena Shrum
Sample Position	P5-B2	**Comment**	
Injection Volume	10		
Acq. Date-Time	2/11/2022 5:29:44 PM		
Sample Info.			

Sample Chromatogram

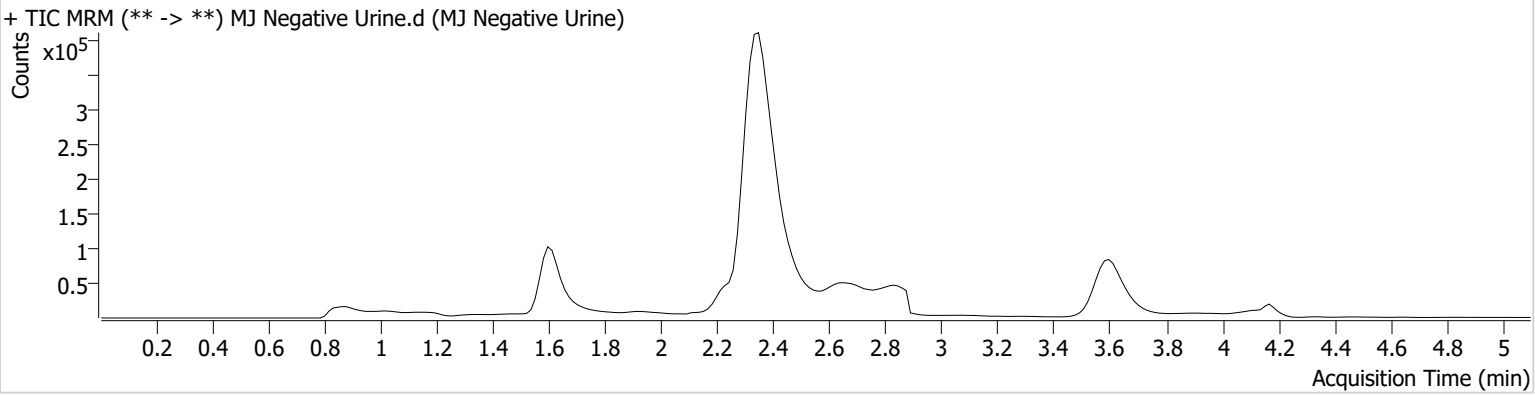


AM #27 Cannabinoid Quant. Results

Batch results	D:\MassHunter\Data\2022\AM 27-28\AM 27 28 Urines 2-11-22 CS\QuantResults\AM 27 MJ.batch.bin
Calibration Last Update	2/16/2022 8:05:42 AM

Instrument	Falco (069901)	**Data File**	MJ Negative Urine.d
Type	Sample	**Sample**	MJ Negative Urine
Acq. Method	AM 27 THCQ.m	**Operator**	Celena Shrum
Sample Position	P5-C2	**Comment**	
Injection Volume	10		
Acq. Date-Time	2/11/2022 5:52:32 PM		
Sample Info.			

Sample Chromatogram

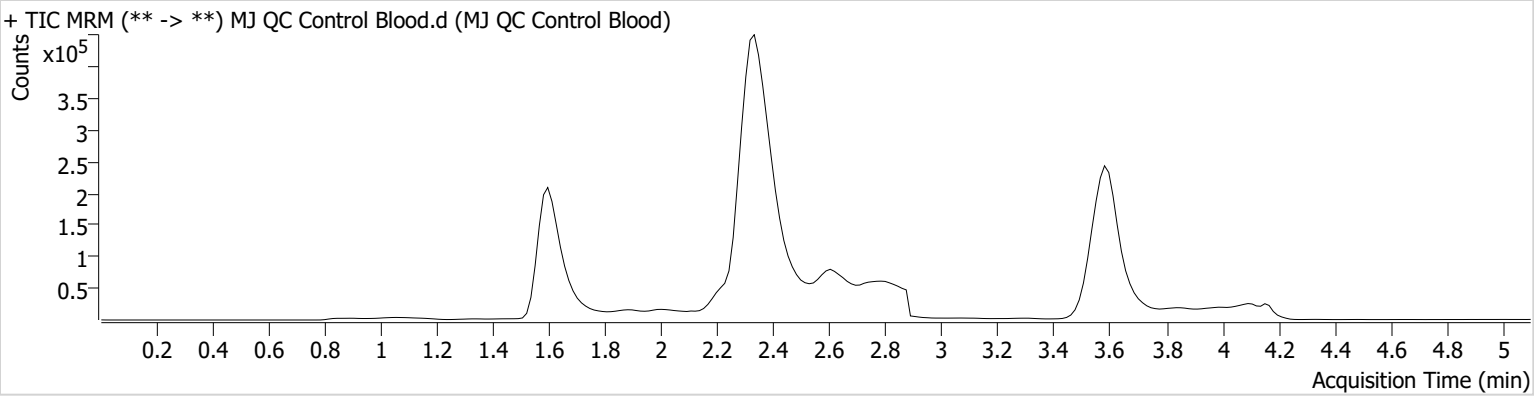


AM #27 Cannabinoid Quant. Results

Batch results	D:\MassHunter\Data\2022\AM 27-28\AM 27 28 Urines 2-11-22 CS\QuantResults\AM 27 MJ.batch.bin
Calibration Last Update	2/16/2022 8:05:42 AM

Instrument	Falco (069901)	**Data File**	MJ QC Control Blood.d
Type	QC	**Sample**	MJ QC Control Blood
Acq. Method	AM 27 THCQ.m	**Operator**	Celena Shrum
Sample Position	P5-H1	**Comment**	
Injection Volume	10		
Acq. Date-Time	2/11/2022 5:14:32 PM		
Sample Info.			

Sample Chromatogram



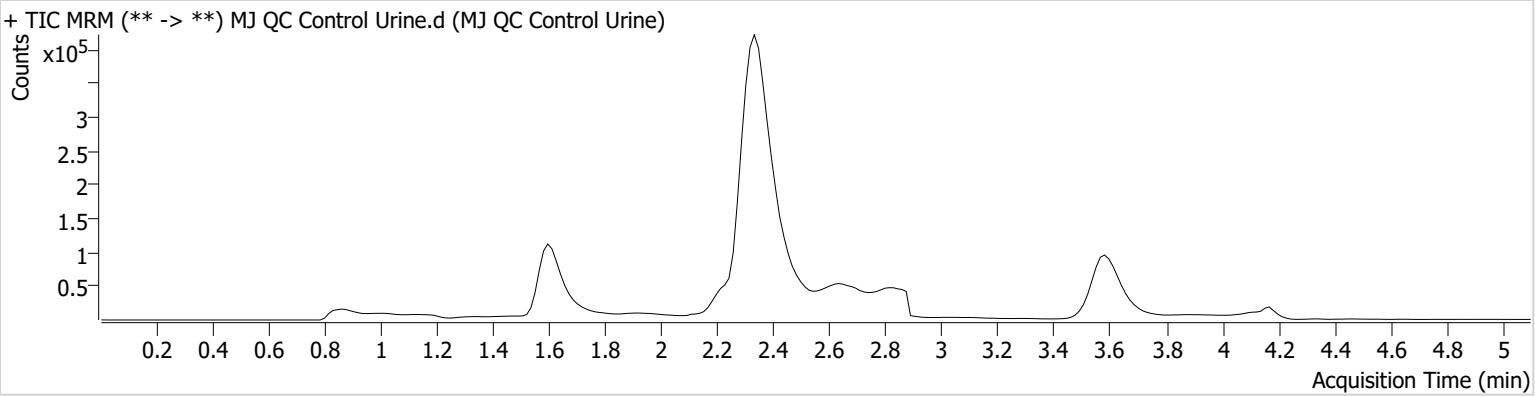
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.625	84927	∞	58.5	∞	249859	15.3124	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2022\AM 27-28\AM 27 28 Urines 2-11-22 CS\QuantResults\AM 27 MJ.batch.bin
Calibration Last Update 2/16/2022 8:05:42 AM

Instrument	Falco (069901)	**Data File**	MJ QC Control Urine.d
Type	QC	**Sample**	MJ QC Control Urine
Acq. Method	AM 27 THCQ.m	**Operator**	Celena Shrum
Sample Position	P5-A2	**Comment**	
Injection Volume	10		
Acq. Date-Time	2/11/2022 5:37:20 PM		
Sample Info.			

Sample Chromatogram



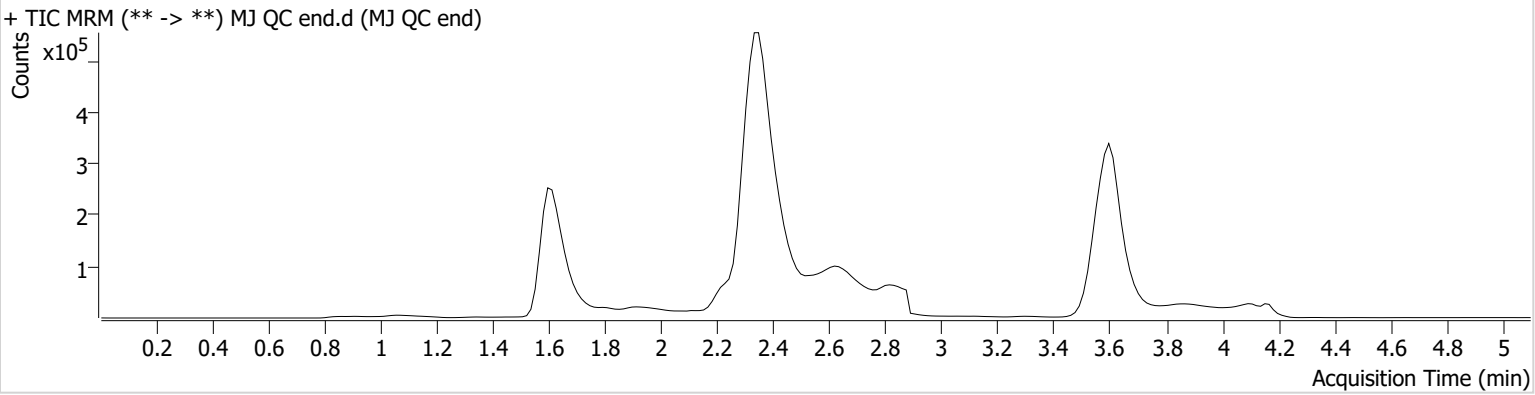
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.640	47063	∞	67.6	∞	134213	15.7616	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2022\AM 27-28\AM 27 28 Urines 2-11-22 CS\QuantResults\AM 27 MJ.batch.bin
Calibration Last Update 2/16/2022 8:05:42 AM

Instrument	Falco (069901)	**Data File**	MJ QC end.d
Type	QC	**Sample**	MJ QC end
Acq. Method	AM 27 THCQ.m	**Operator**	Celena Shrum
Sample Position	P5-H1	**Comment**	
Injection Volume	10		
Acq. Date-Time	2/11/2022 8:17:02 PM		
Sample Info.			

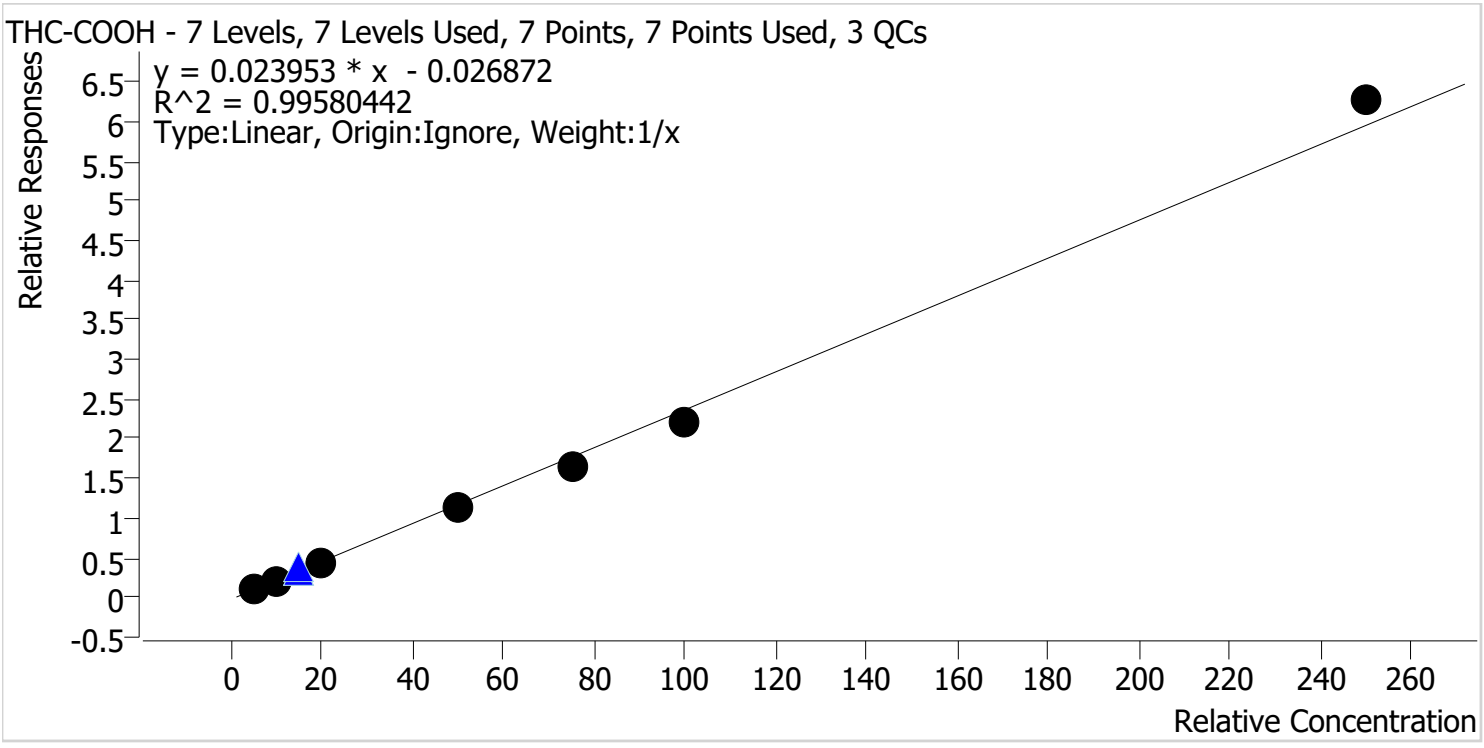
Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.640	103261	∞	57.2	320.38	282143	16.4017	ng/ml

AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results	D:\MassHunter\Data\2022\AM 27-28\AM 27 28 Urines 2-11-22 CS\QuantResults\AM 27 MJ.batch.bin
Last Cal. Update	2/16/2022 8:05 AM
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	5.7	114.3
MJ Cal 2	2	✔	10.0	10.1	101.2
MJ Cal 3	3	✔	20.0	19.3	96.4
MJ Cal 4	4	✔	50.0	47.6	95.1
MJ Cal 5	5	✔	75.0	70.7	94.3
MJ Cal 6	6	✔	100.0	93.4	93.4
MJ Cal 7	7	✔	250.0	263.2	105.3

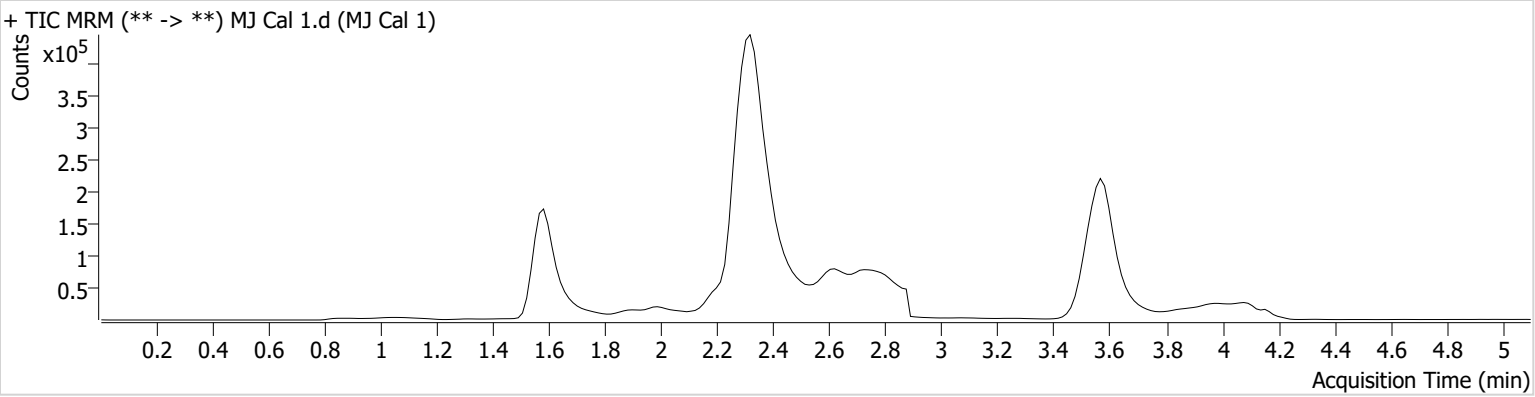
Generated at 8:06 AM on 2/16/2022

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2022\AM 27-28\AM 27 28 Urines 2-11-22 CS\QuantResults\AM 27 MJ.batch.bin
Calibration Last Update 2/16/2022 8:05:42 AM

Instrument	Falco (069901)	**Data File**	MJ Cal 1.d
Type	Cal	**Sample**	MJ Cal 1
Acq. Method	AM 27 THCQ.m	**Operator**	Celena Shrum
Sample Position	P5-A1	**Comment**	
Injection Volume	10		
Acq. Date-Time	2/11/2022 4:21:09 PM		
Sample Info.			

Sample Chromatogram



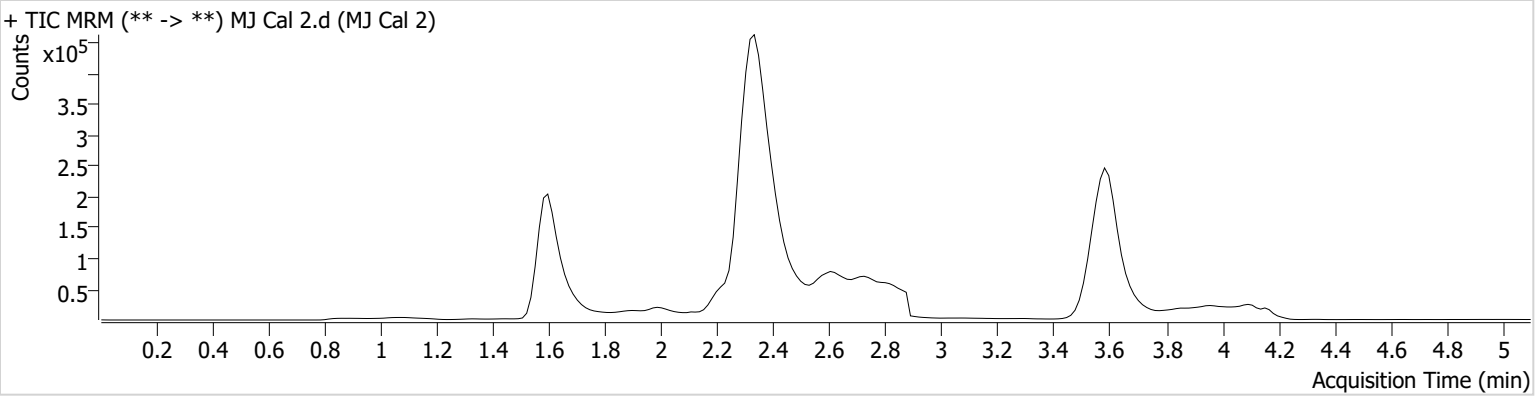
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.610	25844	∞	63.9	113.50	234977	5.7137	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2022\AM 27-28\AM 27 28 Urines 2-11-22 CS\QuantResults\AM 27 MJ.batch.bin
Calibration Last Update 2/16/2022 8:05:42 AM

Instrument	Falco (069901)	**Data File**	MJ Cal 2.d
Type	Cal	**Sample**	MJ Cal 2
Acq. Method	AM 27 THCQ.m	**Operator**	Celena Shrum
Sample Position	P5-B1	**Comment**	
Injection Volume	10		
Acq. Date-Time	2/11/2022 4:28:56 PM		
Sample Info.			

Sample Chromatogram



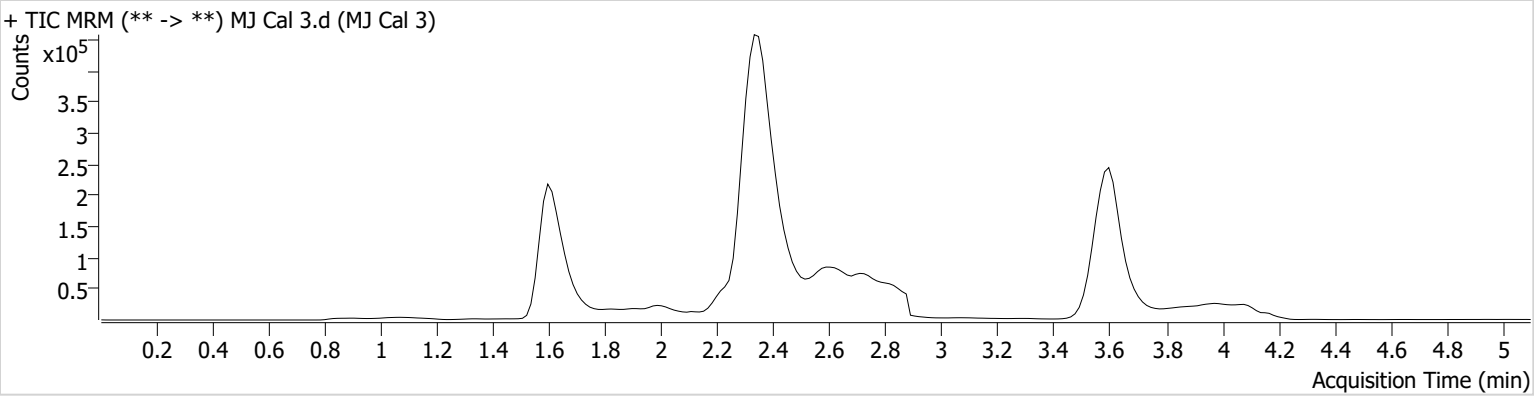
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.625	55501	∞	58.0	∞	257410	10.1235	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2022\AM 27-28\AM 27 28 Urines 2-11-22 CS\QuantResults\AM 27 MJ.batch.bin
Calibration Last Update 2/16/2022 8:05:42 AM

Instrument	Falco (069901)	**Data File**	MJ Cal 3.d
Type	Cal	**Sample**	MJ Cal 3
Acq. Method	AM 27 THCQ.m	**Operator**	Celena Shrum
Sample Position	P5-C1	**Comment**	
Injection Volume	10		
Acq. Date-Time	2/11/2022 4:36:32 PM		
Sample Info.			

Sample Chromatogram



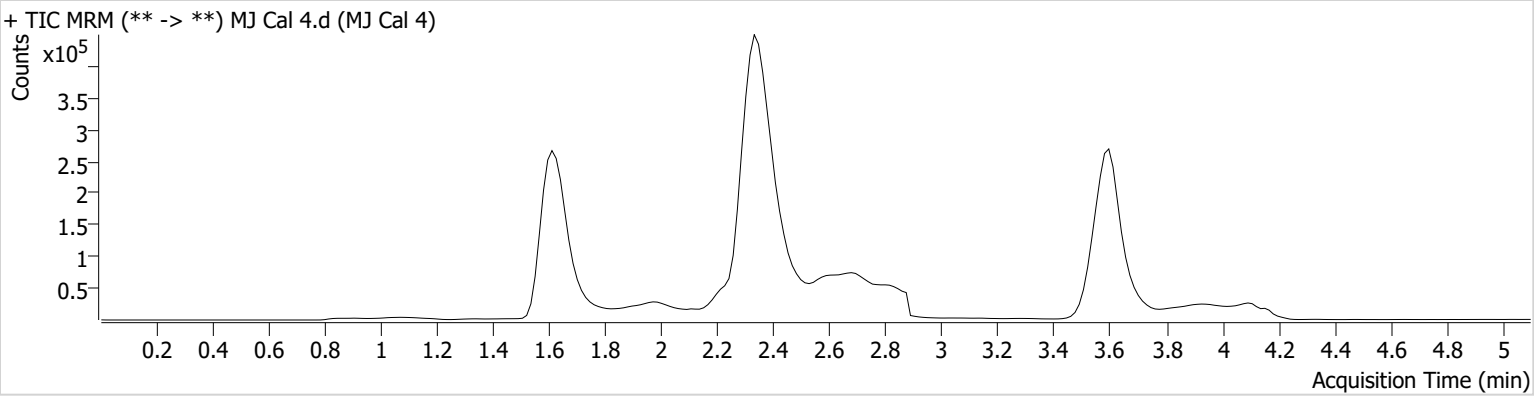
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.640	111378	∞	58.6	∞	256020	19.2843	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2022\AM 27-28\AM 27 28 Urines 2-11-22 CS\QuantResults\AM 27 MJ.batch.bin
Calibration Last Update 2/16/2022 8:05:42 AM

Instrument	Falco (069901)	**Data File**	MJ Cal 4.d
Type	Cal	**Sample**	MJ Cal 4
Acq. Method	AM 27 THCQ.m	**Operator**	Celena Shrum
Sample Position	P5-D1	**Comment**	
Injection Volume	10		
Acq. Date-Time	2/11/2022 4:44:08 PM		
Sample Info.			

Sample Chromatogram



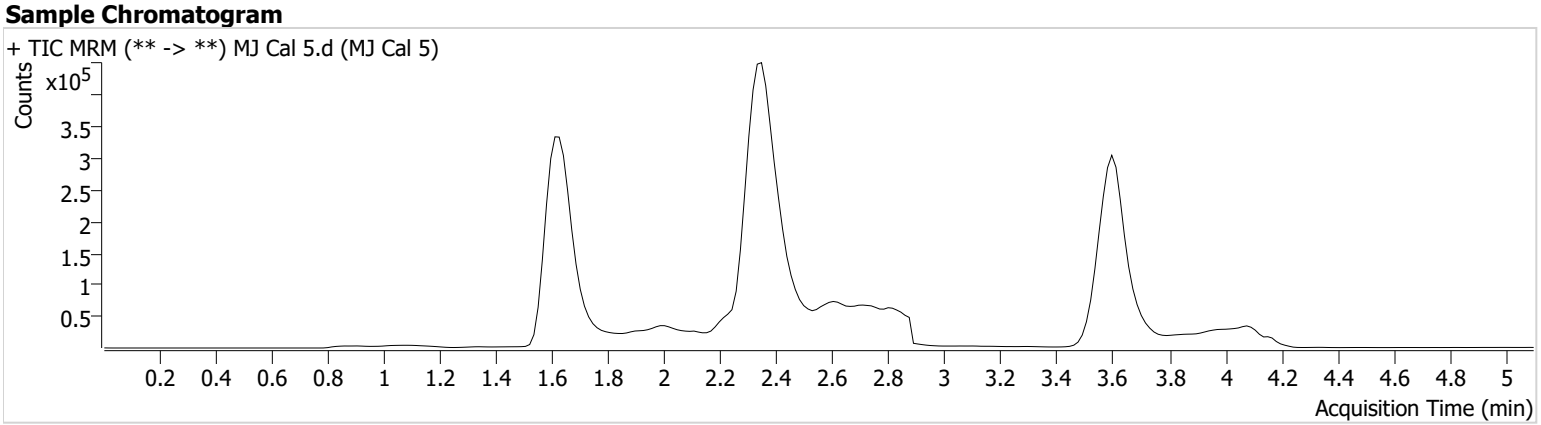
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.640	288508	∞	60.6	∞	259382	47.5591	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2022\AM 27-28\AM 27 28 Urines 2-11-22 CS\QuantResults\AM 27 MJ.batch.bin
Calibration Last Update 2/16/2022 8:05:42 AM

Instrument	Falco (069901)	**Data File**	MJ Cal 5.d
Type	Cal	**Sample**	MJ Cal 5
Acq. Method	AM 27 THCQ.m	**Operator**	Celena Shrum
Sample Position	P5-E1	**Comment**	
Injection Volume	10		
Acq. Date-Time	2/11/2022 4:51:43 PM		
Sample Info.			

Sample Chromatogram



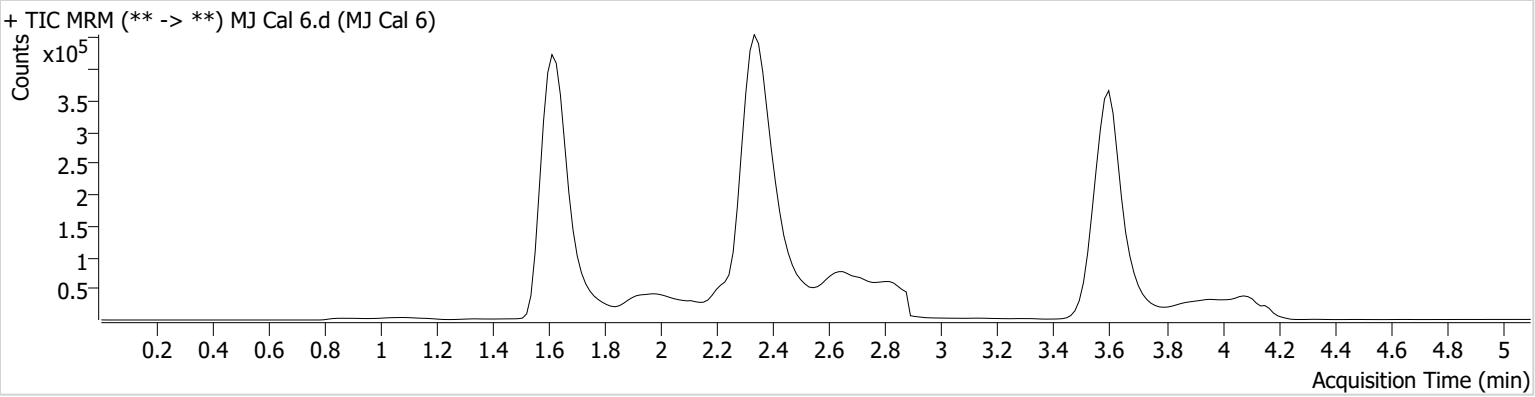
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.640	428176	∞	61.2	1517.56	256956	70.6903	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results	D:\MassHunter\Data\2022\AM 27-28\AM 27 28 Urines 2-11-22 CS\QuantResults\AM 27 MJ.batch.bin
Calibration Last Update	2/16/2022 8:05:42 AM

Instrument	Falco (069901)	**Data File**	MJ Cal 6.d
Type	Cal	**Sample**	MJ Cal 6
Acq. Method	AM 27 THCQ.m	**Operator**	Celena Shrum
Sample Position	P5-F1	**Comment**	
Injection Volume	10		
Acq. Date-Time	2/11/2022 4:59:19 PM		
Sample Info.			

Sample Chromatogram



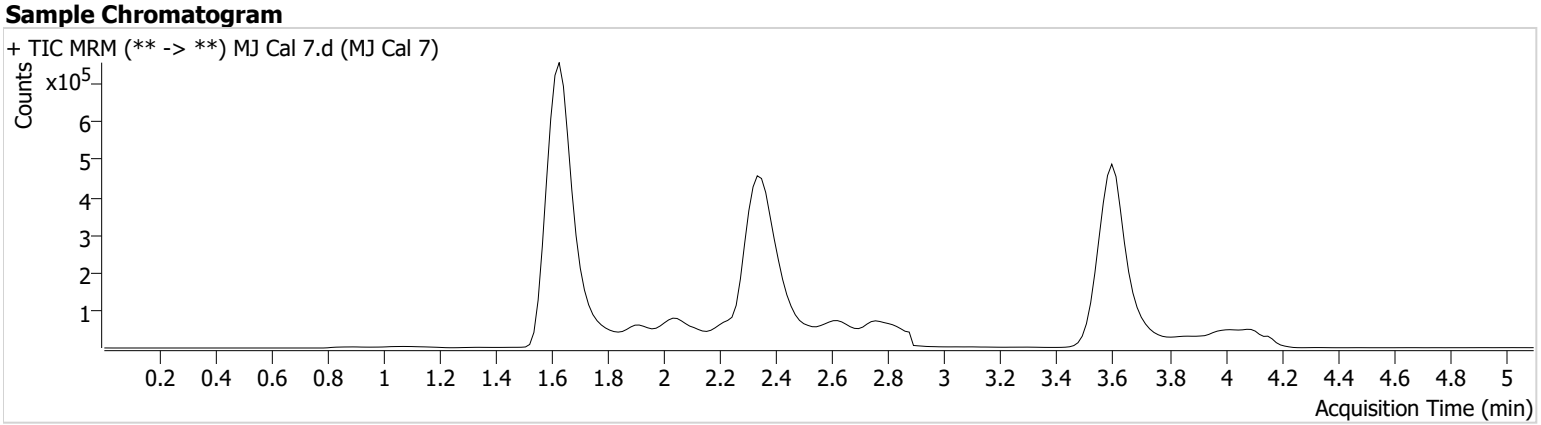
Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.640	553464	∞	61.0	3054.88	250377	93.4096	ng/ml

AM #27 Cannabinoid Quant. Results

Batch results	D:\MassHunter\Data\2022\AM 27-28\AM 27 28 Urines 2-11-22 CS\QuantResults\AM 27 MJ.batch.bin
Calibration Last Update	2/16/2022 8:05:42 AM

Instrument	Falco (069901)	**Data File**	MJ Cal 7.d
Type	Cal	**Sample**	MJ Cal 7
Acq. Method	AM 27 THCQ.m	**Operator**	Celena Shrum
Sample Position	P5-G1	**Comment**	
Injection Volume	10		
Acq. Date-Time	2/11/2022 5:06:55 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.640	1481287	∞	52.8	5075.00	235953	263.2195	ng/ml