

# CERTIFICATE of ANALYSIS

## Synthetic Cannabinoid Analytical Standards Panel 1

For R&D purposes only. Not intended for human or animal use.

|                     |                                                                                 |
|---------------------|---------------------------------------------------------------------------------|
| Item No.:           | 38768                                                                           |
| Batch No.:          | 0716231                                                                         |
| Size:               | 100 µg/well                                                                     |
| Expiry Date:        | 25JUL2028 (valid from date of certification)                                    |
| Storage & Handling: | Store upright and unopened at -20°C. Warm to room temperature prior to opening. |
| Safety:             | Danger. Review the Safety Data Sheets before use.                               |

### Description

This product consists of two 96-well Matrix plates containing individual synthetic cannabinoids and metabolites. The individual well locations for each unique standard are listed in the table below.

### Traceability Statement

This panel was prepared from individual standards that have been verified through standard quality testing and are traceable via individual item and batch numbers. Individual certificates of analysis are available upon request. All compounds used to make this panel were used within their valid expiry dates. Stability testing of this panel is ongoing to ensure continuous quality and traceability of the materials.

### Quality Testing

A single panel was pulled randomly from the batch and high resolution accurate mass analysis was performed to verify the contents of each vial position. A summary of results is reported below as the average ppm mass error  $\pm$  standard deviation determined for all analytes.

| Test               | Result              | Specification | Meets Specification |
|--------------------|---------------------|---------------|---------------------|
| Average mass error | $0.55 \pm 0.35$ ppm | $\pm 10$ ppm  | Yes                 |

Individual results are reported in the table on pages 2-5.

Approval: 

Title: Director of Analytical Chemistry

Certification Date: 25JUL2024

Cayman Chemical certifies that this product meets the specifications stated in this certificate and warrants this product to meet the stated acceptance criteria through the expiry date when stored unopened as recommended.

# CERTIFICATE of ANALYSIS



## Kit Contents Plate 1

| Well | Item Name                                         | Molecular Formula<br>(free analyte)             | Calculated<br>[M+H] <sup>+</sup> m/z | Measured<br>[M+H] <sup>+</sup> m/z | Mass Accuracy<br>(ppm) |
|------|---------------------------------------------------|-------------------------------------------------|--------------------------------------|------------------------------------|------------------------|
| A1   | Unused                                            | Unused                                          | Unused                               | Unused                             | Unused                 |
| A2   | 1'-Naphthoyl Indole                               | C <sub>19</sub> H <sub>13</sub> NO              | 272.1070                             | 272.1068                           | 0.71                   |
| A3   | JWH 030                                           | C <sub>20</sub> H <sub>21</sub> NO              | 292.1696                             | 292.1694                           | 0.66                   |
| A4   | JWH 071                                           | C <sub>21</sub> H <sub>17</sub> NO              | 300.1383                             | 300.1382                           | 0.31                   |
| A5   | JWH 031                                           | C <sub>21</sub> H <sub>23</sub> NO              | 306.1852                             | 306.1850                           | 0.80                   |
| A6   | RCS-4 M10 metabolite                              | C <sub>20</sub> H <sub>21</sub> NO <sub>3</sub> | 324.1594                             | 324.1591                           | 1.00                   |
| A7   | RCS-4-C4 homolog                                  | C <sub>20</sub> H <sub>21</sub> NO <sub>2</sub> | 308.1645                             | 308.1642                           | 1.00                   |
| A8   | XLR11 N-(4-pentenyl) analog                       | C <sub>21</sub> H <sub>27</sub> NO              | 310.2165                             | 310.2162                           | 1.11                   |
| A9   | UR-144                                            | C <sub>21</sub> H <sub>29</sub> NO              | 312.2322                             | 312.2318                           | 1.26                   |
| A10  | JWH 072                                           | C <sub>22</sub> H <sub>19</sub> NO              | 314.1539                             | 314.1538                           | 0.46                   |
| A11  | (±)-CP 47,497                                     | C <sub>21</sub> H <sub>34</sub> O <sub>2</sub>  | 317.2486 [M-H] <sup>-</sup>          | 317.2486 [M-H] <sup>-</sup>        | 0.00                   |
| A12  | Unused                                            | Unused                                          | Unused                               | Unused                             | Unused                 |
| B1   | Unused                                            | Unused                                          | Unused                               | Unused                             | Unused                 |
| B2   | (±)-epi CP 47,497                                 | C <sub>21</sub> H <sub>34</sub> O <sub>2</sub>  | 317.2486 [M-H] <sup>-</sup>          | 317.2489 [M-H] <sup>-</sup>        | 0.95                   |
| B3   | JWH 251                                           | C <sub>22</sub> H <sub>25</sub> NO              | 320.2009                             | 320.2008                           | 0.29                   |
| B4   | JWH 201                                           | C <sub>22</sub> H <sub>25</sub> NO <sub>2</sub> | 336.1958                             | 336.1955                           | 0.92                   |
| B5   | JWH 251 4-methylphenyl isomer                     | C <sub>22</sub> H <sub>25</sub> NO              | 320.2009                             | 320.2008                           | 0.29                   |
| B6   | RCS-4                                             | C <sub>21</sub> H <sub>23</sub> NO <sub>2</sub> | 322.1802                             | 322.1799                           | 0.80                   |
| B7   | JWH 018 2'-naphthyl-N-(2,2-dimethylpropyl) isomer | C <sub>24</sub> H <sub>23</sub> NO              | 342.1852                             | 342.1851                           | 0.42                   |
| B8   | RCS-4 3-methoxy isomer                            | C <sub>21</sub> H <sub>23</sub> NO <sub>2</sub> | 322.1802                             | 322.1799                           | 0.80                   |
| B9   | AM694 4-iodo isomer                               | C <sub>20</sub> H <sub>19</sub> FINO            | 436.0568                             | 436.0567                           | 0.27                   |
| B10  | JWH 167                                           | C <sub>21</sub> H <sub>23</sub> NO              | 306.1852                             | 306.1850                           | 0.80                   |
| B11  | JWH 015                                           | C <sub>23</sub> H <sub>21</sub> NO              | 328.1696                             | 328.1693                           | 0.90                   |
| B12  | Unused                                            | Unused                                          | Unused                               | Unused                             | Unused                 |

CAYMAN CHEMICAL  
1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 • USA

PHONE: [800] 364-9897  
[734] 971-3335  
FAX: [734] 971-3640

techserv@caymanchem.com  
www.caymanchem.com

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## Kit Contents

### Plate 1 Continued

| Well | Item Name                                     | Molecular Formula<br>(free analyte)              | Calculated<br>[M+H] <sup>+</sup> m/z | Measured<br>[M+H] <sup>+</sup> m/z | Mass Accuracy<br>(ppm) |
|------|-----------------------------------------------|--------------------------------------------------|--------------------------------------|------------------------------------|------------------------|
| C1   | Unused                                        | Unused                                           | Unused                               | Unused                             | Unused                 |
| C2   | JWH 073                                       | C <sub>23</sub> H <sub>21</sub> NO               | 328.1696                             | 328.1692                           | 1.20                   |
| C3   | JWH 018 N-(2-methylbutyl) isomer              | C <sub>24</sub> H <sub>23</sub> NO               | 342.1852                             | 342.1850                           | 0.71                   |
| C4   | JWH 073 2'-naphthyl-N-(2-methylpropyl) isomer | C <sub>23</sub> H <sub>21</sub> NO               | 328.1696                             | 328.1693                           | 0.90                   |
| C5   | JWH 018 2'-naphthyl isomer                    | C <sub>24</sub> H <sub>23</sub> NO               | 342.1852                             | 342.1850                           | 0.71                   |
| C6   | JWH 175                                       | C <sub>24</sub> H <sub>25</sub> N                | 328.2060                             | 328.2052                           | 2.37                   |
| C7   | UR-144 N-(5-hydroxypentyl) metabolite         | C <sub>21</sub> H <sub>29</sub> NO <sub>2</sub>  | 328.2271                             | 328.2268                           | 0.94                   |
| C8   | AB-005 azepane isomer                         | C <sub>23</sub> H <sub>32</sub> N <sub>2</sub> O | 353.2587                             | 353.2586                           | 0.40                   |
| C9   | XLR11                                         | C <sub>21</sub> H <sub>28</sub> FNO              | 330.2228                             | 330.2225                           | 0.82                   |
| C10  | JWH 073 2-methylnaphthyl analog               | C <sub>24</sub> H <sub>23</sub> NO               | 342.1852                             | 342.1850                           | 0.71                   |
| C11  | (±)-CP 47,497-C8-homolog                      | C <sub>22</sub> H <sub>36</sub> O <sub>2</sub>   | 331.2643 [M-H] <sup>-</sup>          | 331.2643 [M-H] <sup>-</sup>        | 0.15                   |
| C12  | Unused                                        | Unused                                           | Unused                               | Unused                             | Unused                 |
| D1   | Unused                                        | Unused                                           | Unused                               | Unused                             | Unused                 |
| D2   | (±)3- <i>epi</i> CP 47,497-C8-homolog         | C <sub>22</sub> H <sub>36</sub> O <sub>2</sub>   | 331.2643 [M-H] <sup>-</sup>          | 331.2646 [M-H] <sup>-</sup>        | 1.06                   |
| D3   | JWH 250                                       | C <sub>22</sub> H <sub>25</sub> NO <sub>2</sub>  | 336.1958                             | 336.1956                           | 0.62                   |
| D4   | JWH 251 3-methylphenyl isomer                 | C <sub>22</sub> H <sub>25</sub> NO               | 320.2009                             | 320.2007                           | 0.61                   |
| D5   | JWH 302                                       | C <sub>22</sub> H <sub>25</sub> NO <sub>2</sub>  | 336.1958                             | 336.1955                           | 0.92                   |
| D6   | RCS-4 N-(5-hydroxypentyl) metabolite          | C <sub>21</sub> H <sub>23</sub> NO <sub>3</sub>  | 338.1751                             | 338.1747                           | 1.11                   |
| D7   | JWH 073 6-hydroxyindole metabolite            | C <sub>23</sub> H <sub>21</sub> NO <sub>2</sub>  | 344.1645                             | 344.1644                           | 0.32                   |
| D8   | JWH 203                                       | C <sub>21</sub> H <sub>22</sub> ClNO             | 340.1463                             | 340.1462                           | 0.21                   |
| D9   | JWH 073 2-hydroxyindole metabolite            | C <sub>23</sub> H <sub>21</sub> NO <sub>2</sub>  | 344.1645                             | 344.1644                           | 0.32                   |
| D10  | JWH 203 3-chlorophenyl isomer                 | C <sub>21</sub> H <sub>22</sub> ClNO             | 340.1463                             | 340.1463                           | 0.08                   |
| D11  | JWH 022                                       | C <sub>24</sub> H <sub>21</sub> NO               | 340.1696                             | 340.1695                           | 0.28                   |
| D12  | Unused                                        | Unused                                           | Unused                               | Unused                             | Unused                 |

CAYMAN CHEMICAL  
1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 • USA

PHONE: [800] 364-9897  
[734] 971-3335  
FAX: [734] 971-3640

techserv@caymanchem.com  
www.caymanchem.com

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## Kit Contents Plate 1 Continued

| Well | Item Name                                 | Molecular Formula<br>(free analyte)              | Calculated<br>[M+H] <sup>+</sup> m/z | Measured<br>[M+H] <sup>+</sup> m/z | Mass Accuracy<br>(ppm) |
|------|-------------------------------------------|--------------------------------------------------|--------------------------------------|------------------------------------|------------------------|
| E1   | Unused                                    | Unused                                           | Unused                               | Unused                             | Unused                 |
| E2   | JWH 018 N-(3-methylbutyl) isomer          | C <sub>24</sub> H <sub>23</sub> NO               | 342.1852                             | 342.1850                           | 0.71                   |
| E3   | JWH 073 2'-naphthyl isomer                | C <sub>23</sub> H <sub>21</sub> NO               | 328.1696                             | 328.1693                           | 0.90                   |
| E4   | JWH 018                                   | C <sub>24</sub> H <sub>23</sub> NO               | 342.1852                             | 342.1851                           | 0.42                   |
| E5   | JWH 018 N-(5-bromopentyl) analog          | C <sub>24</sub> H <sub>22</sub> BrNO             | 420.0958                             | 420.0956                           | 0.37                   |
| E6   | JWH 018 N-(2,2-dimethylpropyl) isomer     | C <sub>24</sub> H <sub>23</sub> NO               | 342.1852                             | 342.1851                           | 0.42                   |
| E7   | RCS-4 2-methoxy isomer                    | C <sub>21</sub> H <sub>23</sub> NO <sub>2</sub>  | 322.1802                             | 322.1799                           | 0.80                   |
| E8   | UR-144 N-(4-hydroxypentyl) metabolite     | C <sub>21</sub> H <sub>29</sub> NO <sub>2</sub>  | 328.2271                             | 328.2269                           | 0.64                   |
| E9   | JWH 073 4-methylnaphthyl analog           | C <sub>24</sub> H <sub>23</sub> NO               | 342.1852                             | 342.1851                           | 0.42                   |
| E10  | XLR11 Degradant                           | C <sub>21</sub> H <sub>28</sub> FNO              | 330.2228                             | 330.2225                           | 0.82                   |
| E11  | JWH 018 N-(1,2-dimethylpropyl) isomer     | C <sub>24</sub> H <sub>23</sub> NO               | 342.1852                             | 342.1851                           | 0.42                   |
| E12  | Unused                                    | Unused                                           | Unused                               | Unused                             | Unused                 |
| F1   | Unused                                    | Unused                                           | Unused                               | Unused                             | Unused                 |
| F2   | JWH 122                                   | C <sub>25</sub> H <sub>25</sub> NO               | 356.2009                             | 356.2006                           | 0.83                   |
| F3   | JWH 250 N-(5-hydroxypentyl) metabolite    | C <sub>22</sub> H <sub>25</sub> NO <sub>3</sub>  | 352.1907                             | 352.1905                           | 0.64                   |
| F4   | JWH 122 6-methylnaphthyl isomer           | C <sub>25</sub> H <sub>25</sub> NO               | 356.2009                             | 356.2007                           | 0.54                   |
| F5   | UR-144 N-pentanoic acid metabolite        | C <sub>21</sub> H <sub>27</sub> NO <sub>3</sub>  | 342.2064                             | 342.2063                           | 0.22                   |
| F6   | THJ 018                                   | C <sub>23</sub> H <sub>22</sub> N <sub>2</sub> O | 343.1805                             | 343.1803                           | 0.56                   |
| F7   | JWH 073 4-hydroxyindole metabolite        | C <sub>23</sub> H <sub>21</sub> NO <sub>2</sub>  | 344.1645                             | 344.1643                           | 0.61                   |
| F8   | RCS-4 N-(4-hydroxypentyl) metabolite      | C <sub>21</sub> H <sub>23</sub> NO <sub>3</sub>  | 338.1751                             | 338.1748                           | 0.81                   |
| F9   | JWH 073 N-(4-hydroxybutyl) metabolite     | C <sub>23</sub> H <sub>21</sub> NO <sub>2</sub>  | 344.1645                             | 344.1644                           | 0.32                   |
| F10  | JWH 203 4-chlorophenyl isomer             | C <sub>21</sub> H <sub>22</sub> ClNO             | 340.1463                             | 340.1463                           | 0.08                   |
| F11  | (±)-JWH 073 N-(3-hydroxybutyl) metabolite | C <sub>23</sub> H <sub>21</sub> NO <sub>2</sub>  | 344.1645                             | 344.1645                           | 0.03                   |
| F12  | Unused                                    | Unused                                           | Unused                               | Unused                             | Unused                 |

CAYMAN CHEMICAL  
1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 • USA

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[734] 971-3335  
FAX: [734] 971-3640

techserv@caymanchem.com  
www.caymanchem.com

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## Kit Contents

### Plate 1 Continued

| Well | Item Name                              | Molecular Formula<br>(free analyte)                           | Calculated<br>[M+H] <sup>+</sup> m/z | Measured<br>[M+H] <sup>+</sup> m/z | Mass Accuracy<br>(ppm) |
|------|----------------------------------------|---------------------------------------------------------------|--------------------------------------|------------------------------------|------------------------|
| G1   | Unused                                 | Unused                                                        | Unused                               | Unused                             | Unused                 |
| G2   | UR-144 N-(5-chloropentyl) analog       | C <sub>21</sub> H <sub>28</sub> ClNO                          | 346.1932                             | 346.1932                           | 0.06                   |
| G3   | JWH 018 adamantyl analog               | C <sub>24</sub> H <sub>31</sub> NO                            | 350.2478                             | 350.2477                           | 0.41                   |
| G4   | RCS-4 N-(5-carboxypentyl) metabolite   | C <sub>21</sub> H <sub>21</sub> NO <sub>4</sub>               | 352.1543                             | 352.1543                           | 0.11                   |
| G5   | AM2233                                 | C <sub>22</sub> H <sub>23</sub> IN <sub>2</sub> O             | 459.0928                             | 459.0925                           | 0.63                   |
| G6   | JWH 018 N-(1-ethylpropyl) isomer       | C <sub>24</sub> H <sub>23</sub> NO                            | 342.1852                             | 342.1852                           | 0.13                   |
| G7   | JWH 250 N-(4-hydroxypentyl) metabolite | C <sub>22</sub> H <sub>25</sub> NO <sub>3</sub>               | 352.1907                             | 352.1907                           | 0.07                   |
| G8   | AM2232                                 | C <sub>24</sub> H <sub>20</sub> N <sub>2</sub> O              | 353.1648                             | 353.1647                           | 0.40                   |
| G9   | AB-005                                 | C <sub>23</sub> H <sub>32</sub> N <sub>2</sub> O              | 353.2587                             | 353.2586                           | 0.40                   |
| G10  | JWH 016                                | C <sub>24</sub> H <sub>23</sub> NO                            | 342.1852                             | 342.1852                           | 0.13                   |
| G11  | JWH 122 N-(4-pentenyl) analog          | C <sub>25</sub> H <sub>23</sub> NO                            | 354.1852                             | 354.1851                           | 0.41                   |
| G12  | Unused                                 | Unused                                                        | Unused                               | Unused                             | Unused                 |
| H1   | Unused                                 | Unused                                                        | Unused                               | Unused                             | Unused                 |
| H2   | A-796260                               | C <sub>22</sub> H <sub>30</sub> N <sub>2</sub> O <sub>2</sub> | 355.2380                             | 355.2378                           | 0.59                   |
| H3   | JWH 019                                | C <sub>25</sub> H <sub>25</sub> NO                            | 356.2009                             | 356.2008                           | 0.26                   |
| H4   | AM694                                  | C <sub>20</sub> H <sub>19</sub> FINO                          | 436.0568                             | 436.0567                           | 0.27                   |
| H5   | JWH 007                                | C <sub>25</sub> H <sub>25</sub> NO                            | 356.2009                             | 356.2006                           | 0.83                   |
| H6   | JWH 213                                | C <sub>27</sub> H <sub>29</sub> NO                            | 384.2322                             | 384.2322                           | 0.02                   |
| H7   | JWH 180                                | C <sub>25</sub> H <sub>25</sub> NO                            | 356.2009                             | 356.2008                           | 0.26                   |
| H8   | JWH 309                                | C <sub>30</sub> H <sub>27</sub> NO                            | 418.2165                             | 418.2163                           | 0.58                   |
| H9   | JWH 122 7-methylnaphthyl isomer        | C <sub>25</sub> H <sub>25</sub> NO                            | 356.2009                             | 356.2007                           | 0.54                   |
| H10  | HU-211                                 | C <sub>25</sub> H <sub>38</sub> O <sub>3</sub>                | 385.2748 [M-H] <sup>-</sup>          | 385.2754 [M-H] <sup>-</sup>        | 1.52                   |
| H11  | JWH 073 N-butanoic acid metabolite     | C <sub>23</sub> H <sub>19</sub> NO <sub>3</sub>               | 358.1438                             | 358.1435                           | 0.77                   |
| H12  | Unused                                 | Unused                                                        | Unused                               | Unused                             | Unused                 |

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ANN ARBOR, MI 48108 • USA

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[734] 971-3335  
FAX: [734] 971-3640

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www.caymanchem.com

# CERTIFICATE of ANALYSIS



## Kit Contents Plate 2

| Well | Item Name                                  | Molecular Formula<br>(free analyte)                           | Calculated<br>[M+H] <sup>+</sup> m/z | Measured<br>[M+H] <sup>+</sup> m/z | Mass Accuracy<br>(ppm) |
|------|--------------------------------------------|---------------------------------------------------------------|--------------------------------------|------------------------------------|------------------------|
| A1   | Unused                                     | Unused                                                        | Unused                               | Unused                             | Unused                 |
| A2   | JWH 018 4-hydroxyindole metabolite         | C <sub>24</sub> H <sub>23</sub> NO <sub>2</sub>               | 358.1802                             | 358.1800                           | 0.44                   |
| A3   | JWH 116                                    | C <sub>26</sub> H <sub>27</sub> NO                            | 370.2165                             | 370.2165                           | 0.12                   |
| A4   | JWH 018 7-hydroxyindole metabolite         | C <sub>24</sub> H <sub>23</sub> NO <sub>2</sub>               | 358.1802                             | 358.1799                           | 0.72                   |
| A5   | JWH 018 6-methoxyindole analog             | C <sub>25</sub> H <sub>25</sub> NO <sub>2</sub>               | 372.1958                             | 372.1957                           | 0.29                   |
| A6   | (±)-JWH 018 N-(4-hydroxypentyl) metabolite | C <sub>24</sub> H <sub>23</sub> NO <sub>2</sub>               | 358.1802                             | 358.1800                           | 0.44                   |
| A7   | JWH 081 2-methoxynaphthyl isomer           | C <sub>25</sub> H <sub>25</sub> NO <sub>2</sub>               | 372.1958                             | 372.1958                           | 0.02                   |
| A8   | AM2201                                     | C <sub>24</sub> H <sub>22</sub> FNO                           | 360.1758                             | 360.1755                           | 0.89                   |
| A9   | JWH 081 8-methoxynaphthyl isomer           | C <sub>25</sub> H <sub>25</sub> NO <sub>2</sub>               | 372.1958                             | 372.1956                           | 0.56                   |
| A10  | AM2201 N-(3-fluoropentyl) isomer           | C <sub>24</sub> H <sub>22</sub> FNO                           | 360.1758                             | 360.1755                           | 0.89                   |
| A11  | JWH 018 adamantyl carboxamide              | C <sub>24</sub> H <sub>32</sub> N <sub>2</sub> O              | 365.2587                             | 365.2587                           | 0.12                   |
| A12  | Unused                                     | Unused                                                        | Unused                               | Unused                             | Unused                 |
| B1   | Unused                                     | Unused                                                        | Unused                               | Unused                             | Unused                 |
| B2   | JWH 250 N-pentanoic acid metabolite        | C <sub>22</sub> H <sub>23</sub> NO <sub>4</sub>               | 366.1700                             | 366.1699                           | 0.24                   |
| B3   | MDA 77                                     | C <sub>21</sub> H <sub>23</sub> N <sub>3</sub> O <sub>3</sub> | 366.1812                             | 366.1811                           | 0.33                   |
| B4   | AKB48                                      | C <sub>23</sub> H <sub>31</sub> N <sub>3</sub> O              | 366.2540                             | 366.2538                           | 0.52                   |
| B5   | JWH 145                                    | C <sub>26</sub> H <sub>25</sub> NO                            | 368.2009                             | 368.2008                           | 0.26                   |
| B6   | JWH 210                                    | C <sub>26</sub> H <sub>27</sub> NO                            | 370.2165                             | 370.2164                           | 0.39                   |
| B7   | JWH 398 5-chloronaphthyl isomer            | C <sub>24</sub> H <sub>22</sub> ClNO                          | 376.1463                             | 376.1460                           | 0.72                   |
| B8   | JWH 210 7-ethylnaphthyl isomer             | C <sub>26</sub> H <sub>27</sub> NO                            | 370.2165                             | 370.2164                           | 0.39                   |
| B9   | JWH 398 2-chloronaphthyl isomer            | C <sub>24</sub> H <sub>22</sub> ClNO                          | 376.1463                             | 376.1460                           | 0.72                   |
| B10  | JWH 210 8-ethylnaphthyl isomer             | C <sub>26</sub> H <sub>27</sub> NO                            | 370.2165                             | 370.2164                           | 0.39                   |
| B11  | JWH 018 N-(5-chloropentyl) analog          | C <sub>24</sub> H <sub>22</sub> ClNO                          | 376.1463                             | 376.1462                           | 0.19                   |
| B12  | Unused                                     | Unused                                                        | Unused                               | Unused                             | Unused                 |

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1180 EAST ELLSWORTH RD  
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## Kit Contents

### Plate 2 Continued

| Well | Item Name                                  | Molecular Formula<br>(free analyte)              | Calculated<br>[M+H] <sup>+</sup> m/z | Measured<br>[M+H] <sup>+</sup> m/z | Mass Accuracy<br>(ppm) |
|------|--------------------------------------------|--------------------------------------------------|--------------------------------------|------------------------------------|------------------------|
| C1   | Unused                                     | Unused                                           | Unused                               | Unused                             | Unused                 |
| C2   | JWH 149                                    | C <sub>26</sub> H <sub>27</sub> NO               | 370.2165                             | 370.2165                           | 0.12                   |
| C3   | AM694 3-iodo isomer                        | C <sub>20</sub> H <sub>19</sub> FINO             | 436.0568                             | 436.0566                           | 0.50                   |
| C4   | JWH 018 N-pentanoic acid metabolite        | C <sub>24</sub> H <sub>21</sub> NO <sub>3</sub>  | 372.1594                             | 372.1593                           | 0.33                   |
| C5   | JWH 081                                    | C <sub>25</sub> H <sub>25</sub> NO <sub>2</sub>  | 372.1958                             | 372.1957                           | 0.29                   |
| C6   | JWH 018 N-(5-hydroxypentyl) metabolite     | C <sub>24</sub> H <sub>23</sub> NO <sub>2</sub>  | 358.1802                             | 358.1799                           | 0.72                   |
| C7   | JWH 122 N-(5-hydroxypentyl) metabolite     | C <sub>25</sub> H <sub>25</sub> NO <sub>2</sub>  | 372.1958                             | 372.1956                           | 0.56                   |
| C8   | (±)-JWH 018 N-(2-hydroxypentyl) metabolite | C <sub>24</sub> H <sub>23</sub> NO <sub>2</sub>  | 358.1802                             | 358.1800                           | 0.44                   |
| C9   | JWH 019 N-(6-hydroxyhexyl) metabolite      | C <sub>25</sub> H <sub>25</sub> NO <sub>2</sub>  | 372.1958                             | 372.1957                           | 0.29                   |
| C10  | AM2201 2'-naphthyl isomer                  | C <sub>24</sub> H <sub>22</sub> FNO              | 360.1758                             | 360.1755                           | 0.89                   |
| C11  | JWH 081 6-methoxynaphthyl isomer           | C <sub>25</sub> H <sub>25</sub> NO <sub>2</sub>  | 372.1958                             | 372.1955                           | 0.83                   |
| C12  | Unused                                     | Unused                                           | Unused                               | Unused                             | Unused                 |
| D1   | Unused                                     | Unused                                           | Unused                               | Unused                             | Unused                 |
| D2   | JWH 081 3-methoxynaphthyl isomer           | C <sub>25</sub> H <sub>25</sub> NO <sub>2</sub>  | 372.1958                             | 372.1957                           | 0.29                   |
| D3   | AM1220 azepane isomer                      | C <sub>26</sub> H <sub>26</sub> N <sub>2</sub> O | 383.2118                             | 383.2117                           | 0.24                   |
| D4   | MAM2201                                    | C <sub>25</sub> H <sub>24</sub> FNO              | 374.1915                             | 374.1915                           | 0.07                   |
| D5   | JWH 398                                    | C <sub>24</sub> H <sub>22</sub> ClNO             | 376.1463                             | 376.1462                           | 0.19                   |
| D6   | JWH 020                                    | C <sub>26</sub> H <sub>27</sub> NO               | 370.2165                             | 370.2164                           | 0.39                   |
| D7   | JWH 398 6-chloronaphthyl isomer            | C <sub>24</sub> H <sub>22</sub> ClNO             | 376.1463                             | 376.1462                           | 0.19                   |
| D8   | JWH 210 2-ethylnaphthyl isomer             | C <sub>26</sub> H <sub>27</sub> NO               | 370.2165                             | 370.2165                           | 0.12                   |
| D9   | JWH 398 7-chloronaphthyl isomer            | C <sub>24</sub> H <sub>22</sub> ClNO             | 376.1463                             | 376.1463                           | 0.07                   |
| D10  | JWH 210 5-ethylnaphthyl isomer             | C <sub>26</sub> H <sub>27</sub> NO               | 370.2165                             | 370.2164                           | 0.39                   |
| D11  | AM2201 N-(4-hydroxypentyl) metabolite      | C <sub>24</sub> H <sub>22</sub> FNO <sub>2</sub> | 376.1707                             | 376.1708                           | 0.17                   |
| D12  | Unused                                     | Unused                                           | Unused                               | Unused                             | Unused                 |

CAYMAN CHEMICAL  
1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 • USA

PHONE: [800] 364-9897  
[734] 971-3335  
FAX: [734] 971-3640

techserv@caymanchem.com  
www.caymanchem.com

# CERTIFICATE of ANALYSIS



## Kit Contents Plate 2 Continued

| Well | Item Name                              | Molecular Formula<br>(free analyte)                           | Calculated<br>[M+H] <sup>+</sup> m/z | Measured<br>[M+H] <sup>+</sup> m/z | Mass Accuracy<br>(ppm) |
|------|----------------------------------------|---------------------------------------------------------------|--------------------------------------|------------------------------------|------------------------|
| E1   | Unused                                 | Unused                                                        | Unused                               | Unused                             | Unused                 |
| E2   | AM2201 7-hydroxyindole metabolite      | C <sub>24</sub> H <sub>22</sub> FNO <sub>2</sub>              | 376.1707                             | 376.1705                           | 0.63                   |
| E3   | JWH 210 5-hydroxyindole metabolite     | C <sub>26</sub> H <sub>27</sub> NO <sub>2</sub>               | 386.2115                             | 386.2112                           | 0.67                   |
| E4   | AM2201 2-hydroxyindole metabolite      | C <sub>24</sub> H <sub>22</sub> FNO <sub>2</sub>              | 376.1707                             | 376.1706                           | 0.36                   |
| E5   | RCS-8                                  | C <sub>25</sub> H <sub>29</sub> NO <sub>2</sub>               | 376.2271                             | 376.2270                           | 0.29                   |
| E6   | JWH 210 N-(4-hydroxypentyl) metabolite | C <sub>26</sub> H <sub>27</sub> NO <sub>2</sub>               | 386.2115                             | 386.2113                           | 0.41                   |
| E7   | RCS-8 3-methoxy isomer                 | C <sub>25</sub> H <sub>29</sub> NO <sub>2</sub>               | 376.2271                             | 376.2268                           | 0.82                   |
| E8   | Cannabipiperidiethanone                | C <sub>24</sub> H <sub>28</sub> N <sub>2</sub> O <sub>2</sub> | 377.2224                             | 377.2223                           | 0.15                   |
| E9   | (+)-CP 55,940                          | C <sub>24</sub> H <sub>40</sub> O <sub>3</sub>                | 375.2905 [M-H] <sup>-</sup>          | 375.2909 [M-H] <sup>-</sup>        | 1.16                   |
| E10  | Pravadoline                            | C <sub>23</sub> H <sub>26</sub> N <sub>2</sub> O <sub>3</sub> | 379.2016                             | 379.2015                           | 0.32                   |
| E11  | JWH 370                                | C <sub>27</sub> H <sub>27</sub> NO                            | 382.2165                             | 382.2163                           | 0.64                   |
| E12  | Unused                                 | Unused                                                        | Unused                               | Unused                             | Unused                 |
| F1   | Unused                                 | Unused                                                        | Unused                               | Unused                             | Unused                 |
| F2   | AM1220                                 | C <sub>26</sub> H <sub>26</sub> N <sub>2</sub> O              | 383.2118                             | 383.2114                           | 1.03                   |
| F3   | JWH 122 N-(4-hydroxypentyl) metabolite | C <sub>25</sub> H <sub>25</sub> NO <sub>2</sub>               | 372.1958                             | 372.1956                           | 0.56                   |
| F4   | STS-135                                | C <sub>24</sub> H <sub>31</sub> FN <sub>2</sub> O             | 383.2493                             | 383.2489                           | 1.10                   |
| F5   | JWH 249                                | C <sub>21</sub> H <sub>22</sub> BrNO                          | 384.0958                             | 384.0956                           | 0.40                   |
| F6   | JWH 182                                | C <sub>27</sub> H <sub>29</sub> NO                            | 384.2322                             | 384.2319                           | 0.77                   |
| F7   | JWH 122 3-methylnaphthyl isomer        | C <sub>25</sub> H <sub>25</sub> NO                            | 356.2009                             | 356.2007                           | 0.54                   |
| F8   | 5-fluoro AKB48                         | C <sub>23</sub> H <sub>30</sub> FN <sub>3</sub> O             | 384.2446                             | 384.2443                           | 0.70                   |
| F9   | JWH 200                                | C <sub>25</sub> H <sub>24</sub> N <sub>2</sub> O <sub>2</sub> | 385.1911                             | 385.1909                           | 0.41                   |
| F10  | MAM2201 N-pentanoic acid metabolite    | C <sub>25</sub> H <sub>23</sub> NO <sub>3</sub>               | 386.1751                             | 386.1749                           | 0.45                   |
| F11  | JWH 368                                | C <sub>26</sub> H <sub>24</sub> FNO                           | 386.1915                             | 386.1911                           | 0.96                   |
| F12  | Unused                                 | Unused                                                        | Unused                               | Unused                             | Unused                 |

CAYMAN CHEMICAL  
1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 • USA

PHONE: [800] 364-9897  
[734] 971-3335  
FAX: [734] 971-3640

techserv@caymanchem.com  
www.caymanchem.com

# CERTIFICATE of ANALYSIS



## Kit Contents Plate 2 Continued

| Well | Item Name                              | Molecular Formula<br>(free analyte)                           | Calculated<br>[M+H] <sup>+</sup> m/z | Measured<br>[M+H] <sup>+</sup> m/z | Mass Accuracy<br>(ppm) |
|------|----------------------------------------|---------------------------------------------------------------|--------------------------------------|------------------------------------|------------------------|
| G1   | Unused                                 | Unused                                                        | Unused                               | Unused                             | Unused                 |
| G2   | JWH 307                                | C <sub>26</sub> H <sub>24</sub> FNO                           | 386.1915                             | 386.1911                           | 0.96                   |
| G3   | JWH 098                                | C <sub>26</sub> H <sub>27</sub> NO <sub>2</sub>               | 386.2115                             | 386.2111                           | 0.93                   |
| G4   | AM2201 6-hydroxyindole metabolite      | C <sub>24</sub> H <sub>22</sub> FNO <sub>2</sub>              | 376.1707                             | 376.1704                           | 0.90                   |
| G5   | JWH 210 N-(5-hydroxypentyl) metabolite | C <sub>26</sub> H <sub>27</sub> NO <sub>2</sub>               | 386.2115                             | 386.2112                           | 0.67                   |
| G6   | RCS-8 4-methoxy isomer                 | C <sub>25</sub> H <sub>29</sub> NO <sub>2</sub>               | 376.2271                             | 376.2270                           | 0.29                   |
| G7   | HU-210                                 | C <sub>25</sub> H <sub>38</sub> O <sub>3</sub>                | 385.2748 [M-H] <sup>-</sup>          | 385.2750 [M-H] <sup>-</sup>        | 0.48                   |
| G8   | JWH 122 8-methylnaphthyl isomer        | C <sub>25</sub> H <sub>25</sub> NO                            | 356.2009                             | 356.2006                           | 0.83                   |
| G9   | JWH 081 N-(5-hydroxypentyl) metabolite | C <sub>25</sub> H <sub>25</sub> NO <sub>3</sub>               | 388.1907                             | 388.1904                           | 0.83                   |
| G10  | EAM2201                                | C <sub>26</sub> H <sub>26</sub> FNO                           | 388.2071                             | 388.2068                           | 0.83                   |
| G11  | UR-144 N-(5-bromopentyl) analog        | C <sub>21</sub> H <sub>28</sub> BrNO                          | 390.1427                             | 390.1424                           | 0.78                   |
| G12  | Unused                                 | Unused                                                        | Unused                               | Unused                             | Unused                 |
| H1   | Unused                                 | Unused                                                        | Unused                               | Unused                             | Unused                 |
| H2   | MAM2201 N-(4-hydroxypentyl) metabolite | C <sub>25</sub> H <sub>24</sub> FNO <sub>2</sub>              | 390.1864                             | 390.1860                           | 0.99                   |
| H3   | AM1248                                 | C <sub>26</sub> H <sub>34</sub> N <sub>2</sub> O              | 391.2744                             | 391.2742                           | 0.49                   |
| H4   | JWH 398 N-(4-hydroxypentyl) metabolite | C <sub>24</sub> H <sub>22</sub> ClNO <sub>2</sub>             | 392.1412                             | 392.1411                           | 0.22                   |
| H5   | JWH 193                                | C <sub>26</sub> H <sub>26</sub> N <sub>2</sub> O <sub>2</sub> | 399.2067                             | 399.2066                           | 0.27                   |
| H6   | JWH 210 N-pentanoic acid metabolite    | C <sub>26</sub> H <sub>25</sub> NO <sub>3</sub>               | 400.1907                             | 400.1907                           | 0.06                   |
| H7   | JWH 424                                | C <sub>24</sub> H <sub>22</sub> BrNO                          | 420.0958                             | 420.0954                           | 0.85                   |
| H8   | JWH 369                                | C <sub>26</sub> H <sub>24</sub> ClNO                          | 402.1619                             | 402.1620                           | 0.19                   |
| H9   | JWH 198                                | C <sub>26</sub> H <sub>26</sub> N <sub>2</sub> O <sub>3</sub> | 415.2016                             | 415.2013                           | 0.78                   |
| H10  | HU-308                                 | C <sub>27</sub> H <sub>42</sub> O <sub>3</sub>                | 415.3207                             | 415.3202                           | 1.14                   |
| H11  | AM679                                  | C <sub>20</sub> H <sub>20</sub> INO                           | 418.0662                             | 418.0660                           | 0.57                   |
| H12  | Unused                                 | Unused                                                        | Unused                               | Unused                             | Unused                 |

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