REVIEWED
By Celena Shrum at 3:31 pm, May 25, 2021

TS 5/12/2021

Worklist: 4971

LAB_CASE	ITEM	ITEM_TYPE	DESCRIPTION	
M2021-1769	3	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
M2021-1882	2	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2021-1263	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2021-1410	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2021-1440	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2021-1447	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	
P2021-1518	1	UCK	AM 27 Urine Cannabinoids Confirmation by LC-QQQ	

TS

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

Extraction Date: 05/18/2021
Plate lot#: IDP-108-2-201206
Mobile phase A: 0.1% Formic Acid in LCMS Water
Blank Blood Lot: Lampire 20L20723
LCMS-QQQ ID: 069901

Analyst: Tamara Salazar
Plate Expiration: 06/06/2021
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:** *42*
☒ 3. Place on shaking incubator at ambient temp., 900rpm for 15 minutes.
☒ 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 **700-800µL of blood+acid or urine+acid** mixture to corresponding wells of SLE+ plate. Amount transferred: 800uL
☒ 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 samples with calculated concentrations for THC at 1ng/mL or greater and OH-THC at 3ng/mL or greater may be reported quantitatively (blood only). Calculated concentrations for carboxy-THC of 5ng/mL may be reported qualitatively. 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.*

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	1	2	3	4	5	6
A	IS + Cal. 1	IS + Sample	IS + Sample	IS + Sample	P2021-1440-1	IS + QC_1
B	IS + Cal. 2	IS + Sample	IS + Sample	IS + Sample	P2021-1410-1	IS + Cal. 7
C	IS + Cal. 3	IS + Sample	IS + Sample	IS + Sample	P2021-1263-1	IS + Cal. 6
D	IS + Cal. 4	IS + Sample	IS + Sample	IS + Sample	M2021-1882-2	IS + Cal. 5
E	IS + Cal. 5	IS + Sample	IS + Sample	IS + Sample	M2021-1769-3	IS + Cal. 4
F	IS + Cal. 6	IS + Sample	IS + Sample	IS + Sample	Neg Urine	IS + Cal. 3
G	IS + Cal. 7	IS + Sample	IS + Sample	P2021-1518-1	Urine Control	IS + Cal. 2
H	IS + QC_1	IS + Sample	IS + Sample	P2021-1447-1	Neg Blood	IS + Cal. 1

All wells to contain 100 µl of residual DMSO

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Idaho State Police
Forensic Services

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

Methanol External Control Solution (Lot: WS03052021)
10 µL of 1mg/mL THC, 100 µL of 100 µg/mL THC-OH, C-THC in 9790 µL MeOH
Approximate concentration 1ug/mL.

Component	*Source*	*Source Lot Number*	*Expiration Date*
Methanol (LCMS)	Fisher	200921	
THC	Cerilliant	FE01041701	03/31/2022
C-THC	Cerilliant	FE08011801	08/31/2023
THC-OH	Cerilliant	FE07221601	07/31/2021
Prepared:	03/05/2021		
Prepared By:	Tamara Salazar/Amber Gerheart		

Urine External Control Solution (Lot: 04232021)
200 ul of methanol external control solution was added to 9800 ul of blood.
Approximately 20ng/mL each

Component	*Source*	*Source Lot Number*
Negative Blood	Lampire	20L20724
Methanol External Control Solution	-	WS03052021
Prepared:	04/23/2021	
Prepared by:	Sarah Collins	

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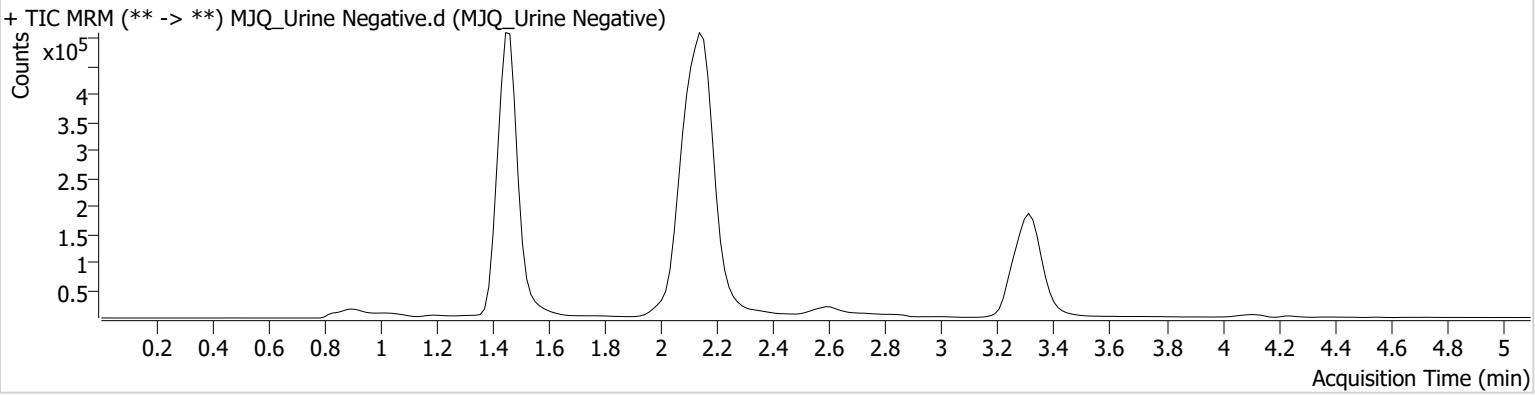
AM #27 Cannabinoid Quant. Results

Batch results	D:\MassHunter\Data\2021\AM 27-28\051821 AM 27 28 TS\QuantResults\AM 27_evaluated only.batch.bin
Calibration Last Update	5/19/2021 12:56:37 PM

Instrument	Falco (069901)	**Data File**	MJQ_Urine Negative.d
Type	Sample	**Sample**	MJQ_Urine Negative
Acq. Method	AM 27 THCQ.m	**Operator**	Tamara Salazar
Sample Position	P1-F5	**Comment**	
Injection Volume	10		
Acq. Date-Time	5/18/2021 2:42:37 PM		
Sample Info.			

Sample Chromatogram



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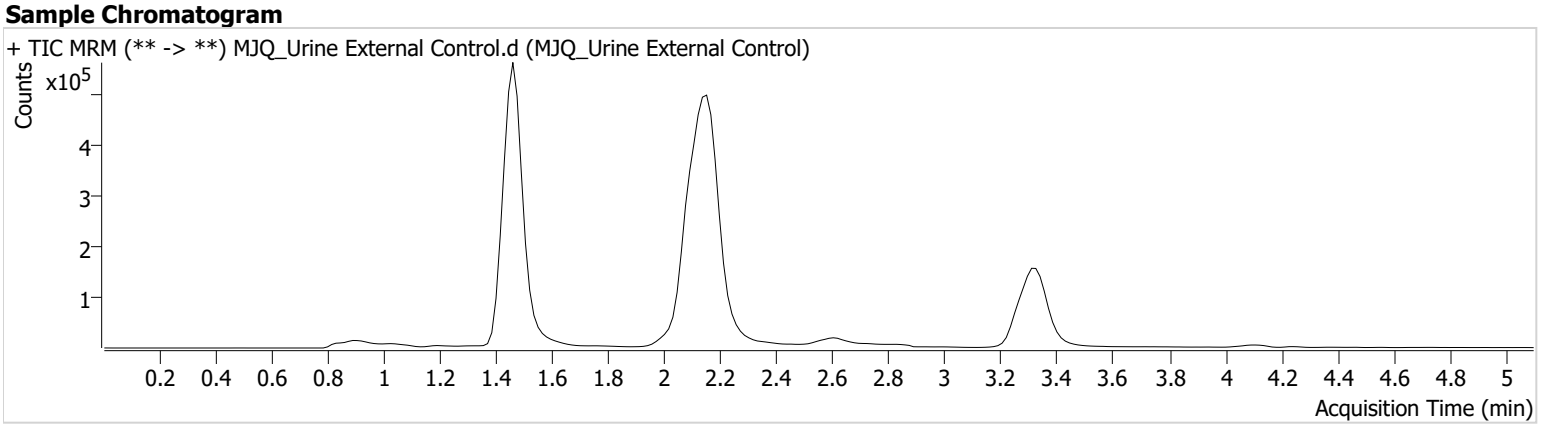
AM #27 Cannabinoid Quant. Results

Batch results	D:\MassHunter\Data\2021\AM 27-28\051821 AM 27 28 TS\QuantResults\AM 27_evaluated only.batch.bin
Calibration Last Update	5/19/2021 12:56:37 PM

Instrument	Falco (069901)	**Data File**	MJQ_Urine External Control.d
Type	Sample	**Sample**	MJQ_Urine External Control
Acq. Method	AM 27 THCQ.m	**Operator**	Tamara Salazar
Sample Position	P1-G5	**Comment**	
Injection Volume	10		
Acq. Date-Time	5/18/2021 2:57:48 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.504	70722	∞	56.3	∞	405721	7.2702	ng/ml

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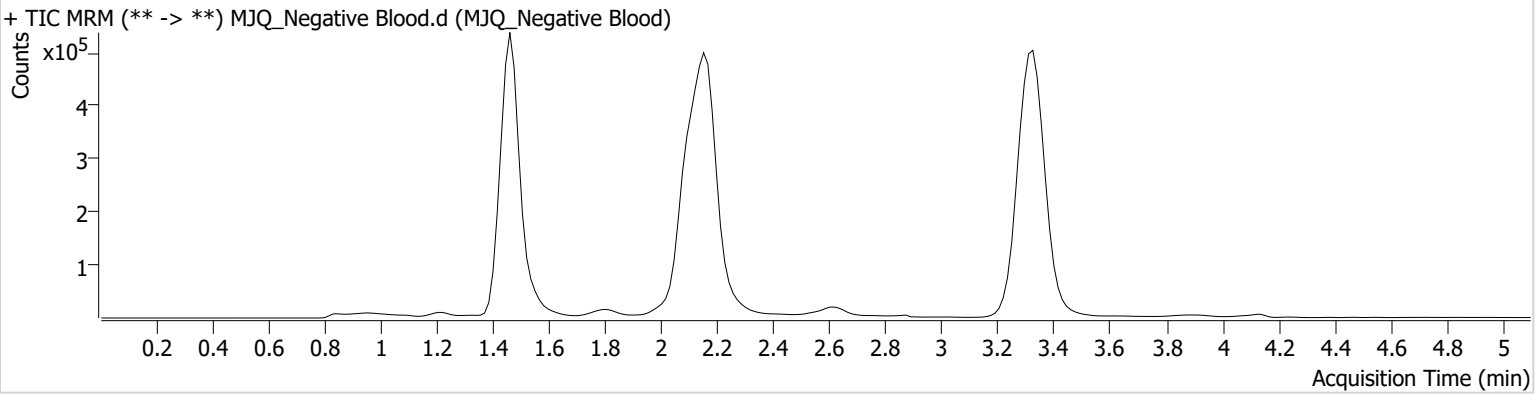
AM #27 Cannabinoid Quant. Results

Batch results	D:\MassHunter\Data\2021\AM 27-28\051821 AM 27 28 TS\QuantResults\AM 27_evaluated only.batch.bin
Calibration Last Update	5/19/2021 12:56:37 PM

Instrument	Falco (069901)	**Data File**	MJQ_Negative Blood.d
Type	Sample	**Sample**	MJQ_Negative Blood
Acq. Method	AM 27 THCQ.m	**Operator**	Tamara Salazar
Sample Position	P1-H5	**Comment**	
Injection Volume	10		
Acq. Date-Time	5/18/2021 2:12:10 PM		
Sample Info.			

Sample Chromatogram



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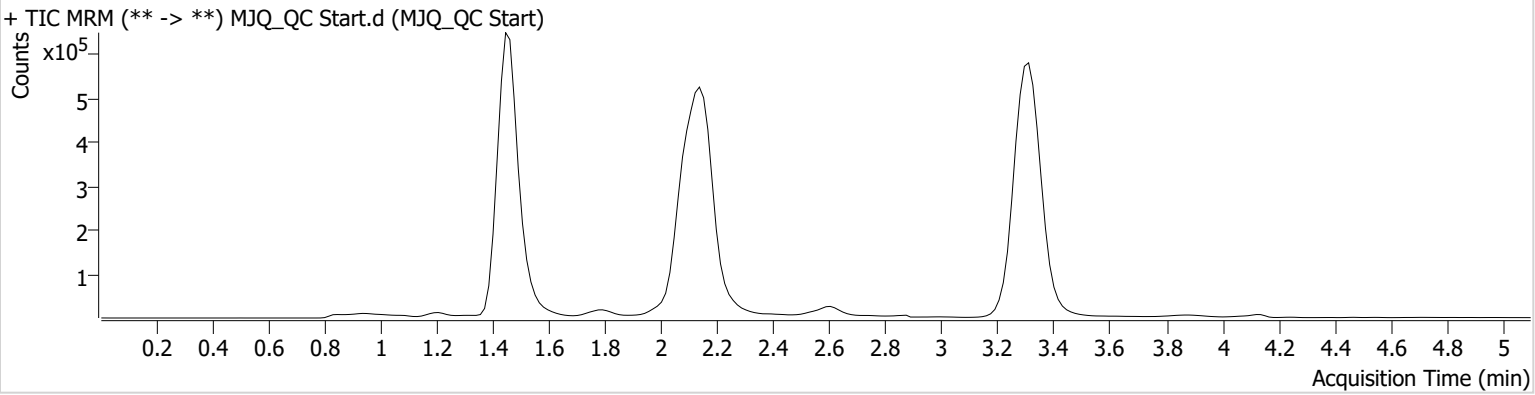
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\051821 AM 27 28 TS\QuantResults\AM 27_evaluated only.batch.bin
Calibration Last Update 5/19/2021 12:56:37 PM

Instrument	Falco (069901)	**Data File**	MJQ_QC Start.d
Type	Sample	**Sample**	MJQ_QC Start
Acq. Method	AM 27 THCQ.m	**Operator**	Tamara Salazar
Sample Position	P1-A6	**Comment**	
Injection Volume	10		
Acq. Date-Time	5/18/2021 2:27:24 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.489	195706	306.45	53.7	617.18	564473	13.9715	ng/ml

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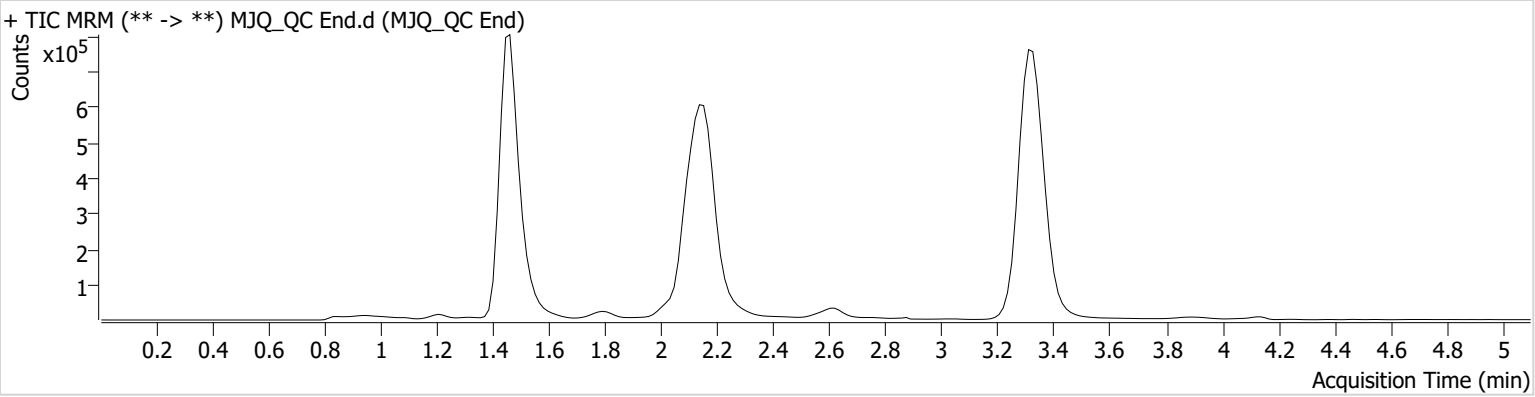
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\051821 AM 27 28 TS\QuantResults\AM 27_evaluated only.batch.bin
Calibration Last Update 5/19/2021 12:56:37 PM

Instrument	Falco (069901)	**Data File**	MJQ_QC End.d
Type	Sample	**Sample**	MJQ_QC End
Acq. Method	AM 27 THCQ.m	**Operator**	Tamara Salazar
Sample Position	P1-A6	**Comment**	
Injection Volume	10		
Acq. Date-Time	5/18/2021 4:52:03 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.489	226823	∞	53.6	824.45	638963	14.2934	ng/ml

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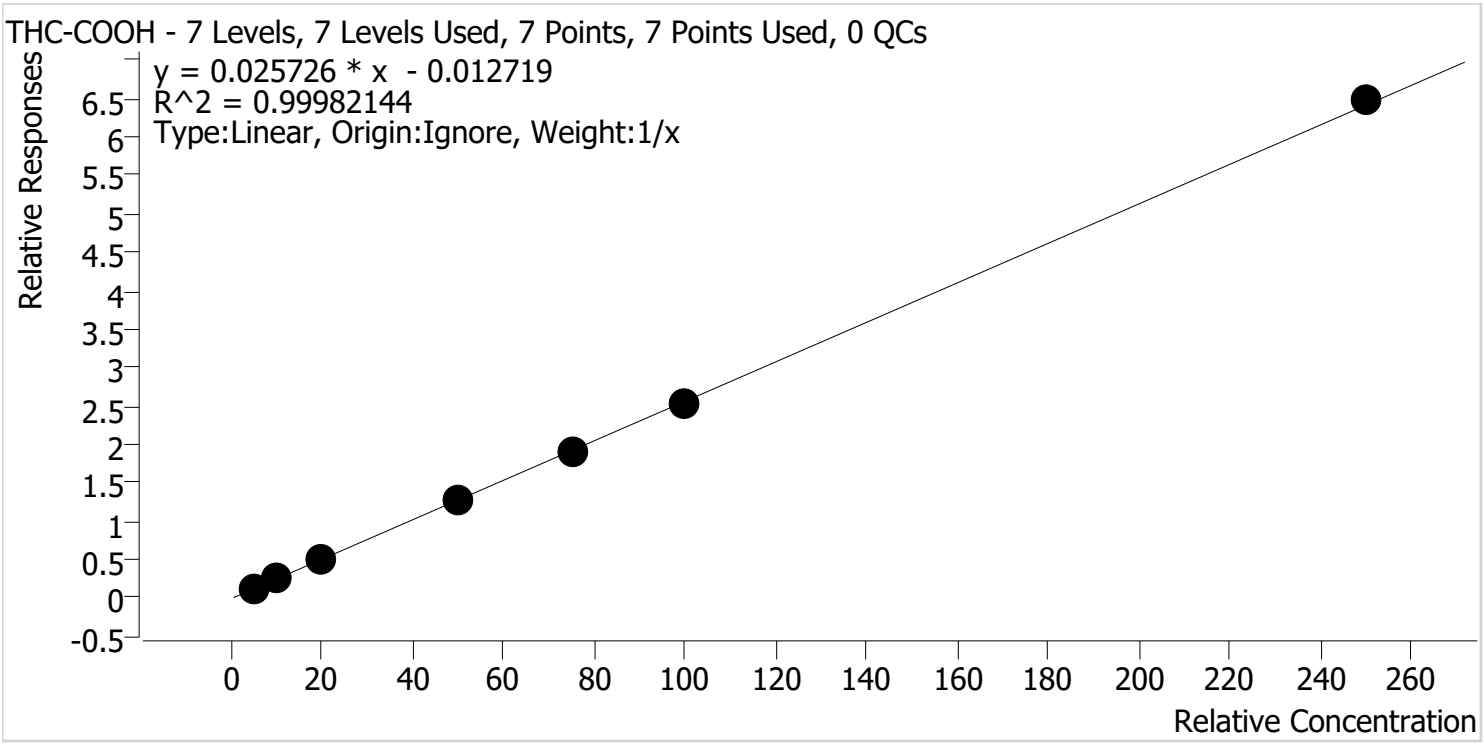
AM #27 Cannabinoids Quant. Calibration Curve Report

Batch results	D:\MassHunter\Data\2021\AM 27-28\051821 AM 27 28 TS\QuantResults\AM 27_evaluated only.batch.bin
Last Cal. Update	5/19/2021 12:56 PM
Analyst Name	ISP\datastor
Analyte	THC-COOH
Internal Standard	THC-COOH-D9



Sample	Level	Enabled	Expected Concentration	Final Concentration	Accuracy
MJQ_Cal 1	1	✔	5.0	5.2	104.2
MJQ_Cal 2	2	✔	10.0	9.7	97.4
MJQ_Cal 3	3	✔	20.0	20.1	100.6
MJQ_Cal 4	4	✔	50.0	49.6	99.2
MJQ_Cal 5	5	✔	75.0	74.4	99.2
MJQ_Cal 6	6	✔	100.0	98.6	98.6
MJQ_Cal 7	7	✔	250.0	252.4	101.0

Generated at 11:11 AM on 5/20/2021

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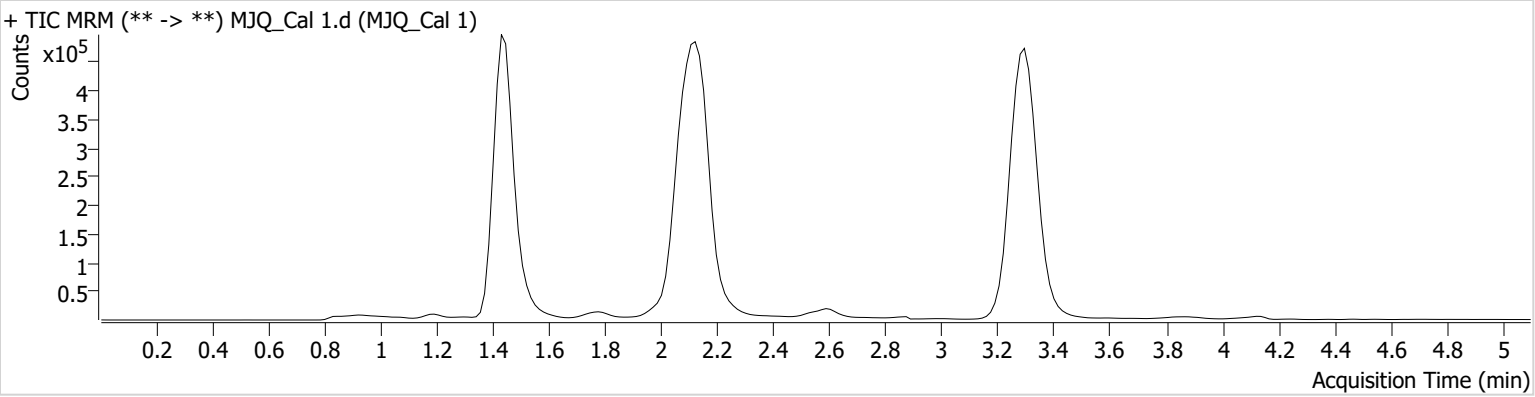
AM #27 Cannabinoid Quant. Results

Batch results	D:\MassHunter\Data\2021\AM 27-28\051821 AM 27 28 TS\QuantResults\AM 27_evaluated only.batch.bin
Calibration Last Update	5/19/2021 12:56:37 PM

Instrument	Falco (069901)	**Data File**	MJQ_Cal 1.d
Type	Cal	**Sample**	MJQ_Cal 1
Acq. Method	AM 27 THCQ.m	**Operator**	Tamara Salazar
Sample Position	P1-H6	**Comment**	
Injection Volume	10		
Acq. Date-Time	5/18/2021 1:11:15 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.474	57464	169.83	50.4	∞	473796	5.2090	ng/ml

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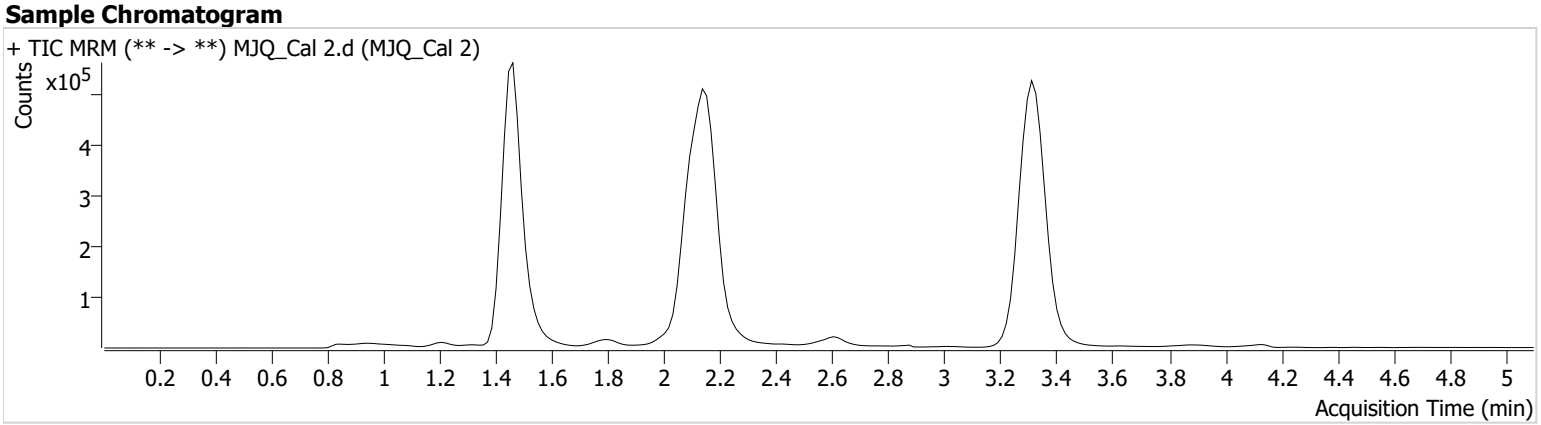
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\051821 AM 27 28 TS\QuantResults\AM 27_evaluated only.batch.bin
Calibration Last Update 5/19/2021 12:56:37 PM

Instrument	Falco (069901)	**Data File**	MJQ_Cal 2.d
Type	Cal	**Sample**	MJQ_Cal 2
Acq. Method	AM 27 THCQ.m	**Operator**	Tamara Salazar
Sample Position	P1-G6	**Comment**	
Injection Volume	10		
Acq. Date-Time	5/18/2021 1:19:01 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.489	117133	∞	53.2	1476.44	492595	9.7376	ng/ml

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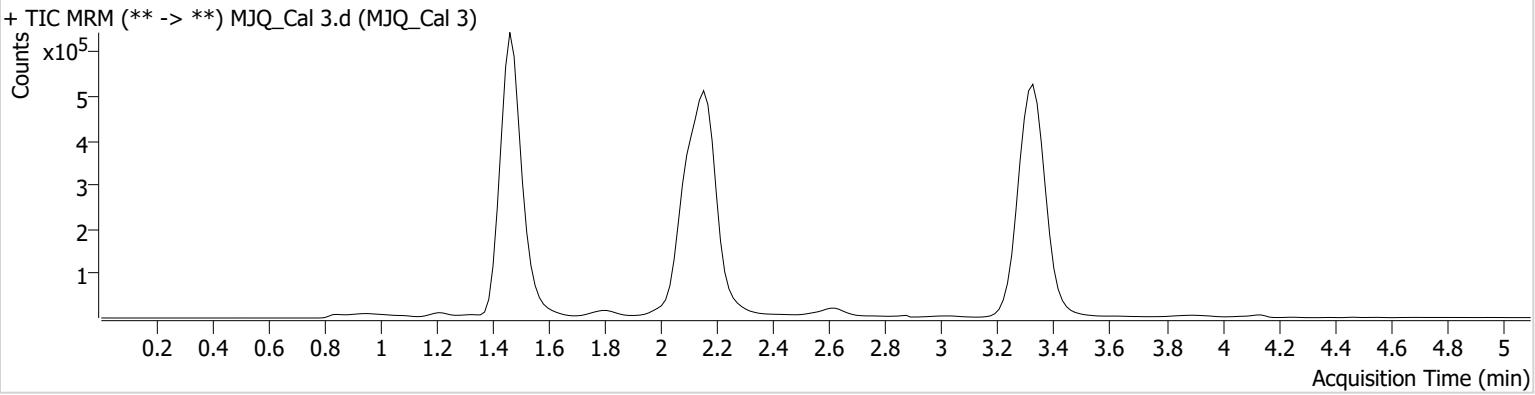
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\051821 AM 27 28 TS\QuantResults\AM 27_evaluated only.batch.bin
Calibration Last Update 5/19/2021 12:56:37 PM

Instrument	Falco (069901)	**Data File**	MJQ_Cal 3.d
Type	Cal	**Sample**	MJQ_Cal 3
Acq. Method	AM 27 THCQ.m	**Operator**	Tamara Salazar
Sample Position	P1-F6	**Comment**	
Injection Volume	10		
Acq. Date-Time	5/18/2021 1:26:37 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.504	268829	∞	53.6	796.63	532617	20.1142	ng/ml

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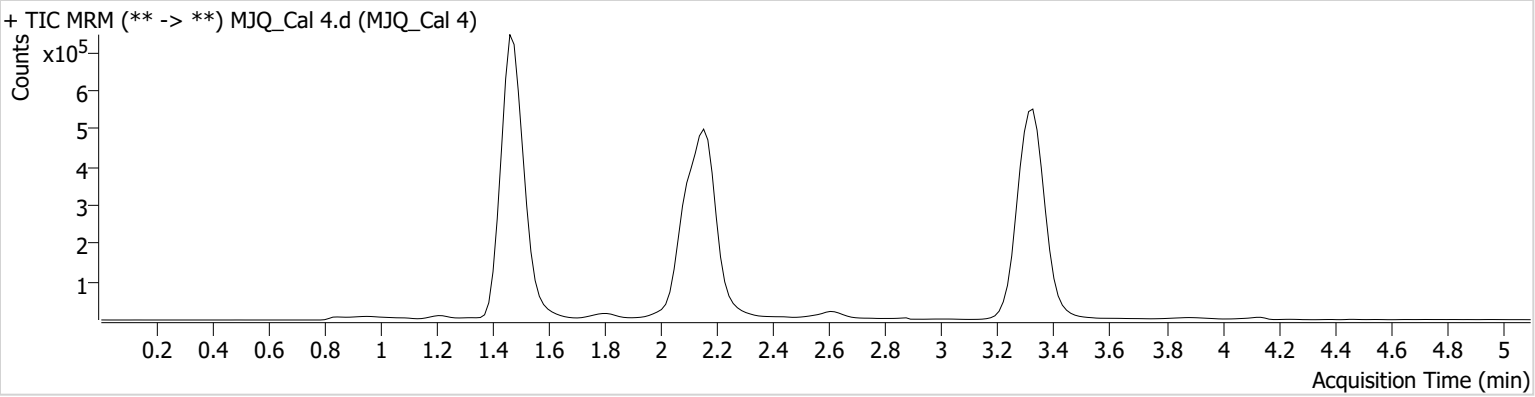
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\051821 AM 27 28 TS\QuantResults\AM 27_evaluated only.batch.bin
Calibration Last Update 5/19/2021 12:56:37 PM

Instrument	Falco (069901)	**Data File**	MJQ_Cal 4.d
Type	Cal	**Sample**	MJQ_Cal 4
Acq. Method	AM 27 THCQ.m	**Operator**	Tamara Salazar
Sample Position	P1-E6	**Comment**	
Injection Volume	10		
Acq. Date-Time	5/18/2021 1:34:12 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.504	651097	∞	53.6	∞	515499	49.5911	ng/ml

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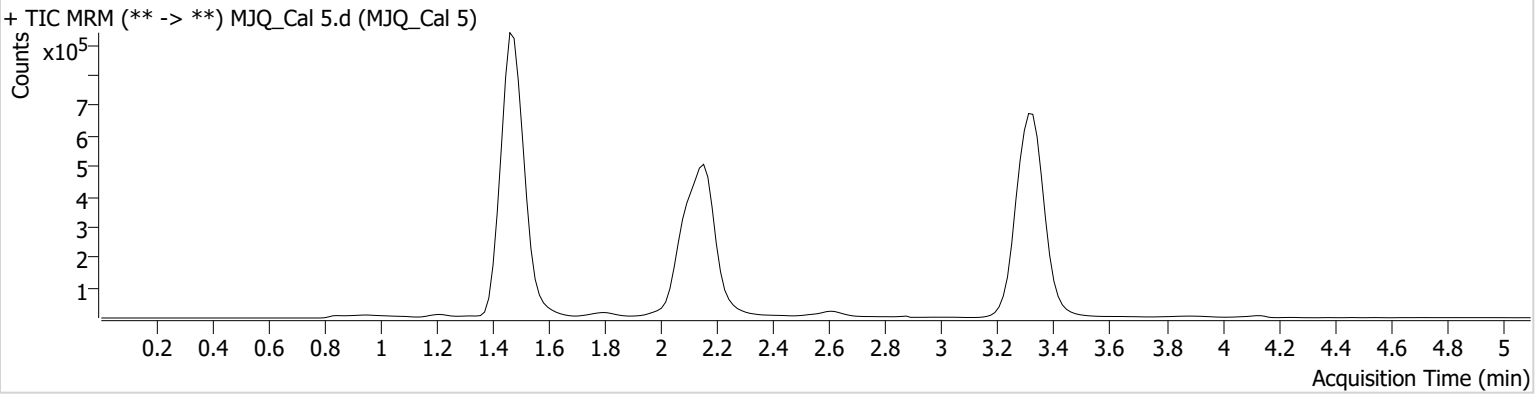
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\051821 AM 27 28 TS\QuantResults\AM 27_evaluated only.batch.bin
Calibration Last Update 5/19/2021 12:56:37 PM

Instrument	Falco (069901)	**Data File**	MJQ_Cal 5.d
Type	Cal	**Sample**	MJQ_Cal 5
Acq. Method	AM 27 THCQ.m	**Operator**	Tamara Salazar
Sample Position	P1-D6	**Comment**	
Injection Volume	10		
Acq. Date-Time	5/18/2021 1:41:48 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.489	1001839	1911.64	54.1	3506.98	527088	74.3781	ng/ml

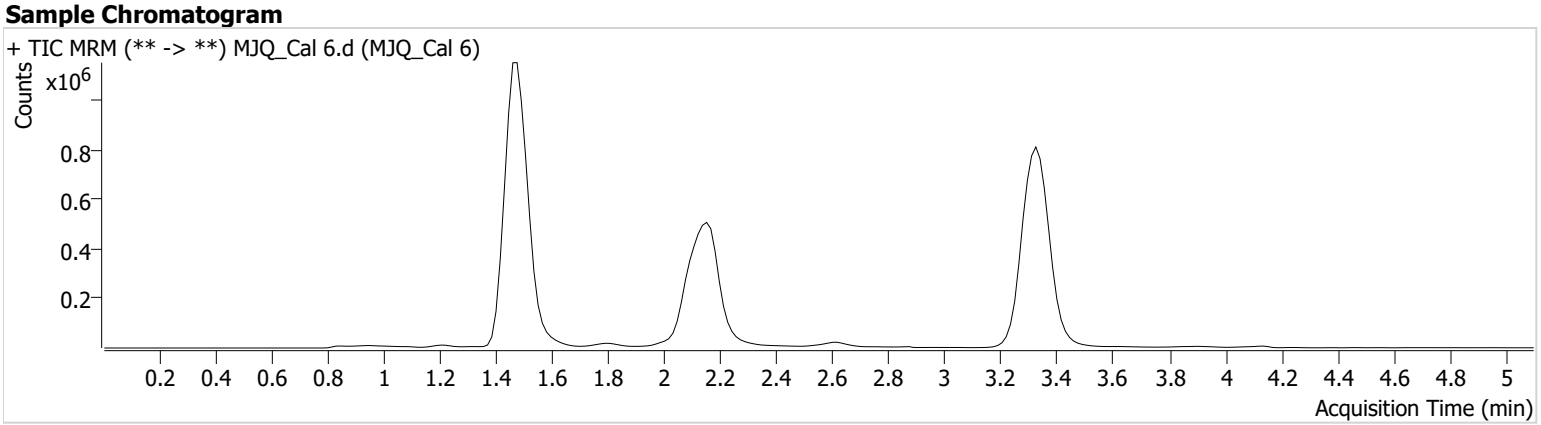
TS

AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\051821 AM 27 28 TS\QuantResults\AM 27_evaluated only.batch.bin
Calibration Last Update 5/19/2021 12:56:37 PM

Instrument	Falco (069901)	**Data File**	MJQ_Cal 6.d
Type	Cal	**Sample**	MJQ_Cal 6
Acq. Method	AM 27 THCQ.m	**Operator**	Tamara Salazar
Sample Position	P1-C6	**Comment**	
Injection Volume	10		
Acq. Date-Time	5/18/2021 1:49:23 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.504	1272409	∞	55.8	∞	504398	98.5533	ng/ml

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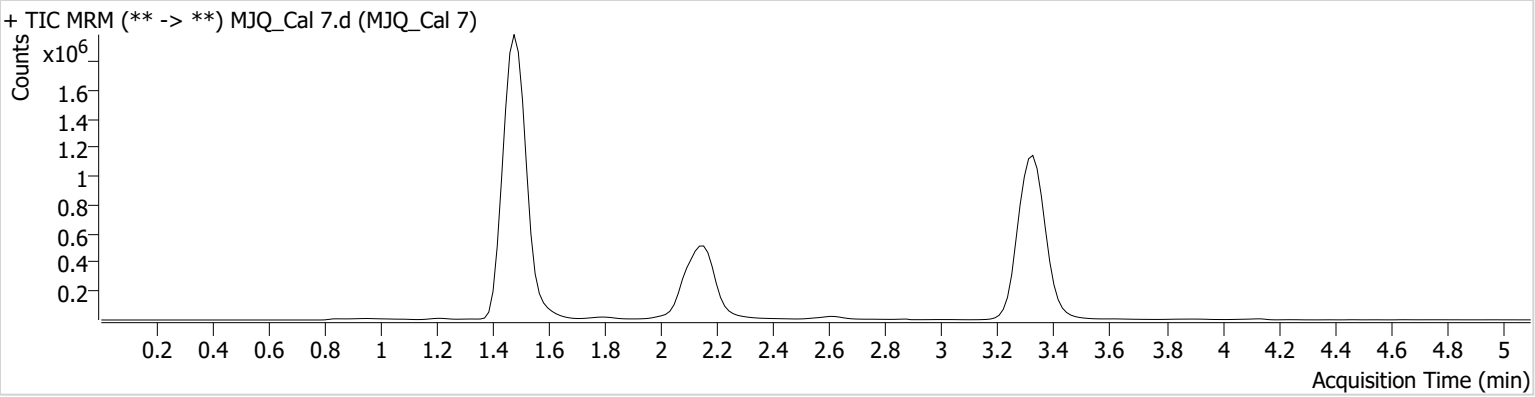
AM #27 Cannabinoid Quant. Results

Batch results D:\MassHunter\Data\2021\AM 27-28\051821 AM 27 28 TS\QuantResults\AM 27_evaluated only.batch.bin
Calibration Last Update 5/19/2021 12:56:37 PM

Instrument	Falco (069901)	**Data File**	MJQ_Cal 7.d
Type	Cal	**Sample**	MJQ_Cal 7
Acq. Method	AM 27 THCQ.m	**Operator**	Tamara Salazar
Sample Position	P1-B6	**Comment**	
Injection Volume	10		
Acq. Date-Time	5/18/2021 1:56:59 PM		
Sample Info.			

Sample Chromatogram



Name	RT	Resp.	S/N	Ratio	S/N	ISTD Resp.	Final Conc.	
THC-COOH	1.489	3103171	∞	54.1	∞	478821	252.4166	ng/ml