











Worklist: 1471

| <u>LAB CASE</u> | <u>ITEM</u> | <u>TASK ID</u> | <u>DESCRIPTION</u> | |
|-----------------|-------------|----------------|-----------------------------|---|
| C2017-0035 | 2 | 73846 | AM 27 Blood THC Quant by LC |  |
| M2016-3842 | 1 | 73831 | AM 27 Blood THC Quant by LC |  |
| P2016-1910 | 1 | 73827 | AM 27 Blood THC Quant by LC |  |
| P2016-2020 | 1 | 73829 | AM 27 Blood THC Quant by LC |  |
| P2016-2205 | 1 | 73834 | AM 27 Blood THC Quant by LC |  |
| P2016-2345 | 1 | 73840 | AM 27 Blood THC Quant by LC |  |
| P2016-2411 | 2 | 73837 | AM 27 Blood THC Quant by LC |  |
| P2016-2729 | 1 | 73844 | AM 27 Blood THC Quant by LC |  |

**RT Shift of THC & corresponding Internal Standard was identified in this batch. RT Shift was similar between compound & IS and has been verified as acceptable by B. Wylie

B. Wylie



Quantitation of THC and Metabolites in Blood by LC-MS/MS

Extraction Date: 1/10/17

Analyst: BW

PRE-ANALYTIC

Plate Lot# Custom - 0490364 ✓ Plate Exp. 9-21-2017 External QC Lot 31317, exp 3-13-17

✓ 1. Ensure all solutions are within expiration date.

- Mobile Phase A: *0.1% Formic Acid in LCMS Water*
- Mobile Phase B: *0.1% Formic Acid in LCMS Acetonitrile*
- *LCMS Methanol*
- **Blank/Negative Blood: Lot 321632-1**
- *0.1% Formic Acid in water*
- *MTBE*
- *Hexane*

Column: *UCT Selectra DA 100 x 2.1 mm 3um*

✓ 2. Check levels of mobile phases and needle wash and refill as necessary. Ensure waste is not full.

✓ 3. Purge Pump and Load appropriate Acq. Method, allow system to equilibrate for approx. 30 min.

✓ 4. Create worklist. Data path name: 1-10-17 blood benzo THC confirm

ANALYTIC

✓ 1. Remove standards plate, blood, and samples from cold storage. Allow to reach room temperature.

✓ 2. Add **1000 µL blood** to wells of analytical (standards) plate. Mix via aspirate and dispense. Place cover on Plate
Blank blood for locations containing standards/QCs and internal standards
Sample blood for locations containing only internal standards

✓ 3. Place on shaking incubator at ambient temp., **900rpm for 15 minutes**. *Shaker ID 66759*

✓ 4. Pipette **500µL 0.1% formic acid** to all wells of standards plate.

✓ 5. Place on shaking incubator at ambient temp., **900rpm for 15 minutes**.

✓ 6. Transfer **800µL of blood+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). Wait 5 min.
(Load blood samples at 85- 100 PSI- Selector to Right)

✓ 8. Add **2.25mL MTBE** and allow to flow under gravity for 5 minutes. **(add in 3 increments of 750uL)**

✓ 9. Apply positive pressure for approx. 15 seconds **(10-15 PSI- Selector to left -)**.

✓ 10. Add **2.25mL Hexane** and allow to flow under gravity for 5 minutes. **(add in 3 increments of 750uL)**

✓ 11. Apply positive pressure for approx. 15 seconds. **(10-15 PSI Selector to the left)**

✓ 12. Remove collection plate containing eluate.

✓ 13. Place collection plate on SPE Dry and evaporate to dryness at approx. 35°C. *SPE Dry ID 66819*

✓ 14. Reconstitute in **100 µL MeOH** and heat seal plate with foil. Place in autosampler and run worklist.

POST-ANALYTIC

✓ 1. Open quantitation software and create a new quantitation batch.

Batch name: 1-10-17 Blood THC

✓ 2. Make any necessary integration changes. Limit curves based on validated linear ranges (3-50ng/mL).

✓ 3. Were all appropriate standards used in the curve for each analyte? (Y) N

Are r² values ≥0.98 for each analyte? (Y) N

✓ 4. Did all QCs pass for each analyte? (Y) N Were QCs entered into QC charting? (Y) N

✓ 5. Central File Packet to include: ✓ LIMS Worklist: ✓ Method Checklist ✓ Calibration and Control Reports

COMMENTS

ISP FORENSICS - Cd'A Instrument # 62340

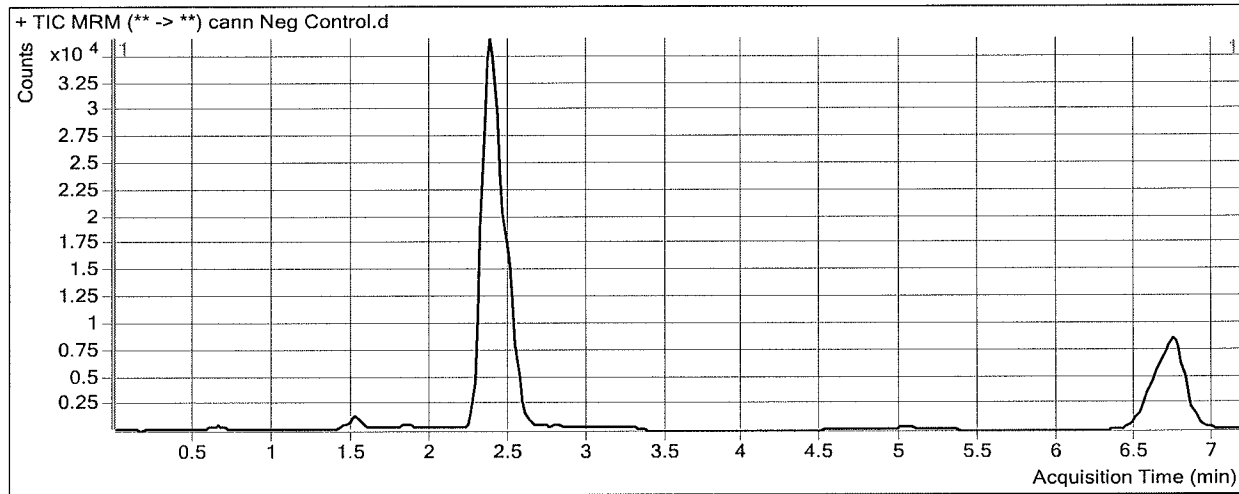
Cannabinoids Analysis Report

Batch Data Path D:\2017 Data\1-10-17 blood Benzo THC confirm\QuantResults\1-10-17 Blood THC.batch.bin
Analysis Time 1/11/2017 1:51 PM **Analyst Name** ISP Tox
Report Time 1/11/2017 1:53 PM **Reporter Name** ISP Tox
Last Calib Update 1/11/2017 1:51 PM **Batch State** Processed

Analysis Info

Acq Time 2017-01-10 18:07 **Data File** cann Neg Control.d
Sample Type Sample **Sample Name** Neg Control
Dilution 1 **Acq Method** Quant THC 12-15-16.m
Position P1-b2 **Sample Info**
Inj Vol -1 **Comment** AM 27 cannabinoid confirmation

Sample Chromatogram



ISP FORENSICS - Cd'A Instrument # 62340

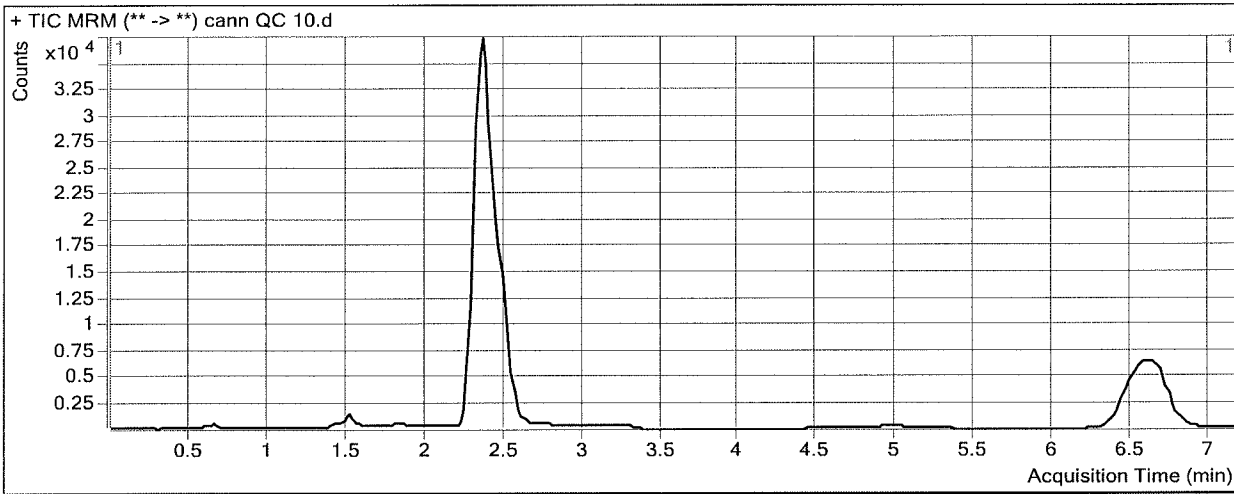
Cannabinoids Analysis Report

Batch Data Path D:\2017 Data\1-10-17 blood Benzo THC confirm\QuantResults\1-10-17 Blood THC.batch.bin
Analysis Time 1/11/2017 1:51 PM **Analyst Name** ISP Tox
Report Time 1/11/2017 1:53 PM **Reporter Name** ISP Tox
Last Calib Update 1/11/2017 1:51 PM **Batch State** Processed

Analysis Info

Acq Time 2017-01-10 18:19 **Data File** cann QC 10.d
Sample Type QC **Sample Name** QC 10
Dilution 1 **Acq Method** Quant THC 12-15-16.m
Position P1-H1 **Sample Info**
Inj Vol -1 **Comment** AM 27 cannabinoid confirmation

Sample Chromatogram



Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|----------|---------------|-------|----------|-----------|------------|------------|
| THC-OH | THC-OH-d3 | 2.376 | 20350 | 244190 | 0.0833 | 8.7094 |
| THC-COOH | THC-COOH-d9 | 2.506 | 13351 | 84347 | 0.1583 | 9.5638 |
| THC | THC-d3 | 6.653 | 10011 | 106194 | 0.0943 | 9.2629 |

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ISP FORENSICS - Cd'A Instrument # 62340

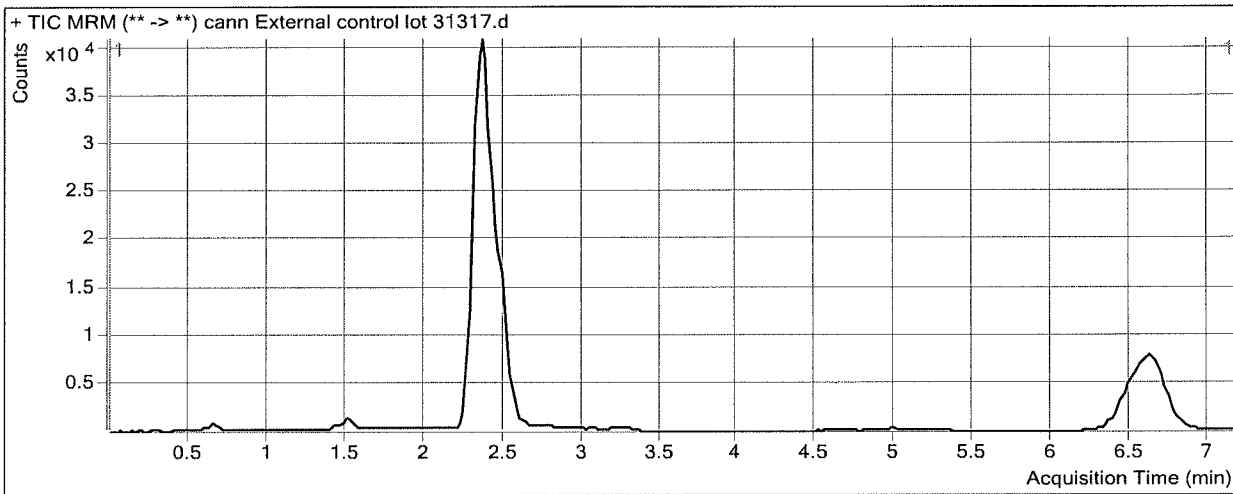
Cannabinoids Analysis Report

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Analysis Time 1/11/2017 1:51 PM **Analyst Name** ISP Tox
Report Time 1/11/2017 1:53 PM **Reporter Name** ISP Tox
Last Calib Update 1/11/2017 1:51 PM **Batch State** Processed

Analysis Info

Acq Time 2017-01-10 18:30 **Data File** cann External control lot 31317.d
Sample Type QC **Sample Name** External control lot 31317
Dilution 1 **Acq Method** Quant THC 12-15-16.m
Position p1a2 **Sample Info**
Inj Vol -1 **Comment** AM 27 cannabinoid confirmation

Sample Chromatogram



Results

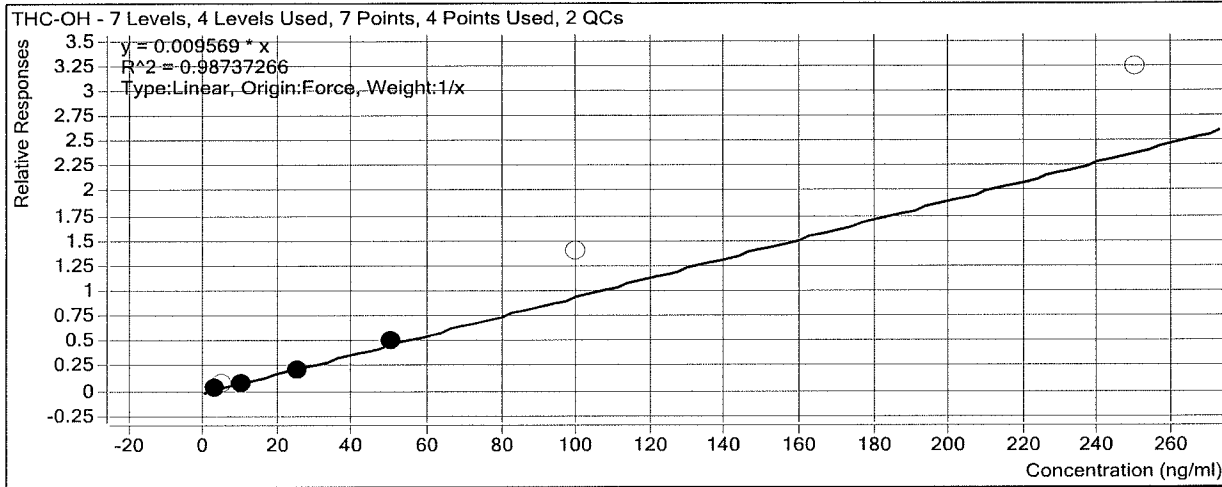
| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|----------|---------------|-------|----------|-----------|------------|------------|
| THC-OH | THC-OH-d3 | 2.376 | 31523 | 256242 | 0.1230 | 12.8568 |
| THC-COOH | THC-COOH-d9 | 2.506 | 13843 | 89057 | 0.1554 | 9.3821 |
| THC | THC-d3 | 6.653 | 13530 | 119147 | 0.1136 | 11.0144 |

ISP Forensics Calibration Curve Report

Batch Data Path D:\2017 Data\1-10-17 blood Benzo THC confirm\QuantResults\1-10-17 Blood THC.batch.bin

Last Calib Update 1/11/2017 1:51 PM **Analyst Name** ISP TOX

Target Compound *THC-OH*
Internal Standard *THC-OH-d3*



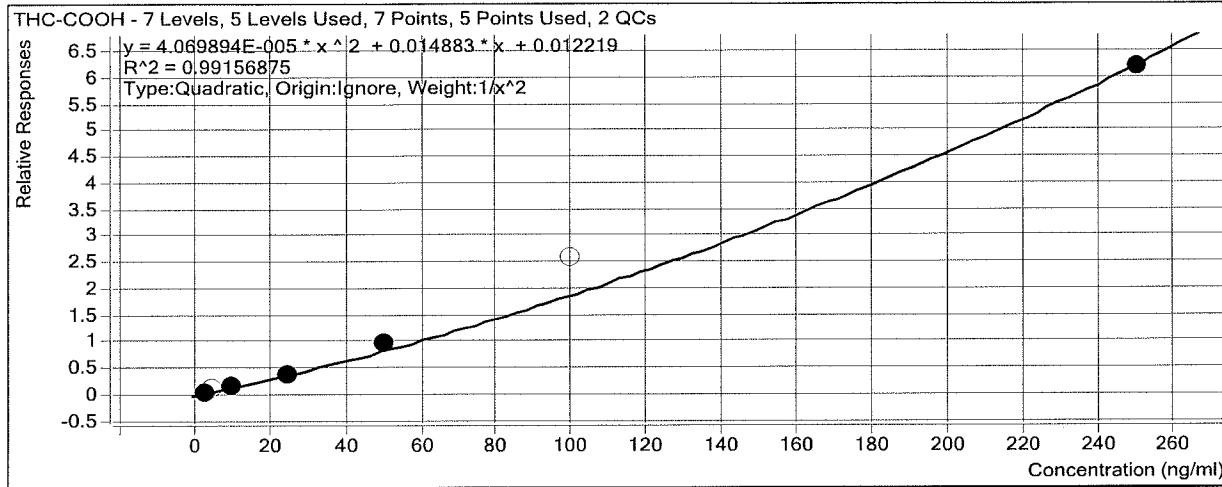
| Sample | Level | Enabled | Exp Conc | Final Conc | Accuracy |
|----------------------------|-------|-------------------------------------|----------|------------|----------|
| Cal 1 | 1 | <input checked="" type="checkbox"/> | 3 | 2.6 | 88.1 |
| cal 2 | 2 | <input type="checkbox"/> | 5 | 9.3 | 186.7 |
| cal 3 | 3 | <input checked="" type="checkbox"/> | 10 | 8.5 | 85.2 |
| QC 10 | 3 | <input checked="" type="checkbox"/> | 10 | 8.7 | 87.1 |
| External control lot 31317 | 3 | <input type="checkbox"/> | 10 | 12.9 | 128.6 |
| cal 4 | 4 | <input checked="" type="checkbox"/> | 25 | 22.8 | 91.4 |
| cal 5 | 5 | <input checked="" type="checkbox"/> | 50 | 54.0 | 108.0 |
| cal 6 | 6 | <input type="checkbox"/> | 100 | 147.7 | 147.7 |
| cal 7 | 7 | <input type="checkbox"/> | 250 | 337.9 | 135.1 |

ISP Forensics Calibration Curve Report

Batch Data Path D:\2017 Data\1-10-17 blood Benzo THC confirm\QuantResults\1-10-17 Blood THC.batch.bin

Last Calib Update 1/11/2017 1:51 PM **Analyst Name** ISP TOX

Target Compound *THC-COOH*
Internal Standard *THC-COOH-d9*



| Sample | Level | Enabled | Exp Conc | Final Conc | Accuracy |
|----------------------------|-------|-------------------------------------|----------|------------|----------|
| Cal 1 | 1 | <input checked="" type="checkbox"/> | 3 | 3.1 | 103.0 |
| cal 2 | 2 | <input type="checkbox"/> | 5 | 6.5 | 130.9 |
| cal 3 | 3 | <input checked="" type="checkbox"/> | 10 | 9.0 | 90.0 |
| QC 10 | 3 | <input checked="" type="checkbox"/> | 10 | 9.6 | 95.6 |
| External control lot 31317 | 3 | <input type="checkbox"/> | 10 | 9.4 | 93.8 |
| cal 4 | 4 | <input checked="" type="checkbox"/> | 25 | 23.5 | 94.1 |
| cal 5 | 5 | <input checked="" type="checkbox"/> | 50 | 56.4 | 112.8 |
| cal 6 | 6 | <input type="checkbox"/> | 100 | 128.0 | 128.0 |
| cal 7 | 7 | <input checked="" type="checkbox"/> | 250 | 247.6 | 99.0 |

ISP

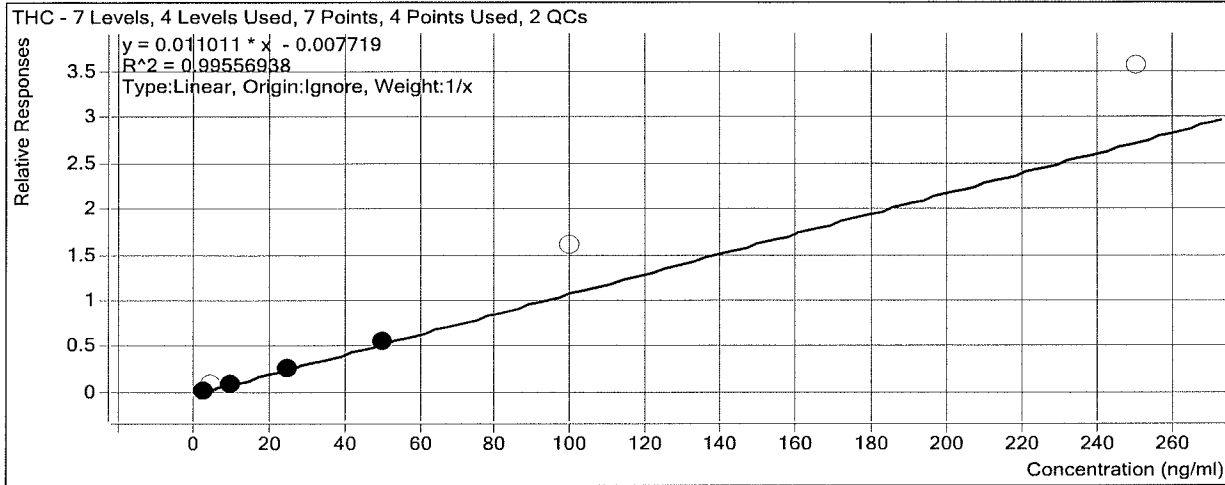
ISP Forensics Calibration Curve Report

Batch Data Path D:\2017 Data\1-10-17 blood Benzo THC confirm\QuantResults\1-10-17 Blood THC.batch.bin

Last Calib Update 1/11/2017 1:51 PM

Analyst Name ISP TOX

Target Compound *THC*
Internal Standard *THC-d3*



| Sample | Level | Enabled | Exp Conc | Final Conc | Accuracy |
|----------------------------|-------|-------------------------------------|----------|------------|----------|
| Cal 1 | 1 | <input checked="" type="checkbox"/> | 3 | 3.3 | 110.6 |
| cal 2 | 2 | <input type="checkbox"/> | 5 | 8.6 | 171.5 |
| cal 3 | 3 | <input checked="" type="checkbox"/> | 10 | 9.0 | 90.5 |
| QC 10 | 3 | <input checked="" type="checkbox"/> | 10 | 9.3 | 92.6 |
| External control lot 31317 | 3 | <input checked="" type="checkbox"/> | 10 | 11.0 | 110.1 |
| cal 4 | 4 | <input checked="" type="checkbox"/> | 25 | 23.8 | 95.2 |
| cal 5 | 5 | <input checked="" type="checkbox"/> | 50 | 51.8 | 103.6 |
| cal 6 | 6 | <input type="checkbox"/> | 100 | 147.6 | 147.6 |
| cal 7 | 7 | <input type="checkbox"/> | 250 | 324.5 | 129.8 |

ISP FORENSICS - Cd'A Instrument # 62340

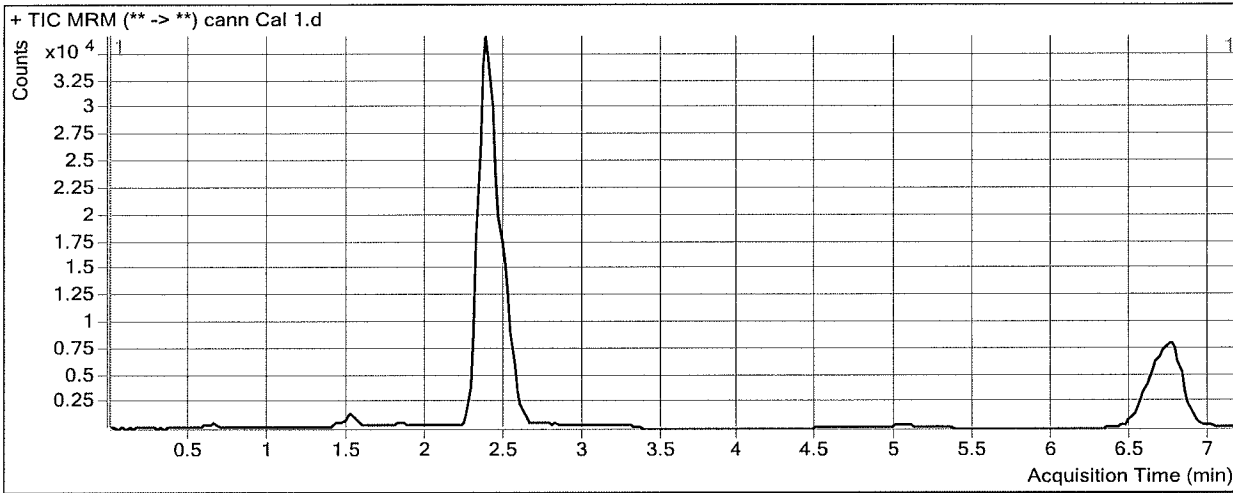
Cannabinoids Analysis Report

Batch Data Path D:\2017 Data\1-10-17 blood Benzo THC confirm\QuantResults\1-10-17 Blood THC.batch.bin
Analysis Time 1/11/2017 1:51 PM **Analyst Name** ISP Tox
Report Time 1/11/2017 1:53 PM **Reporter Name** ISP Tox
Last Calib Update 1/11/2017 1:51 PM **Batch State** Processed

Analysis Info

Acq Time 2017-01-10 16:32 **Data File** cann Cal 1.d
Sample Type Calibration **Sample Name** Cal 1
Dilution 1 **Acq Method** Quant THC 12-15-16.m
Position P1-A1 **Sample Info**
Inj Vol -1 **Comment** AM 27 cannabinoid confirmation

Sample Chromatogram



Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|----------|---------------|-------|----------|-----------|------------|------------|
| THC-OH | THC-OH-d3 | 2.416 | 6480 | 256349 | 0.0253 | 2.6419 |
| THC-COOH | THC-COOH-d9 | 2.546 | 5155 | 88000 | 0.0586 | 3.0889 |
| THC | THC-d3 | 6.753 | 3368 | 116865 | 0.0288 | 3.3188 |

ISP FORENSICS - Cd'A Instrument # 62340

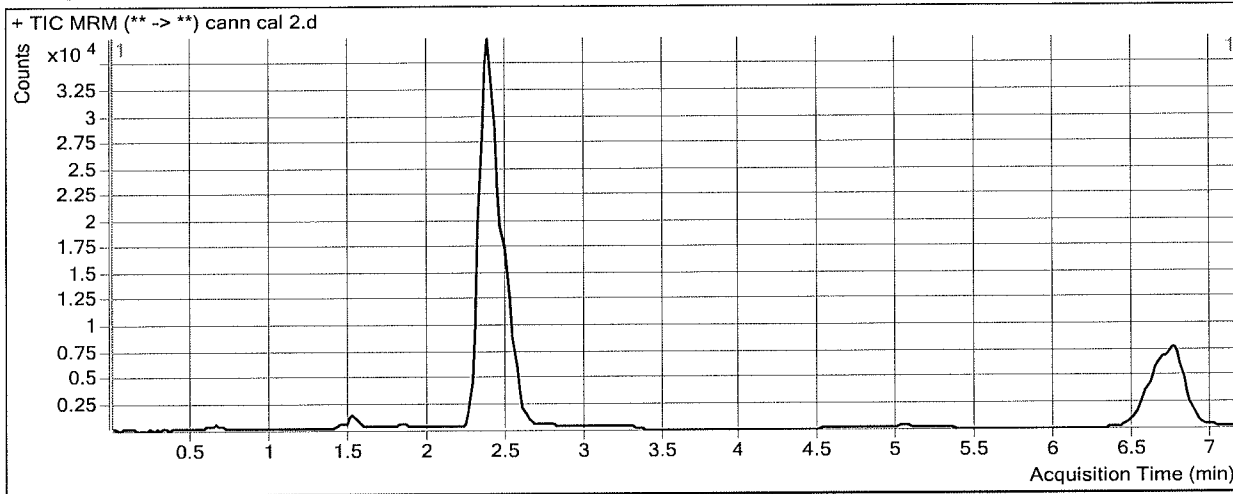
Cannabinoids Analysis Report

Batch Data Path D:\2017 Data\1-10-17 blood Benzo THC confirm\QuantResults\1-10-17 Blood THC.batch.bin
Analysis Time 1/11/2017 1:51 PM **Analyst Name** ISP Tox
Report Time 1/11/2017 1:53 PM **Reporter Name** ISP Tox
Last Calib Update 1/11/2017 1:51 PM **Batch State** Processed

Analysis Info

Acq Time 2017-01-10 16:44 **Data File** cann cal 2.d
Sample Type Calibration **Sample Name** cal 2
Dilution 1 **Acq Method** Quant THC 12-15-16.m
Position P1-B1 **Sample Info**
Inj Vol -1 **Comment** AM 27 cannabinoid confirmation

Sample Chromatogram



Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|----------|---------------|-------|----------|-----------|------------|------------|
| THC-OH | THC-OH-d3 | 2.396 | 21592 | 241723 | 0.0893 | 9.3352 |
| THC-COOH | THC-COOH-d9 | 2.546 | 9217 | 82759 | 0.1114 | 6.5451 |
| THC | THC-d3 | 6.773 | 9284 | 107086 | 0.0867 | 8.5751 |

BW

ISP FORENSICS - Cd'A Instrument # 62340

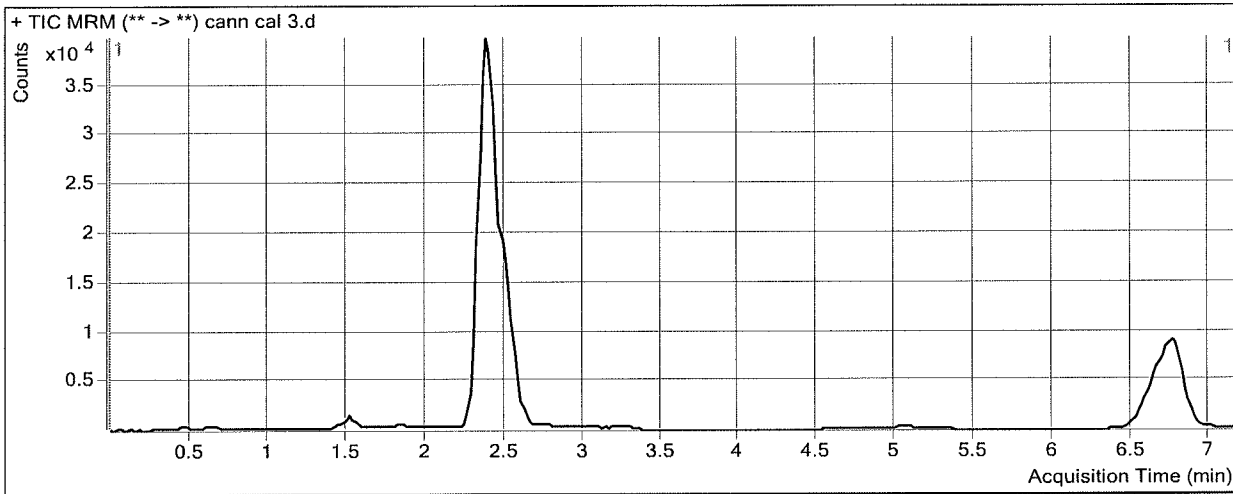
Cannabinoids Analysis Report

Batch Data Path D:\2017 Data\1-10-17 blood Benzo THC confirm\QuantResults\1-10-17 Blood THC.batch.bin
Analysis Time 1/11/2017 1:51 PM **Analyst Name** ISP Tox
Report Time 1/11/2017 1:53 PM **Reporter Name** ISP Tox
Last Calib Update 1/11/2017 1:51 PM **Batch State** Processed

Analysis Info

Acq Time 2017-01-10 16:56 **Data File** cann cal 3.d
Sample Type Calibration **Sample Name** cal 3
Dilution 1 **Acq Method** Quant THC 12-15-16.m
Position P1-C1 **Sample Info**
Inj Vol -1 **Comment** AM 27 cannabinoid confirmation

Sample Chromatogram



Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|----------|---------------|-------|----------|-----------|------------|------------|
| THC-OH | THC-OH-d3 | 2.416 | 21226 | 260361 | 0.0815 | 8.5203 |
| THC-COOH | THC-COOH-d9 | 2.546 | 13246 | 88664 | 0.1494 | 8.9953 |
| THC | THC-d3 | 6.773 | 10717 | 116606 | 0.0919 | 9.0486 |

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ISP FORENSICS - Cd'A Instrument # 62340

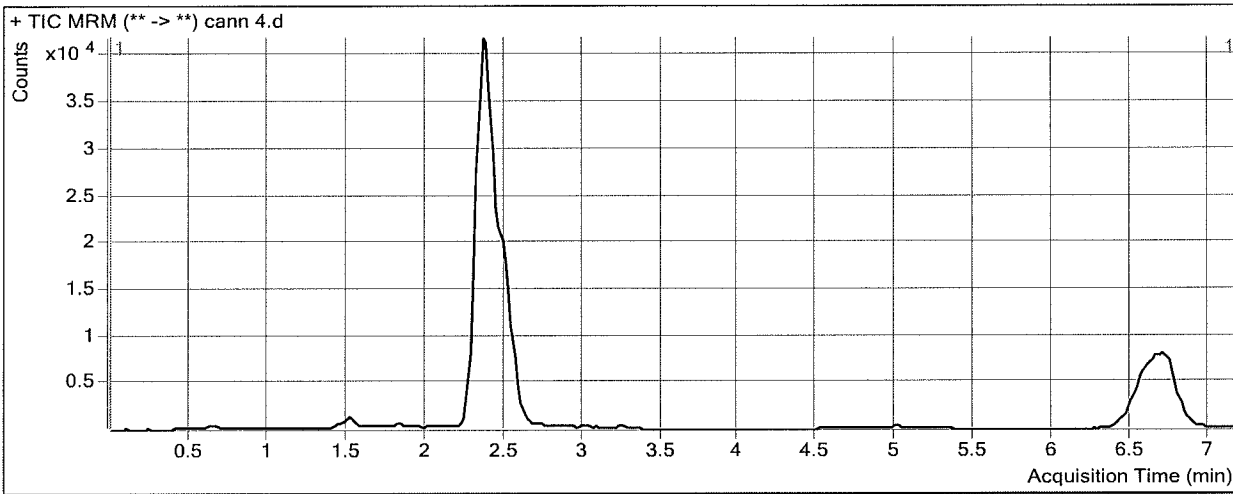
Cannabinoids Analysis Report

Batch Data Path D:\2017 Data\1-10-17 blood Benzo THC confirm\QuantResults\1-10-17 Blood THC.batch.bin
Analysis Time 1/11/2017 1:51 PM **Analyst Name** ISP Tox
Report Time 1/11/2017 1:53 PM **Reporter Name** ISP Tox
Last Calib Update 1/11/2017 1:51 PM **Batch State** Processed

Analysis Info

Acq Time 2017-01-10 17:07 **Data File** cann 4.d
Sample Type Calibration **Sample Name** cal 4
Dilution 1 **Acq Method** Quant THC 12-15-16.m
Position P1-D1 **Sample Info**
Inj Vol -1 **Comment** AM 27 cannabinoid confirmation

Sample Chromatogram



Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|----------|---------------|-------|----------|-----------|------------|------------|
| THC-OH | THC-OH-d3 | 2.396 | 53328 | 243932 | 0.2186 | 22.8476 |
| THC-COOH | THC-COOH-d9 | 2.526 | 32074 | 83363 | 0.3848 | 23.5176 |
| THC | THC-d3 | 6.713 | 26494 | 104122 | 0.2545 | 23.8111 |

ISP

ISP FORENSICS - Cd'A Instrument # 62340

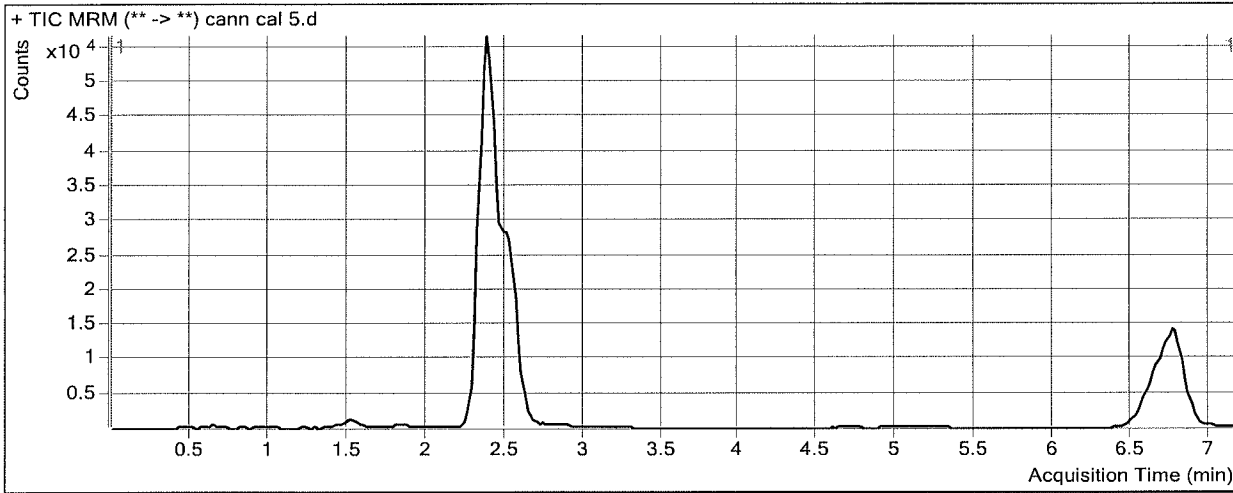
Cannabinoids Analysis Report

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Analysis Time 1/11/2017 1:51 PM **Analyst Name** ISP Tox
Report Time 1/11/2017 1:53 PM **Reporter Name** ISP Tox
Last Calib Update 1/11/2017 1:51 PM **Batch State** Processed

Analysis Info

Acq Time 2017-01-10 17:19 **Data File** cann cal 5.d
Sample Type Calibration **Sample Name** cal 5
Dilution 1 **Acq Method** Quant THC 12-15-16.m
Position P1-E1 **Sample Info**
Inj Vol -1 **Comment** AM 27 cannabinoid confirmation

Sample Chromatogram



Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|----------|---------------|-------|----------|-----------|------------|------------|
| THC-OH | THC-OH-d3 | 2.396 | 133239 | 257912 | 0.5166 | 53.9902 |
| THC-COOH | THC-COOH-d9 | 2.546 | 83705 | 85321 | 0.9811 | 56.3978 |
| THC | THC-d3 | 6.773 | 61910 | 109990 | 0.5629 | 51.8215 |

ISP FORENSICS - Cd'A Instrument # 62340

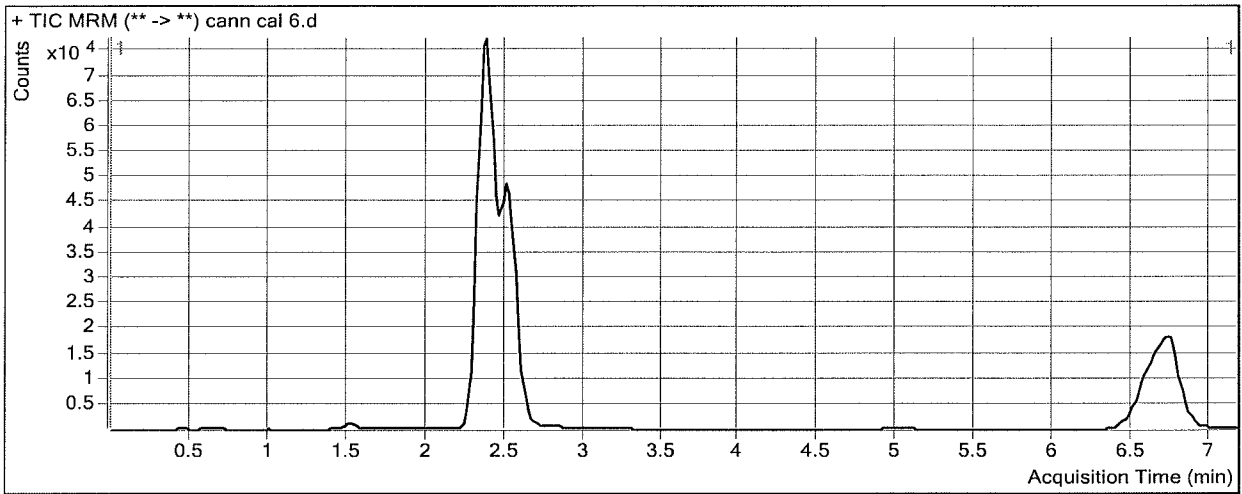
Cannabinoids Analysis Report

Batch Data Path D:\2017 Data\1-10-17 blood Benzo THC confirm\QuantResults\1-10-17 Blood THC.batch.bin
Analysis Time 1/11/2017 1:51 PM **Analyst Name** ISP Tox
Report Time 1/11/2017 1:53 PM **Reporter Name** ISP Tox
Last Calib Update 1/11/2017 1:51 PM **Batch State** Processed

Analysis Info

Acq Time 2017-01-10 17:31 **Data File** cann cal 6.d
Sample Type Calibration **Sample Name** cal 6
Dilution 1 **Acq Method** Quant THC 12-15-16.m
Position P1-F1 **Sample Info**
Inj Vol -1 **Comment** AM 27 cannabinoid confirmation

Sample Chromatogram



Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|----------|---------------|-------|----------|-----------|------------|------------|
| THC-OH | THC-OH-d3 | 2.396 | 314752 | 222740 | 1.4131 | 147.6811 |
| THC-COOH | THC-COOH-d9 | 2.526 | 184902 | 71520 | 2.5853 | 128.0483 |
| THC | THC-d3 | 6.713 | 147732 | 91337 | 1.6174 | 147.5992 |

ISP FORENSICS - Cd'A Instrument # 62340

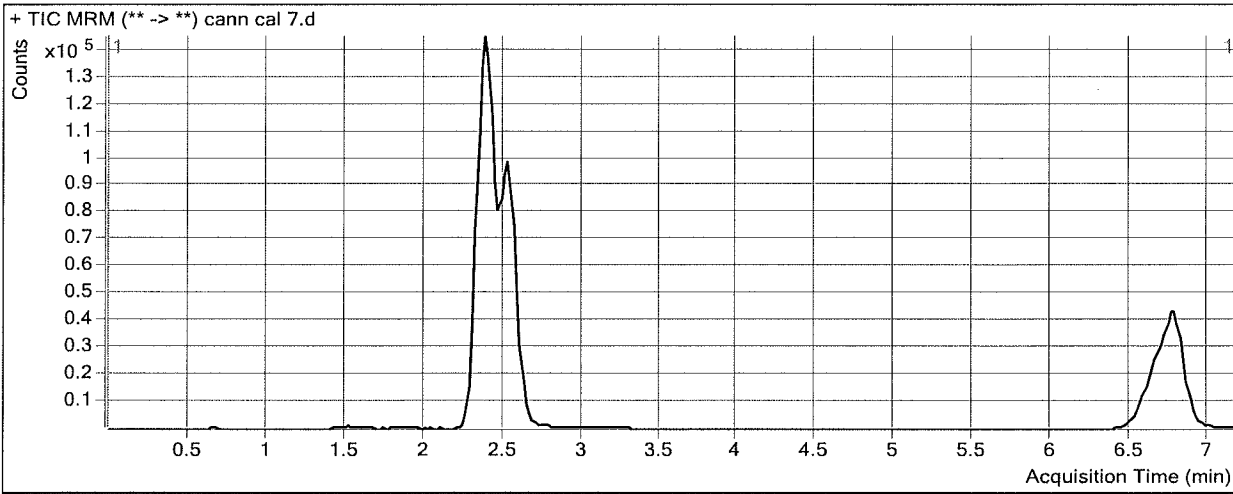
Cannabinoids Analysis Report

Batch Data Path D:\2017 Data\1-10-17 blood Benzo THC confirm\QuantResults\1-10-17 Blood THC.batch.bin
Analysis Time 1/11/2017 1:51 PM **Analyst Name** ISP Tox
Report Time 1/11/2017 1:53 PM **Reporter Name** ISP Tox
Last Calib Update 1/11/2017 1:51 PM **Batch State** Processed

Analysis Info

Acq Time 2017-01-10 17:43 **Data File** cann cal 7.d
Sample Type Calibration **Sample Name** cal 7
Dilution 1 **Acq Method** Quant THC 12-15-16.m
Position P1-G1 **Sample Info**
Inj Vol -1 **Comment** AM 27 cannabinoid confirmation

Sample Chromatogram



Results

| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|----------|---------------|-------|----------|-----------|------------|------------|
| THC-OH | THC-OH-d3 | 2.396 | 754796 | 233480 | 3.2328 | 337.8568 |
| THC-COOH | THC-COOH-d9 | 2.526 | 432757 | 69876 | 6.1932 | 247.6221 |
| THC | THC-d3 | 6.773 | 352669 | 98930 | 3.5648 | 324.4642 |

ISP FORENSICS - Cd'A Instrument # 62340

Cannabinoids Analysis Report

Batch Data Path D:\2017 Data\1-10-17 blood Benzo THC confirm\QuantResults\1-10-17 Blood THC.batch.bin
Analysis Time 1/11/2017 1:51 PM **Analyst Name** ISP Tox
Report Time 1/11/2017 1:53 PM **Reporter Name** ISP Tox
Last Calib Update 1/11/2017 1:51 PM **Batch State** Processed

Analysis Info

Acq Time 2017-01-10 17:55 **Data File** cann blank internal std.d
Sample Type Sample **Sample Name** blank internal std
Dilution 1 **Acq Method** Quant THC 12-15-16.m
Position Vial 2 **Sample Info**
Inj Vol -1 **Comment** AM 27 cannabinoid confirmation

Sample Chromatogram

