Metabolomic Data Analysis with MetaboAnalyst 6.0

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August 2, 2024

1 Background

The Pathway Analysis module combines results from powerful pathway enrichment analysis with pathway topology analysis to help researchers identify the most relevant pathways involved in the conditions under study.

There are many commercial pathway analysis software tools such as Pathway Studio, MetaCore, or Ingenuity Pathway Analysis (IPA), etc. Compared to these commercial tools, the pathway analysis module was specifically developed for metabolomics studies. It uses high-quality KEGG metabolic pathways as the backend knowledgebase. This module integrates many well-established (i.e. univariate analysis, over-representation analysis) methods, as well as novel algorithms and concepts (i.e. Global Test, Global Ancova, network topology analysis) into pathway analysis. Another feature is a Google-Map style interactive visualization system to deliver the analysis results in an intuitive manner.

2 Data Input

The Pathway Analysis module accepts either a list of compound labels (common names, HMDB IDs or KEGG IDs) with one compound per row, or a compound concentration table with samples in rows and compounds in columns. The second column must be phenotype labels (binary, multi-group, or continuous). The table is uploaded as comma separated values (.csv).

3 Compound Name Matching

The first step is to standardize the compound labels used in user uploaded data. This is a necessary step since these compounds will be subsequently compared with compounds contained in the pathway library. There are three outcomes from the step - exact match, approximate match (for common names only), and no match. Users should click the textbfView button from the approximate matched results to manually select the correct one. Compounds without match will be excluded from the subsequently pathway analysis.

Table 1 shows the conversion results. Note: 1 indicates exact match, 2 indicates approximate match, and θ indicates no match. A text file contain the result can be found the downloaded file $name_map.csv$

	Query	Match	HMDB	PubCh
1	HMDB0000042	Acetic acid	HMDB0000042	176
2	HMDB0003344	Gly colaldehy de	HMDB0003344	756
3	${\rm HMDB0002165}$	NA	NA	NA
4	C00033	NA	NA	NA
5	C00266	NA	NA	NA
6	CHEBI:15366	NA	NA	NA
7	CHEBI:17071	NA	NA	NA
8	CHEBI:77699	NA	NA	NA
9	HMDB0000119	Glyoxylic acid	HMDB0000119	760

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C00048
10
                      NA
                                                                                                              NA
                                                                                                                               NA
     CHEBI:16891
                                                                                                              NA
                                                                                                                               NΑ
                      NΑ
11
12
     CHEBI:36657
                      NA
                                                                                                                               NA
13
     {\rm HMDB0000123}
                      Glycine
                                                                                                              HMDB0000123
                                                                                                                               750
14
     HMDB0014691
                       Acetohydroxamic Acid
                                                                                                              HMDB0014691
                                                                                                                               1990
     HMDB0031239
15
                      Ethyl nitrite
                                                                                                              HMDB0031239
                                                                                                                               8026
     C00037
                      NA
                                                                                                                               NA
16
                                                                                                              NA
     C01837
                                                                                                                               NΑ
17
                      NΑ
                                                                                                              NA
     C06808
                      NΑ
                                                                                                              NA
                                                                                                                               NA
18
19
     C19445
                                                                                                              NΑ
20
     CHEBI:15428
                      NΑ
                                                                                                              NΑ
                                                                                                                               NA
^{21}
     CHEBI:16268
                      NΑ
                                                                                                              NΑ
                                                                                                                               ΝΑ
22
                                                                                                                               NΑ
     CHEBI:27777
                      NA
                                                                                                              NA
23
     CHEBI:30321
                      NΑ
                                                                                                                               NΑ
                                                                                                              NA
^{24}
     CHEBI:45379
                      NΑ
                                                                                                              NA
                                                                                                                               NΑ
     CHEBI:49029
                                                                                                                               NΑ
                      NA
                                                                                                              NA
26
     CHEBI:57305
                      NΑ
                                                                                                              NA
                                                                                                                               NΑ
27
     CHEBI:76606
                      NA
                                                                                                              NA
                                                                                                                               NA
28
     CHEBI:77894
                      NA
                                                                                                              NA
                                                                                                                               NA
     HMDB0000115
                                                                                                              HMDB0000115
29
                      Glycolic acid
                                                                                                                               757
     HMDB0031608
                                                                                                              HMDB0031608
30
                      Peracetic acid
                                                                                                                               6585
     HMDB0003035
                      NΑ
                                                                                                              NA
                                                                                                                               NA
32
     C00160
                      NA
                                                                                                              NA
                                                                                                                               NA
33
     CHEBI:17497
                      NA
                                                                                                              NA
                                                                                                                               NA
                                                                                                              HM DB0013749
     {\rm HMDB0013749}
                      2-Methylfuran
34
                                                                                                                               10797
     HMDB0031597
                                                                                                              HMDB0031597
                      2.4-Pentadienal
                                                                                                                               535669
35
36
     {\rm CHEBI:} 35592
                      \dot{N}A
                                                                                                              NA
                                                                                                                               NA
     CHEBI:35593
                      NA
                                                                                                              NA
                                                                                                                               NA
38
     CHEBI:969439
                                                                                                                               NΑ
                                                                                                              HMDB0002039
39
     {\rm HMDB0002039}
                      2-Pyrrolidinone
                                                                                                                               12025
40
     HMDB0060427
                      NA
                                                                                                              NA
                                                                                                                               NΑ
                                                                                                                               NΑ
     C02659
                                                                                                              NΑ
41
                      NA
                                                                                                                               NΑ
     C11118
                      NΑ
                                                                                                              NA
42
     CHEBI:15348
                                                                                                              NA
                                                                                                                               NΑ
43
                      NA
                      NΑ
     CHEBI:36592
                                                                                                              NA
                                                                                                                               NΑ
44
45
     CHEBI:40599
                      NΑ
                                                                                                              NA
                                                                                                                               NΑ
46
     CHEBI:51457
                      NA
                                                                                                              NA
                                                                                                                               NA
47
     CHEBI:51759
                      NA
                                                                                                              NA
                                                                                                                               NA
     CHEBI:53614
                                                                                                                               NΑ
48
                      NA
                                                                                                              NA
                                                                                                              HMDB0000056
49
     HMDB0000056
                      beta-Alanine
                                                                                                                               239
     HMDB0000161
                                                                                                              HMDB0000161
                                                                                                                               5950
                      L-Alanine
51
     {\rm HMDB0000271}
                      Sarcosine
                                                                                                              HMDB0000271
                                                                                                                               1088
52
     HMDB0001310
                      D-Alanine
                                                                                                              HMDB0001310
                                                                                                                               71080
     HMDB0031219
53
                      Ethyl carbamate
                                                                                                              HMDB0031219
                                                                                                                               5641
54
     HMDB0062251
                      (alpha-D-mannosyl)7-beta-D-mannosyl-diacetylchitobiosyl-L-asparagine, isoform A (protein)
                                                                                                              HMDB0062251
                                                                                                                               602
55
     C00041
                                                                                                                               NA
                                                                                                              NA
     C00099
                                                                                                                               ΝA
                      NΑ
                                                                                                              NA
57
     C00133
                      NΑ
                                                                                                              NA
                                                                                                                               NΑ
58
     C00213
                      NA
                                                                                                              NA
                                                                                                                               NΑ
59
     C01401
                      NΑ
                                                                                                              NA
                                                                                                                               NA
                                                                                                                               NΑ
60
     C01537
                      NΑ
                                                                                                              NA
     C02116
                                                                                                                               NΑ
61
                      NΑ
                                                                                                              NA
                                                                                                                               ΝA
62
                      NA
                                                                                                              NA
     CHEBI:15570
                      NΑ
                                                                                                              NΑ
                                                                                                                               NΑ
63
64
     CHEBI:15611
                      NΑ
                                                                                                              NA
                                                                                                                               NA
65
     CHEBI:16037
                      NΑ
                                                                                                              NA
                                                                                                                               NA
                                                                                                                               NΑ
66
     CHEBI:16449
                      NA
                                                                                                              NA
     CHEBI:16958
67
                                                                                                                               NΑ
                      NA
                                                                                                              NA
     CHEBI:16977
                      ΝA
                                                                                                                               NΑ
68
                                                                                                              NA
69
     CHEBI:17967
                                                                                                                               NΑ
70
     CHEBI:38544
                      NΑ
                                                                                                              NA
                                                                                                                               NA
71
     CHEBI:57416
                      NA
                                                                                                              NA
                                                                                                                               NA
                                                                                                                               NΑ
72
     CHEBI:57433
                      NA
                                                                                                              NA
     CHEBI:57966
                                                                                                                               NΑ
                      NΑ
                                                                                                              NA
73
     CHEBI:57972
74
                      NΑ
                                                                                                              NA
                                                                                                                               NΑ
     CHEBI:64738
                                                                                                                               NΑ
75
                      NΑ
                                                                                                              NA
76
     CHEBI:66916
                      NΑ
                                                                                                              NA
                                                                                                                               NΑ
77
     CHEBI:75144
                      NΑ
                                                                                                              NA
                                                                                                                               NA
78
     CHEBI:76050
                      NA
                                                                                                              NA
                                                                                                                               NA
     CHEBI:76261
                                                                                                                               NΑ
79
                      NΑ
                                                                                                              NA
80
     CHEBI:87375
                      NΑ
                                                                                                              NA
                                                                                                                               NΑ
     HMDB0000718
                      Isovaleric acid
                                                                                                              HMDB0000718
                                                                                                                               10430
     {\rm HMDB0000892}
                      Valeric acid
                                                                                                              HMDB0000892
                                                                                                                               7991
82
83
     {\rm HMDB0002176}
                      Ethylmethylacetic acid
                                                                                                              {\rm HM\,DB0002176}
                                                                                                                               8314
84
     HMDB0030058
                      Ethyl propionate
Tetrahydro-2-furanmethanol
                                                                                                              HMDB0030058
                                                                                                                               7749
                                                                                                                               7360
     HMDB0031175
                                                                                                              HMDB0031175
85
                                                                                                              HMDB0031241
86
     HMDB0031241
                      Isopropyl acetate
                                                                                                                               7915
     HMDB0031247
                      2-Methylpropyl formate
                                                                                                              HMDB0031247
                                                                                                                               10957
88
     HMDB0031249
                      Methyl isobutyrate
                                                                                                              {\rm HM\,DB0031249}
                                                                                                                               11039
80
     {\rm HMDB0031516}
                      3-Hy\,droxy-2-pentanone
                                                                                                              HMDB0031516
                                                                                                                               62484
90
     HMDB0032230
                      2,4-Dimethyl-1,3-dioxolane
                                                                                                              HMDB0032230
                                                                                                                               102993
     HMDB0032263
                      Ethylene oxide/propylene oxide copolymer
                                                                                                              HMDB0032263
                                                                                                                               228958
91
                                                                                                              HMDB0033742
     HMDB0033742
                      (S)-2-Methylbutanoic acid
                                                                                                                               448893
92
     HMDB0033890
                                                                                                              HMDB0033890
93
                      Methyl butyrate
                                                                                                                               12180
     HMDB0034237
                      Propyl acetate
                                                                                                              HMDB0034237
                                                                                                                               7997
95
     HMDB0039799
                      Tetrahydro-2-methyl-3-furanol
                                                                                                              HMDB0039799
                                                                                                                               34742
96
     HMDB0040575
                      Butyl formate
                                                                                                              HMDB0040575
                                                                                                                               11614
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97				
91	${\rm HMDB0041992}$	NA	NA	NA
98	${ m HMDB0059678}$	1-Hydroxy-2-pentanone	${ m HMDB0059678}$	522131
99	C00803	NA	NA	NA
100	C08262	NA	NA	NA
101	C18319	NA	NA	NA
102	CHEBI:1132558	NA NA	NA	NA
103	CHEBI:137944	NA NA	NA	NA
$\frac{104}{105}$	CHEBI:167460	NA NA	NA NA	N A N A
$\frac{105}{106}$	CHEBI:17418 CHEBI:28484	NA NA	NA NA	NA NA
107	CHEBI:32026	NA NA	NA NA	NA
108	CHEBI:37070	NA	NA	NA
109	CHEBI:38655	NA	NA	NA
110	CHEBI:40116	NA	NA	NA
111	CHEBI:41330	N A	NA	NA
112	CHEBI:45133	NA	NA	NA
113	CHEBI:45525	NA	NA	NA
114	CHEBI:73689	NA	NA	NA
115	CHEBI:88514	NA	NA	NA
116	${\rm HMDB0000092}$	Dimethylglycine	${ m HMDB0000092}$	673
117	HMDB0000112	gamma-Aminobuty ric acid	HMDB0000112	119
118	HMDB0000452	L-alpha-Aminobutyric acid	HMDB0000452	80283
119	HMDB0000650	D-alpha-Aminobutyric acid	HMDB0000650	439691
120	HMDB0001906	2-Aminoisobutyric acid	HMDB0001906	6119
$\frac{121}{122}$	HMDB0002166 HMDB0002299	(S)-beta-Aminoisobutyric acid (R)-beta-Aminoisobutyric acid	HMDB0002166 HMDB0002299	$439434 \\ 545982$
123	HMDB0002299	3-Aminoisobutanoic acid	HMDB0002299 HMDB0003911	64956
$\frac{123}{124}$	HMDB0003911	Butyl nitrite	HMDB0003911	10996
125	HMDB0031654	3-Aminobutanoic acid	HM DB0031329	10930
126	HMDB0038394	O-Acetylethanolamine	HMDB0038394	112720
127	HMDB0041945	N-Ethylglycine	HMDB0041945	699207
128	HMDB0000485	NA NA	NA	NA
129	HMDB0000581	NA	NA	NA
130	${\rm HMDB0094692}$	N-Met hy lalanine	${\rm HMDB0094692}$	528872
131	HMDB0005815	NA	NA	NA
132	C00334	NA	NA	NA
133	C01026	NA	NA	NA
134	C01205	NA	NA	NA
135	C02261	NA	NA	NA
136	C02356	NA	NA	NA
137	C02721	NA NA	NA	NA
138	C03284	NA NA	NA	NA
139	C03665	NA NA	NA	NA
140	C05145	NA NA	NA	NA
141	C11109	NA NA	NA NA	N A N A
$\frac{142}{143}$	C11735 C19514	NA NA	NA NA	NA NA
143	CHEBI:15620	NA NA	NA NA	NA NA
145	CHEBI:16320	NA NA	NA NA	NA
146	CHEBI:16865	NA	NA	NA
147	CHEBI:17519	NA	NA	NA
148	CHEBI:17724	NA	NA	NA
149	CHEBI:27389	NA	NA	NA
150	CHEBI:27971	N A	NA	NA
151	CHEBI:28797	N A	NA	NA
152	CHEBI:33094	NA	NA	NA
153	CHEBI:35619	NA	NA	NA
154	CHEBI:35621	NA	NA	NA
155	CHEBI:37081	NA	NA	NA
156	CHEBI:46643	NA	NA	NA
157	CHEBI:57440	NA	NA	NA
158	CHEBI:57731	A. A.		NA
4 50 5	OHEDDI	NA NA	NA	
159	CHEBI:58175	NA	NA	NA
160	CHEBI:58251	NA NA	NA NA	NA NA
$\frac{160}{161}$	CHEBI:58251 CHEBI:58655	NA NA NA	NA NA NA	NA NA NA
$160 \\ 161 \\ 162$	CHEBI:58251 CHEBI:58655 CHEBI:59888	NA NA NA NA	NA NA NA NA	NA NA NA NA
160 161 162 163	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739	NA NA NA NA NA	NA NA NA NA NA	NA NA NA NA
160 161 162 163 164	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359	NA NA NA NA NA NA	NA NA NA NA NA NA	NA NA NA NA NA NA
160 161 162 163 164 165	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687	NA	NA NA NA NA NA NA	NA NA NA NA NA NA
160 161 162 163 164 165 166	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB0000008	NA 2-Hy droxy butyric acid	NA NA NA NA NA NA NA NA HMDB0000008	N A N A N A N A N A N A N A 440864
160 161 162 163 164 165 166 167	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB0000008 HMDB00000011	NA NA NA NA NA NA NA NA NA SA NA Orange acid 3-Hy droxy butyric acid	NA NA NA NA NA NA NA HM DB0000008 HM DB0000011	NA NA NA NA NA NA 440864
160 161 162 163 164 165 166	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB0000008 HMDB00000011 HMDB00000023	NA NA NA NA NA NA NA NA NA SHA NA NA NA SHydroxybutyric acid (S)-3-Hydroxyisobutyric acid	NA NA NA NA NA NA HMDB0000008 HMDB0000011 HMDB0000023	NA NA NA NA NA NA 440864 441 440873
160 161 162 163 164 165 166 167	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB0000008 HMDB00000011	NA NA NA NA NA NA NA NA NA SA NA Orange acid 3-Hy droxy butyric acid	NA NA NA NA NA NA NA HM DB0000008 HM DB0000011	NA NA NA NA NA NA 440864
160 161 162 163 164 165 166 167 168	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB0000008 HMDB00000011 HMDB0000023 HMDB00000336	NA NA NA NA NA NA NA NA 2-Hydroxybutyric acid 3-Hydroxyisobutyric acid (S)-3-Hydroxyisobutyric acid (R)-3-Hydroxyisobutyric acid	NA NA NA NA NA NA NA HMDB0000008 HMDB0000011 HMDB0000023 HMDB0000336	NA NA NA NA NA NA 440864 441 440873 112172
160 161 162 163 164 165 166 167 168 169	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB00000011 HMDB0000023 HMDB0000023 HMDB00000357	NA NA NA NA NA NA NA NA SA 2-Hydroxybutyric acid 3-Hydroxybutyric acid (S)-3-Hydroxyisobutyric acid (R)-3-Hydroxyisobutyric acid	NA NA NA NA NA NA NA HMDB0000008 HMDB0000011 HMDB00000336 NA	NA NA NA NA NA NA 440864 441 440873 112172 NA
160 161 162 163 164 165 166 167 168 169 170	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB00000011 HMDB00000023 HMDB0000023 HMDB00000336 HMDB0000336 HMDB0000337 HMDB0000442	NA NA NA NA NA NA NA NA NA 2-Hydroxybutyric acid 3-Hydroxyisobutyric acid (S)-3-Hydroxyisobutyric acid (R)-3-Hydroxyisobutyric acid NA (S)-3-Hydroxybutyric acid	NA NA NA NA NA NA NA HMDB0000008 HMDB0000011 HMDB00000336 NA HMDB0000442	NA NA NA NA NA NA 440864 441 440873 112172 NA 94318
160 161 162 163 164 165 166 167 168 169 170 171	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB0000008 HMDB0000011 HMDB0000023 HMDB00000336 HMDB0000336 HMDB0000442 HMDB0000442	NA S-Hydroxybutyric acid 3-Hydroxyisobutyric acid (S)-3-Hydroxyisobutyric acid (R)-3-Hydroxyisobutyric acid NA (S)-3-Hydroxybutyric acid	NA NA NA NA NA NA HMDB0000008 HMDB0000011 HMDB00000336 NA HMDB0000442 HMDB0000710	NA NA NA NA NA NA 440864 441 440873 112172 NA 94318 10413
160 161 162 163 164 165 166 167 168 170 171 172 173 174 175	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB00000011 HMDB0000023 HMDB00000357 HMDB0000357 HMDB0000442 HMDB0000710 HMDB0000729 HMDB00001212 HMDB00001435	NA SHydroxybutyric acid 3-Hydroxybutyric acid (S)-3-Hydroxyisobutyric acid (R)-3-Hydroxyisobutyric acid NA (S)-3-Hydroxybutyric acid alpha-Hydroxybutyric acid ethoxyacetic acid NA	NA NA NA NA NA NA NA HMDB0000008 HMDB0000033 HMDB0000336 NA HMDB0000442 HMDB0000710 HMDB0000729 HMDB00031212 NA	NA NA NA NA NA NA 440864 441 440873 112172 NA 94318 10413 11671 12301 NA
160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB00000011 HMDB0000023 HMDB0000023 HMDB0000357 HMDB0000442 HMDB0000710 HMDB0000729 HMDB0000729 HMDB00004455 HMDB0000445 HMDB000059748	NA S-Hydroxybutyric acid 3-Hydroxyisobutyric acid (S)-3-Hydroxyisobutyric acid (R)-3-Hydroxyisobutyric acid NA (S)-3-Hydroxybutyric acid 4-Hydroxybutyric acid 4-Hydroxybutyric acid alpha-Hydroxybutyric acid Ethoxyacetic acid NA NA	NA NA NA NA NA NA NA HM DB0000008 HM DB0000011 HM DB00000336 NA HM DB0000442 HM DB0000710 HM DB0000729 HM DB00031212 NA NA	NA NA NA NA NA 440864 441 440873 112172 NA 94318 10413 11671 12301 NA
160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB0000008 HMDB0000023 HMDB00000336 HMDB0000337 HMDB0000442 HMDB0000729 HMDB0000729 HMDB0000435 HMDB0000435 HMDB00009758	NA NA NA NA NA NA NA NA NA 2-Hydroxybutyric acid 3-Hydroxyisobutyric acid (S)-3-Hydroxyisobutyric acid (R)-3-Hydroxyisobutyric acid NA (S)-3-Hydroxybutyric acid 4-Hydroxybutyric acid 4-Hydroxybutyric acid alpha-Hydroxyisobutyric acid Ethoxyacetic acid NA NA NA	NA NA NA NA NA NA NA NA HMDB0000008 HMDB0000011 HMDB00000336 NA HMDB0000442 HMDB0000729 HMDB0000729 HMDB00031212 NA NA NA	NA NA NA NA NA NA 440864 441 440873 112172 NA 94318 10413 11671 12301 NA NA
160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB0000008 HMDB0000011 HMDB00000336 HMDB0000336 HMDB0000342 HMDB0000729 HMDB0000729 HMDB0001212 HMDB0000435 HMDB0000435 HMDB0059748 HMDB0000758 HMDB0000758	NA NA NA NA NA NA NA NA 2-Hydroxybutyric acid 3-Hydroxybutyric acid (S)-3-Hydroxyisobutyric acid (R)-3-Hydroxyisobutyric acid NA (S)-3-Hydroxybutyric acid alpha-Hydroxybutyric acid alpha-Hydroxybutyric acid Ethoxyacetic acid NA NA NA NA	NA NA NA NA NA NA NA NA HMDB0000008 HMDB0000023 HMDB0000336 NA HMDB0000442 HMDB0000710 HMDB0000710 HMDB0000712 NA NA NA NA	NA NA NA NA NA NA 440864 441 440873 112172 NA 94318 10413 11671 12301 NA NA NA
160 161 162 163 164 165 166 167 170 171 172 173 174 175 176 177 178	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB00000011 HMDB0000023 HMDB00000357 HMDB0000357 HMDB0000442 HMDB0000710 HMDB00007129 HMDB0000435 HMDB0000435 HMDB0000758 HMDB0000758 HMDB0011597	NA NA NA NA NA NA NA NA NA S-Hydroxybutyric acid S-Hydroxyisobutyric acid (R)-3-Hydroxyisobutyric acid (R)-3-Hydroxybutyric acid NA (S)-3-Hydroxybutyric acid alpha-Hydroxybutyric acid Ethoxyacetic acid NA NA NA NA NA NA	NA NA NA NA NA NA NA NA NA HMDB0000008 HMDB0000011 HMDB00000336 NA HMDB0000729 HMDB0000729 HMDB0000729 HMDB0000720 HMDB0000720 HMDB0000720 NA NA NA NA NA	NA NA NA NA NA NA NA 440864 4411 440873 112172 NA 94318 10471 12301 NA NA NA NA
160 161 162 163 164 165 166 167 170 171 172 173 174 175 176 177 178	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB00000011 HMDB0000023 HMDB00000357 HMDB0000357 HMDB0000442 HMDB0000729 HMDB0000729 HMDB00031212 HMDB0000435 HMDB00059748 HMDB0059748 HMDB0000758 HMDB0011597 C00989	NA S-Hydroxybutyric acid 3-Hydroxyisobutyric acid (S)-3-Hydroxyisobutyric acid (R)-3-Hydroxybutyric acid NA (S)-3-Hydroxybutyric acid 4-Hydroxybutyric acid alpha-Hydroxybutyric acid Ethoxyacetic acid NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA NA HM DB0000008 HM DB0000011 HM DB0000023 HM DB0000336 NA HM DB0000442 HM DB0000710 HM DB0000729 HM DB0031212 NA NA NA NA NA NA	NA NA NA NA NA 440864 441 440873 112172 NA 94318 10413 11671 12301 NA NA NA NA
160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB0000008 HMDB0000023 HMDB00000336 HMDB0000336 HMDB0000357 HMDB0000710 HMDB0000729 HMDB0031212 HMDB0035748 HMDB0059748 HMDB0059748 HMDB0126088 HMDB011597 C00989 C01089	NA S-Hydroxybutyric acid 3-Hydroxyisobutyric acid (S)-3-Hydroxyisobutyric acid (R)-3-Hydroxybutyric acid NA (S)-3-Hydroxybutyric acid 4-Hydroxybutyric acid 4-Hydroxybutyric acid alpha-Hydroxyisobutyric acid Ethoxyacetic acid NA	NA NA NA NA NA NA NA NA NA HMDB0000008 HMDB0000011 HMDB00000336 NA HMDB0000442 HMDB0000710 HMDB0000729 HMDB00031212 NA NA NA NA NA NA NA	NA NA NA NA NA 440864 441 440873 112172 NA 94318 10413 11671 12301 NA NA NA NA
160 161 162 163 164 165 166 167 170 171 172 173 174 175 176 177 178	CHEBI:58251 CHEBI:58655 CHEBI:59888 CHEBI:64739 CHEBI:74359 CHEBI:74687 HMDB00000011 HMDB0000023 HMDB00000357 HMDB0000357 HMDB0000442 HMDB0000729 HMDB0000729 HMDB00031212 HMDB0000435 HMDB00059748 HMDB0059748 HMDB0000758 HMDB0011597 C00989	NA S-Hydroxybutyric acid 3-Hydroxyisobutyric acid (S)-3-Hydroxyisobutyric acid (R)-3-Hydroxybutyric acid NA (S)-3-Hydroxybutyric acid 4-Hydroxybutyric acid alpha-Hydroxybutyric acid Ethoxyacetic acid NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA NA HM DB0000008 HM DB0000011 HM DB0000023 HM DB0000336 NA HM DB0000442 HM DB0000710 HM DB0000729 HM DB0031212 NA NA NA NA NA NA	NA NA NA NA NA 440864 441 440873 112172 NA 94318 10413 11671 12301 NA NA NA NA

184	C03197	NA	NA	NA
185	C05984	NA	NA	NA
186	C06001	NA	NA	NA
187	C14601	NA	NA	NA
188	CHEBI:1148	NA	NA	NA
189	CHEBI:17066	NA	NA	NA
190	CHEBI:17290	NA	NA	NA
191	CHEBI:18064	NA	NA	NA
192	CHEBI:20067	NA	NA	NA
193	CHEBI:30830	NA	NA	NA
194	CHEBI:37373	NA	NA	NA
195	CHEBI:37551	NA NA	NA	NA
196	CHEBI:50129 CHEBI:50612	NA NA	NA	NA
$\frac{197}{198}$	CHEBI:50613	NA NA	NA NA	NA NA
199	CHEBI:741468	NA NA	NA	NA
200	CHEBI:741408	NA NA	NA NA	NA
201	CHEBI:83221	NA NA	NA	NA
202	CHEBI:83222	NA	NA	NA
203	HMDB0000187	Serine	${ m HMDB0000187}$	5951
204	${\rm HMDB0003406}$	D-Serine	${\rm HMDB0003406}$	71077
205	$\mathrm{HMDB0000589}$	NA	NA	NA
206	HMDB0062263	NA	NA	NA
207	C00065	NA NA	NA	NA
208	C00716	NA NA	NA NA	NA NA
$\frac{209}{210}$	C00740 CHEBI:16523	NA NA	NA NA	N A N A
211	CHEBI:17115	NA NA	NA NA	NA NA
211	CHEBI:17822	NA NA	NA NA	NA
213	CHEBI:33384	NA	NA	NA
214	CHEBI:35243	NA	NA	NA
215	CHEBI:35247	NA	NA	NA
216	CHEBI:49042	NA	NA	NA
217	HMDB0000139	Gly ceric acid	HMDB0000139	439194
218	HMDB0006372	L-Glyceric acid	HMDB0006372	632677
219	HMDB0031818	NA NA	NA	NA
$\frac{220}{221}$	CHEDI.22208	NA NA	NA NA	NA NA
$\begin{array}{c} 221 \\ 222 \end{array}$	CHEBI:32398 CHEBI:33508	NA NA	NA NA	NA NA
$\frac{222}{223}$	CHEBI:74324	NA NA	NA NA	NA NA
224	HMDB0029734	3-Ethylpyridine	HM DB0029734	10823
225	HMDB0032244	2,4-Dimethylpyridine	HMDB0032244	7936
226	HMDB0032972	2,6-Dimethylpyridine	${ m HMDB0032972}$	7937
227	HMDB0033871	Benzylamine	${\rm HMDB0033871}$	7504
228	${ m HMDB0041965}$	O-Toluidine	${\rm HMDB0041965}$	7242
229	C14403	NA	NA	NA
230	C15562	NA NA	NA	NA
231	CHEBI:127904	NA NA	NA	NA
232	CHEBI:32548	NA NA	NA NA	N A
$\frac{233}{234}$	CHEBI:40538 CHEBI:66892	NA NA	NA NA	NA NA
$\frac{234}{235}$	HMDB0004230	Pyrrole-2-carboxylic acid	HMDB0004230	12473
236	HMDB0038175	2-Acety lox azole	HMDB0038175	197827
237	HMDB0003094	NA	NA	NA
238	C01059	NA	NA	NA
239	C02932	NA	NA	NA
240	C03056	NA	NA	NA
241	C03927	NA NA	NA	NA
242	CHEDI. 121 45 4	NA NA	NA NA	N A
$\frac{243}{244}$	CHEBI:131454 CHEBI:16364	NA NA	NA NA	NA NA
$\frac{244}{245}$	CHEBI:16364 CHEBI:17681	NA NA	NA NA	N A N A
$\frac{245}{246}$	CHEBI:17081 CHEBI:28630	NA NA	NA NA	NA NA
$\frac{240}{247}$	CHEBI:29053	NA	NA	NA
248	CHEBI:36751	NA	NA	NA
249	CHEBI:68076	NA	NA	NA
250	${ m HMDB0000870}$	Histamine	${\rm HMDB0000870}$	774
251	HMDB0014417	Betazole	HMDB0014417	7741
252	HMDB0060263	NA NA	NA	NA
253	C00388	NA NA	NA	NA
$\frac{254}{255}$	CHEBI:18295 CHEBI:59170	NA NA	NA NA	NA NA
$\begin{array}{c} 255 \\ 256 \end{array}$	HMDB0029717	NA 2-Thiophenecarboxaldehyde	NA HMDB0029717	N A 7364
$\frac{250}{257}$	CHEBI:246417	NA	NA	N A
258	CHEBI:87301	NA	NA	NA
259	CHEBI:87611	NA	NA	NA
260	HMDB0001301	1-Pyrroline-5-carboxylic acid	${\rm HMDB0001301}$	440162
261	${ m HMDB0006875}$	1-Pyrroline-2-carboxylic acid	${\rm HMDB0006875}$	440046
262	HMDB0002240	NA	NA	NA
263	C03564	NA NA	NA	NA
264	C03912	NA NA	NA NA	N A
265 266	C04322	NA NA	NA NA	NA NA
$\frac{266}{267}$	C07275 CHEBI:1372	NA NA	NA NA	N A N A
268	CHEBI:24322	NA NA	NA NA	NA NA
269	CHEBI:32475	NA NA	NA	NA
270	CHEBI:32481	NA	NA	NA

271	CHEBI:36750	NA	NA	NA
272	CHEBI:36761	NA	NA	NA
273	CHEBI:371	NA NA	NA	NA
274	CHEBI:39785	NA NA	NA	NA
275	CHEBI:41433	NA NA	NA	NA
276	CHEBI:5435	NA NA	NA NA	NA NA
$\frac{277}{278}$	CHEBI:61920 CHEBI:61965	NA NA	NA NA	NA NA
$\frac{278}{279}$	CHEBI:85428	NA NA	NA NA	NA NA
280	CHEBI:90860	NA NA	NA NA	NA
281	HMDB0000351	(2S,3R)-3-Hydroxy-2-methylbutanoic acid	HMDB0000351	123133
282	HMDB0000354	2-Methyl-3-hydroxy butyric acid	HMDB0000354	160471
283	HMDB0000396	2-Ethylhydracrylic acid	HMDB0000396	188979
284	HMDB0000407	2-Hydroxy-3-methylbutyric acid	HMDB0000407	99823
285	HMDB0000410	3-Hydroxy-2-methyl-[S-(R,R)]-butanoic acid	HMDB0000410	123133
286	HMDB0000531	3-Hydroxyvaleric acid	${ m HMDB0000531}$	107802
287	${\rm HMDB0000642}$	Erythronilic acid	${\rm HMDB0000642}$	118158
288	${ m HMDB0000754}$	3-Hy droxy isovaleric acid	${ m HMDB0000754}$	69362
289	HMDB0001863	2-Hydroxyvaleric acid	HMDB0001863	98009
290	HMDB0001987	2-Hydroxy-2-methylbutyric acid	HMDB0001987	95433
291	HMDB0002011	4-Hydroxyisovaleric acid	HMDB0002011	131760
$\frac{292}{293}$	HMDB0040735	Ethyl lactate Mathyl 2 hydroxybytyrata	HMDB0040735 HMDB0041603	7344
$\frac{295}{294}$	HMDB0041603 HMDB0000420	Methyl 3-hydroxybutyrate NA	NA	15146 N A
$\frac{294}{295}$	HMDB0000420	NA NA	NA NA	NA NA
$\frac{295}{296}$	HMDB0039844 HMDB0000605	NA NA	NA NA	NA NA
$\frac{290}{297}$	HMDB0061927	5-Hydroxypentanoic acid	HM DB0061927	25945
298	HMDB0062584	NA	NA	NA
299	HMDB0130836	NA	NA	NA
300	HMDB0002187	NA	NA	NA
301	HMDB0002321	NA	NA	NA
302	C02804	NA	NA	NA
303	C20827	NA	NA	NA
304	CHEBI:37051	NA	NA	NΑ
305	CHEBI:37052	NA	NA	NA
306	CHEBI:37084	NA	NA	NA
307	CHEBI:37552	NA NA	NA	NA
308	CHEBI:384411	NA NA	NA	NA
$\frac{309}{310}$	CHEBI:45564	NA NA	NA NA	NA NA
311	CHEBI:46415 CHEBI:60631	NA NA	NA NA	NA NA
312	CHEBI:60645	NA NA	NA NA	NA
313	CHEBI:60647	NA	NA	NA
314	CHEBI:68454	NA	NA	NA
315	CHEBI:741550	NA	NA	NA
316	CHEBI:78321	NA	NA	NA
317	CHEBI:78322	NA	NA	NA
318	CHEBI:78323	NA	NA	NA
319	CHEBI:79019	NA	NA	NA
320	CHEBI:82956	NA	NA	NA
321	HMDB0002362	2,4-Diaminobutyric acid	HMDB0002362	470
322	HMDB0006284	L-2,4-diaminobutyric acid	HMDB0006284	134490
323	C03283	NA NA	NA	NA
324	CHERI 48050	NA NA	NA	NA
$\frac{325}{326}$	CHEBI:48950	NA NA	NA NA	NA NA
$\frac{320}{327}$	CHEBI:64307 CHEBI:73169	NA NA	NA NA	NA NA
328	HMDB0000574	L-Cysteine	HMDB0000574	5862
329	HMDB0003417	D-Cysteine	HM DB0003417	92851
330	C00097	NA NA	NA	NA
331	C00736	NA	NA	NA
332	C00793	NA	NA	NA
333	CHEBI:15356	NA	NA	NA
334	CHEBI:16375	NA	NA	NA
335	CHEBI:17561	NA	NA	NA
336	CHEBI:35235	NA NA	NA	NA
337	CHEBI:35236	NA NA	NA	NA
338	CHEBI:35237	NA	NA	NA
339	HMDB0003903	2-Hydroxyethanesulfonate	HMDB0003903	7866 6004
$\frac{340}{341}$	HMDB0031233 C05123	Ethyl hydrogen sulfate NA	HMDB0031233 NA	6004 N A
$\frac{341}{342}$	C03123 C19177	NA NA	NA NA	NA NA
343	CHEBI:1157	NA NA	NA NA	NA NA
344	CHEBI:59050	NA NA	NA	NA
345	HMDB0013674	1,2,3-Trihydroxybenzene	HMDB0013674	1057
346	HMDB0013675	1,3,5-Trihydroxybenzene	HMDB0013675	359
347	${\rm HMDB0029750}$	Methyl 2-furoate	${\rm HMDB0029750}$	11902
348	${\rm HMDB0030776}$	Maltol	${\rm HMDB0030776}$	8369
349	HMDB0031256	4-Hydroxy-2H-pyran-3-carboxaldehyde	HMDB0031256	
350	HMDB0032651	(Z)-Tamarindienal	HMDB0032651	134337
351	HMDB0034355	5-Hydroxymethyl-2-furancarboxaldehyde	HMDB0034355	237332
352	HMDB0059735	5-Met hylfuran-2-carboxylic acid	HMDB0059735	74710
353	HMDB0124831	NA NA	NA NA	N A
354	C01108	NA NA	NA NA	N A N A
$\frac{355}{356}$	C02183 C02752	NA NA	NA NA	NA NA
357	C02752 C02814	NA NA	NA NA	NA NA
551	302011	enee		

358	C11101	NA	NA	NA
359	C11918	NA	NA	NA
360	C20718	NA NA	NA	NA
361	CHEBI:142577	NA NA	NA	NA
362	CHEBI:16164 CHEBI:16204	NA NA	NA NA	N A
$\frac{363}{364}$	CHEBI:16204 CHEBI:16458	NA NA	NA NA	NA NA
365	CHEBI:16438	NA NA	NA NA	NA NA
366	CHEBI:30999	NA NA	NA NA	NA NA
367	CHEBI:32577	NA NA	NA NA	NA
368	CHEBI:412516	NA	NA	NA
369	CHEBI:76245	NA	NA	NA
370	CHEBI:76246	NA	NA	NA
371	${\rm HMDB0000262}$	Thymine	${\rm HMDB0000262}$	1135
372	${\rm HMDB0002024}$	Imidazoleacetic acid	${\rm HMDB0002024}$	96215
373	HMDB0029736	1H-Imidazole-1-acetic acid	HMDB0029736	656129
374	HMDB0060261	NA NA	NA	NA
375	C00178	NA NA	NA NA	N A
376	CUEDI-16074	NA NA	NA NA	N A
377 378	CHEBI:16974	NA NA	NA NA	NA NA
$\frac{378}{379}$	CHEBI:172070 CHEBI:17821	NA NA	NA NA	N A N A
380	CHEBI:43615	NA NA	NA NA	NA NA
381	CHEBI:69445	NA NA	NA NA	NA NA
382	CHEBI:70801	NA NA	NA NA	NA
383	CHEBI:70804	NA	NA	NA
384	CHEBI:70806	NA	NA	NA
385	CHEBI:74732	NA	NA	NA
386	CHEBI:74733	NA	NA	NA
387	CHEBI:74737	NA	NA	NA
388	CHEBI:74738	NA	NA	NA
389	CHEBI:74739	NA	NA	NA
390	CHEBI:74740	NA	NA	NA
391	CHEBI:74741	NA	NA	NA
392	CHEBI:74742	NA NA	NA	NA
393	CHEBI:74743	NA NA	NA	NA
394	CHEBI:74745	NA NA	NA NA	N A
395 396	CHEBI:74747	NA Dibydrothymina	NA HMDB000079	NA 676414
$\frac{396}{397}$	HMDB0000079 HMDB0029874	Dihydrothymine Squamolone	HM DB0000079 HM DB0029874	676414 326996
$\frac{397}{398}$	HMDB0029874 HMDB0031547	Squamolone L-Cy clo (alany lg ly cy l)	HM DB0029874 HM DB0031547	$\frac{326996}{107297}$
398 399	HMDB0031547 HMDB0062558	L-Cyclo(alanyiglycyl) Pyroglutamine	HMDB0031547 HMDB0062558	107297 119841
400	C00906	NA	NA	NA
401	C05715	NA NA	NA NA	NA
402	C05717	NA	NA	NA
403	CHEBI:133469	NA	NA	NA
404	CHEBI:27468	NA	NA	NA
405	CHEBI:27578	NA	NA	NA
406	CHEBI:28474	NA	NA	NA
407	CHEBI:30011	NA	NA	NA
408	CHEBI:32677	NA	NA	NA
409	CHEBI:48097	NA	NA	NA
410	CHEBI:50614	NA	NA	NA
411	CHEBI:50615	NA NA	NA	NA
412	CHEBI:565546	NA NA	NA	NA
413	CHEBI:61960	NA Clutarania anid	NA HMDB0000620	NA
414	HMDB0000620	Glutaconic acid	HMDB0000620	528049
415	HMDB0000634	Citraconic acid Mesaconic acid	HMDB0000634	643798
416	HMDB0000749 HMDB0002092	Mesaconic acid Itaconic acid	HMDB0000749	638129
$\frac{417}{418}$	HMDB0002092 HMDB0013233	Gamma-delta-Dioxovaleric acid	HMDB0002092 HMDB0013233	$811 \\ 119412$
419	HMDB0013233	Methyl hydrogen fumarate	HMDB0013233	535445
$\frac{419}{420}$	HMDB0053809	2-Hydroxyglutaric acid lactone	HMDB0053309	251524
421	HMDB0039743	2,5-Dioxopentanoate	HMDB0039743	523
422	HMDB0061185	NA	NA	NA
423	HMDB0001657	NA	NA	NA
424	C00433	NA	NA	NA
425	C00490	NA	NA	NA
426	C01732	NA	NA	NA
427	C02132	NA	NA	NA
428	C02214	NA	NA	NA
429	C02226	NA	NA	NA
430	C02800	NA	NA	NA
431	CHEBI:15670	NA	NA	NA
432	CHEBI:16600	NA	NA	NA
433	CHEBI:17204	NA	NA	NA
434	CHEBI:17415	NA NA	NA	NA
435	CHEBI:17626	NA NA	NA	NA
436	CHEBI:2424	NA NA	NA	N A
437	CHEBI:24309	NA NA	NA	N A
438	CHEBI:30838	NA NA	NA NA	N A
439	CHEBI:30921	NA NA	NA NA	N A
$\frac{440}{441}$	CHEBI:50429 CHEBI:73677	NA NA	NA NA	NA NA
$\begin{array}{c} 441 \\ 442 \end{array}$	CHEBI:73677 CHEBI:74524	NA NA	NA NA	NA NA
442	HMDB0000408	2-Methyl-3-ketovaleric acid	HM DB0000408	189028
444	HMDB0000408	3-Met hyl-2-oxovaleric acid	HM DB0000408	439286
	111112 20000101	o meetly 2 offer delice dela	11.112220000101	100200

445	HMDB0000695	Ketoleucine	HMDB0000695	70
446	$\mathrm{HMDB0001864}$	2-Ketohex anoic acid	${ m HMDB0001864}$	159664
447	${ m HMDB0006024}$	Mevalonolactone	${ m HMDB0006024}$	532592
448	HMDB0010717	3-Oxohexanoic acid	${ m HMDB0010717}$	439658
449	HMDB0012882	Adipate semialdehyde	${ m HMDB0012882}$	440918
450	HMDB0031214	5-Ethoxy-4,5-dihydro-2(3H)furanone	HMDB0031214	356063
451	${\rm HMDB0031216}$	Ethyl acetoacetate	${ m HMDB0031216}$	8868
452	HMDB0031218	NA	NA	NA
453	HMDB0033286	Sherry lactone	HMDB0033286	100900
454	${\rm HMDB0033302}$	$(4\mathrm{S},6\mathrm{S})$ -3,4,5,6-Tetrahy dro -4-hy droxy -6-methyl-2H-pyran-2-one	${ m HMDB0033302}$	241025
455	${ m HMDB0033698}$	Acetoin acetate	${ m HMDB0033698}$	521246
456	${\rm HMDB0041602}$	Methyl levulinate	${ m HMDB0041602}$	69354
457	HMDB0059876	NA	NA	NA
458	$\mathrm{HMDB0061881}$	4-Acetylbutyrate	${ m HMDB0061881}$	18407
459	${\rm HMDB0000762}$	NA	NA	NA
460	${\rm HMDB0001962}$	NA	NA	NA
461	HMDB0002254	NA NA	NA	NA
462	${ m HMDB0003736}$	NA	NA	NA
463	${ m HMDB0004750}$	NA	NA	NA
464	HMDB0011647	NA	NA	NA
			NA	
465	C00233	NA NA		NA
466	C00671	NA	NA	NA
467	C00902	NA	NA	NA
468	C01012	NA	NA	NA
469	C02122	NA NA	NA	NA
470	C02129	NA	NA	NA
471	C03241	NA	NA	NA
472	C03465	NA	NA	NA
473	C03467	NA	NA	NA
474	C03500	NA	NA	NA
475	C06008	NA	NA	NA
476	C06102	NA NA	NA NA	NA NA
477	C12314	NA	NA	NA
478	C14530	NA	NA	NA
479	CHEBI:15614	NA	NA	NA
480	CHEBI:15888	NA	NA	NA
481	CHEBI:16719	NA	NA	NA
482	CHEBI:17075	NA	NA	NA
483		NA	NA	NA
	CHEBI:17308			
484	CHEBI:2490	NA	NA	NA
485	CHEBI:28379	NA	NA	NA
486	CHEBI:28422	NA	NA	NA
487	CHEBI:29024	NA	NA	NA
488	CHEBI:31046	NA	NA	NA
489	CHEBI:34288	NA	NA	NA
490	CHEBI:35932	NA	NA	NA
491	CHEBI:386429	NA	NA	NA
492	CHEBI:48430	NA	NA	NA
493	CHEBI:49293	NA	NA	NA
494	CHEBI:86365	NA	NA	NA
495	CHEBI:87282	NA	NA	NA
496	CHEBI:87296	NA	NA	NA
497	CHEBI:87307	NA	NA	NA
498	CHEBI:87390	NA	NA	NA
499	HMDB0000317	2-Hydroxy-3-methylpentanoic acid	$_{ m HMDB0000317}$	107967
500	HMDB0000409	(5R)-5-Hydroxyhexanoic acid	${ m HMDB0000409}$	713104
501	HMDB0000525	5-Hydroxyhexanoic acid	HMDB0000525	170748
502	${\rm HMDB0000624}$	D-Leucic acid	${ m HMDB0000624}$	439960
503	${ m HMDB0000665}$	Leucinic acid	${ m HMDB0000665}$	92779
504	HMDB0000746	Hydroxyisocaproic acid	${ m HMDB0000746}$	83697
505	HMDB0001624	2-Hydroxycaproic acid	HMDB0001624	99824
506	HMDB0001975	2-Ethyl-2-Hydroxybutyric acid	${ m HMDB0001975}$	77199
507	${\rm HMDB0010718}$	(R)-3-Hydroxyhexanoic acid	${ m HMDB0010718}$	101977
508	HMDB0012843	6-Hy droxy hexanoic acid	${ m HMDB0012843}$	14490
509	HMDB0029166	2-Methyl-3-hydroxyvaleric acid	HMDB0029166	152968
510	$\mathrm{HMDB0032158}$	(+/-)-1-Acetoxy-1-ethoxyethane	${ m HMDB0032158}$	97895
511	${\rm HMDB0032456}$	Paraldehy de	${ m HMDB0032456}$	31264
512	HMDB0033851	4,4-Dimethoxy-2-butanone	HMDB0033851	228548
513	HMDB0040409	Ethyl (\pm) -3-hydroxy butyrate	HMDB0040409	62572
514	$\mathrm{HMDB0041844}$	NA	NA	NA
515	${ m HMDB0059770}$	Threo-3-Hydroxy-2-methylbutyric acid	${\rm HMDB0059770}$	642248
516	HMDB0061652	3-Hydroxyhexanoic acid	HMDB0061652	118294
517	C03264	NA	NA	NA
518	C03499	NA	NA	NA
519	C06103	NA	NA	NA
520	C07834	NA	NA	NA
521	CHEBI:131434	NA	NA	NA
522	CHEBI:17869	NA	NA	NA
523	CHEBI:27909	NA	NA	NA
524	CHEBI:28707	NA	NA	NA
525	CHEBI:30941	NA	NA	NA
526	CHEBI:32400	NA	NA	NA
527	CHEBI:32485	NA	NA	NA
528	CHEBI:37035	NA	NA	NA
529	CHEBI:37049	NA	NA	NA
530	CHEBI:37553	NA	NA	NA
531	CHEBI:44510	NA	NA	NA
991	OHED1:44010	2012	1117	1171

532	CHEBI:55434	NA	NA	NA
533	CHEBI:55534	NA	NA	NA
534	CHEBI:55536	NA NA	NA NA	NA
535	CHEBI:59783	NA NA	NA NA	NA
536	CHEBI:78842 CHEBI:86542	NA NA	NA NA	N A
$\frac{537}{538}$	CHEBI:86542 CHEBI:87685	NA NA	NA NA	NA NA
538 539	HMDB0000214	NA Ornit hine	NA HMDB0000214	N A 6262
540	HMDB0000214 HMDB0003374	D-Ornit hine	HMDB0000214	71082
541	HMDB0003814	NA NA	NA	NA
542	${\rm HMDB0004984}$	NA	NA	NA
543	C00077	NA	NA	NA
544	C00515	NA NA	NA NA	N A
545 546	C01602 C03943	NA NΔ	NA NA	NΑ NΔ
$\frac{546}{547}$	C03943 C11320	NA NA	NA NA	NA NA
$\frac{547}{548}$	CHEBI:15729	NA NA	NA NA	N A N A
549	CHEBI:16176	NA NA	NA NA	NA NA
550	CHEBI:18257	NA	NA	NA
551	CHEBI:25234	NA	NA	NA
552	CHEBI:4280	NA	NA	NA
553	CHEBI:74403	NA NA	NA NA	N A
554	CHEBI:88163	NA NA	NA NA	N A N A
$555 \\ 556$	CHEBI:904 HMDB0029639	NA (4-Methylphenyl) acet aldehy de	NA HMDB0029639	NA 61006
556 557	HMDB0029639 HMDB0029697	(4-Metnylphenyl)acetaidenyde Cinnamyl alcohol	HM DB0029639 HM DB0029697	528051
558	HMDB0029698	trans-Cinnamyl alcohol	HM DB0029698	528031 531589
559	HMDB0030839	(Z)-4-(1-Propenyl)phenol	HMDB0030839	579113
560	${\rm HMDB0031626}$	2-Phenylpropanal	${ m HMDB0031626}$	7146
561	${\rm HMDB0032024}$	4-Ethylbenzaldehyde	${\rm HMDB0032024}$	20861
562	HMDB0032142	2,4-Dimethylbenzaldehyde	HMDB0032142	61814
563	HMDB0032608	4'-Methylacetophenone	HM DB0032608	8500 7148
$\frac{564}{565}$	HMDB0032623 HMDB0033716	1-Phenyl-1-propanone 3-Phenylpropanal	HM DB0032623 HM DB0033716	$7148 \\ 7707$
566	HMDB0033716 HMDB0034107	3-Phenylpropanal Chavicol	HM DB0033716 HM DB0034107	68148
567	HMDB0034107 HMDB0034563	7-Nonene-3,5-diyn-1-ol	HM DB0034107	101407
568	HMDB0034441	o-Vinylanisole	HM DB0034403	61153
569	${\rm HMDB0059601}$	Indan-1-ol	${ m HMDB0059601}$	22819
570	HMDB0059895	m-Methylacetophenone	HMDB0059895	11455
571	C01710	NA NA	NA NA	N A
572 573	C02394 C15512	NA NΔ	NA NA	NΑ NΔ
$573 \\ 574$	C15512 C16930	NA NA	NA NA	NA NA
$\frac{574}{575}$	C16930 C20464	NA NA	NA NA	N A N A
576	CHEBI:16697	NA NA	NA NA	N A
577	CHEBI:17177	NA	NA	NA
578	CHEBI:33224	NA	NA	NA
579	CHEBI:33225	NA NA	NA	NA
580	CHEBI:33226	NA NA	NA NA	N A
$\frac{581}{582}$	CHEBI:33227 CHEBI:39826	NA NA	NA NA	NA NA
$\frac{582}{583}$	CHEBI:39826 CHEBI:425902	NA NA	NA NA	N A N A
584	CHEBI:50158	NA NA	NA NA	N A
585	CHEBI:52052	NA	NA	NA
586	CHEBI:59311	NA	NA	NA
587	CHEBI:73343	NA T	NA	NA
588	HMDB0000306	Tyramine	HMDB0000306	5610
589	HMDB0001065	2-Hydroxyphenethylamine	HM DB0001065	1000
590 591	HMDB0001466 HMDB0004989	Dimethylaniline-N-oxide m-Tyramine	HM DB0001466 HM DB0004989	950 11492
$\frac{591}{592}$	HMDB0004989 HMDB0029759	m-Tyramine 2-Acetyl-1-ethylpyrrole	HM DB0004989 HM DB0029759	$11492 \\ 61988$
592 - 593	HMDB0029739 HMDB0039657	1,2,3,4,5,6-Hexahydro-7H-cyclopenta[b]pyridin-7-one	HMDB0029739	642897
594	${\rm HMDB0040059}$	(\pm) -2-(2-Furanyl)pyrrolidine	HMDB0033057	367598
595	HMDB0060681	4-Hy droxy-2,6-dimethy laniline	${ m HMDB0060681}$	76543
596	C00483	NA	NA	NA
597	C01183	NA NA	NA	NA
598	C02735	NA NA	NA NA	N A
599 600	C03473 C16570	NA NΔ	NA NA	NΑ NΔ
$600 \\ 601$	C16570 C18396	NA NA	NA NA	NA NA
602	C18396 C19216	NA NA	NA NA	N A N A
603	C19376	NA NA	NA NA	NA
604	CHEBI:15760	NA	NA	NA
605	CHEBI:16343	NA	NA	NA
606	CHEBI:17735	NA NA	NA	NA
607	CHEBI:341165	NA NA	NA NA	N A
$608 \\ 609$	CHEBI:49837 CHEBI:55545	NA NA	NA NA	NA NA
$609 \\ 610$	CHEBI:55545 CHEBI:85505	NA NA	NA NA	N A N A
611	HMDB0032311	NA 2,4-Hex adienyl acetate	NA HMDB0032311	N A 536349
612	HMDB0032311	3-Ethyl-2-hydroxy-4-methyl-2-cyclopenten-1-one	HMDB0032311	528698
613	HMDB0037167	3-Ethyl-5-methyl-1,2-cyclopentanedione	HMDB0037167	158255
614	${\rm HMDB0037196}$	Ethyl 2-methyl-3,4-pentadienoate	${ m HMDB0037196}$	62166
615	${\rm HMDB0037625}$	Allyl tiglate	${\rm HMDB0037625}$	604848
616	HMDB0039651	3-Propyl-1,2-cyclopentanedione	HMDB0039651	542192
$617 \\ 618$	HMDB0039652 HMDB0039673	2-Hy droxy-3,4,5-trimet hyl-2-cy clopenten-1-one 4-Ethyl-2-hy droxy-3-methyl-2-cy clopenten-1-one	HMDB0039652 HMDB0039673	$528707 \\ 528704$
010	UMDD0099019	4-Ethyl-2-nydroxy-5-methyl-2-cyclopenten-1-one	HMDD0000015	020101

619	HMDB0039680	3,5,5-Trimethyl-1,2-cyclopentanedione	HMDB0039680	696988
620	HMDB0039681	3-Isopropyl-1,2-cyclopentanedione	HMDB0039681	129144
621	HMDB0040463	Ethyl sorbate	HMDB0040463	155047
622	HMDB0040526	3,4,4-Trimethyl-1,2-cyclopentanedione	${ m HMDB0040526}$	642878
623	HMDB0060682	2-Propyl-2,4-pentadienoic acid	${\rm HMDB0060682}$	644180
624	C06727	NA	NA	NA
625	C16656	NA	NA	NA
626	C18011	NA	NA	NA
627	C19311	NA	NA	NA
628	CHEBI:16843	NA	NA	NA
629	CHEBI:51922	NA	NA	NA
630	CHEBI:53533	NA	NA	NA
631	CHEBI:59001	NA	NA	NA
632	CHEBI:60295	NA NA	NA	NA
633	CHEBI:72819	NA	NA	NA
634	CHEBI:80642	NA	NA	NA
635	HMDB0000392	2-Octenoic acid	HMDB0000392	528271
$636 \\ 637$	HMDB0001568 HMDB0013897	trans-2-Octenoic acid 4-ene-Valproic acid	HMDB0001568 HMDB0013897	528271 104896
638	HMDB0013897 HMDB0013902	2-ene-Valproic acid	HMDB0013897	643706
639	HMDB0013902 HMDB0013903	(3Z)-2-Propylpent-3-enoic acid	HMDB0013902 HMDB0013903	248928
640	HMDB0013903	(3E)-2-Propylpent-3-enoic acid	HMDB0013903	643974
641	HMDB0019304 HMDB0029761	Ethyl (\pm) -2-methyl-4-pentenoate	HMDB0019304 HMDB0029761	62024
642	HMDB0031293	2,3-Octanedione	HMDB0020101	11449
643	HMDB0031343	Methyl cyclohexanecarboxylate	HMDB0031343	20748
644	HMDB0031352	Cyclohexyl acetate	HMDB0031352	12146
645	HMDB0031403	Cyclohex aneacetic acid	HMDB0031403	21363
646	HMDB0032164	Allyl valerate	${ m HMDB0032164}$	80606
647	HMDB0032207	cis-5-Octenoic acid	${\rm HMDB0032207}$	528271
648	HMDB0032266	Ethyl (E)-3-hexenoate	${\rm HMDB0032266}$	536262
649	${\rm HMDB0032267}$	Ethyl 5-hexenoate	${\rm HMDB0032267}$	642025
650	${\rm HMDB0032268}$	Ethyl 2E-hexenoate	${\rm HMDB0032268}$	536477
651	${\rm HMDB0032278}$	Ethyl trans-2-methyl-2-pentenoate	${ m HMDB0032278}$	643631
652	${ m HMDB0032533}$	trans-3-Hexenyl acetate	${ m HMDB0032533}$	535255
653	${\rm HMDB0035422}$	4-Butyl-gamma-butyrolactone	${ m HMDB0035422}$	7704
654	HMDB0036212	2-Methylpropyl (2E)-butenoate	HMDB0036212	643582
655	HMDB0036236	2-Methylallyl butyrate	HMDB0036236	251530
656	HMDB0037622	Ethyl 2-methyl-3-pentenoate	HMDB0037622	144233
657	HMDB0037624	Isopropyl tiglate	HMDB0037624	643290
658	HMDB0037630	xi-Tetrahydro-3-propyl-2H-pyran-2-one	HMDB0037630	90840
$659 \\ 660$	HMDB0038036	2-Propenyl 3-methylbutanoate	HMDB0038036	17816
661	HMDB0038310 HMDB0039793	xi-Tetrahydro-6-propyl-2H-pyran-2-one (E)-4-Octenoic acid	HMDB0038310 HMDB0039793	12777 643371
662	HMDB0039793 HMDB0039872	Methyl 2-heptenoate	HMDB0039793	536808
663	HMDB0039872 HMDB0040212	2-Hexenyl acetate	HMDB0039872	273329
664	HMDB0040212	cis-3-Hexenyl acetate	HMDB0040212	536338
665	HMDB0059908	Ethyl-3-hexanoate	HMDB0059908	61312
666	HMDB0010723	NA	NA	NA
667	C12104	NA	NA	NA
668	C12297	NA	NA	NA
669	C16648	NA	NA	NA
670	C16653	NA	NA	NA
671	C16654	NA	NA	NA
672	C19318	NA	NA	NA
673	C19757	NA	NA	NA
674	CHEBI:23705	NA	NA	NA
675	CHEBI:288752	NA	NA	NA
676	CHEBI:37277	NA	NA	NA
677	CHEBI:37316	NA	NA	NA
678	CHEBI:39355	NA	NA	NA
679	CHEBI:410867	NA NA	NA	NA
680	CHEBI:50899	NA NA	NA	NA
681	CHEBI:61316 CHEBI:86544	NA NA	NA NA	NA
682				NA
683	CHEBI:87275	NA NA	NA	NA
$684 \\ 685$	CHEBI:87299	NA NA	NA NA	NA NA
686	CHEBI:87416 CHEBI:87514	NA NA	NA NA	N A N A
687	CHEBI:87514 CHEBI:87560	NA NA	NA	NA NA
688	HMDB0013821	2-Methyl-4-heptanone	HMDB0013821	7958
689	HMDB0019521	Dihydroisophorol	HM DB0013021	8298
690	HMDB0030959	(Z)-3-Nonen-1-ol	HM DB0030959	536463
691	HMDB0031266	2-Nonanone	HMDB0031266	13187
692	HMDB0031267	3-Nonanone	HMDB0031267	61235
693	HMDB0031268	Amyl propyl ketone	HMDB0031268	78236
694	HMDB0031417	2,6-Dimethyl-4-heptanone	HMDB0031417	7958
695	HMDB0031684	2-Methyloctanal	HMDB0031684	24583
696	HMDB0031730	3,5,5-Trimethylhex anal	HMDB0031730	21574
697	HMDB0034152	1-Nonen-3-ol	HMDB0034152	89560
698	HMDB0037304	(\pm) -2,6-Dimethyl-6-hepten-1-ol	${\rm HMDB0037304}$	169818
699	${\rm HMDB0040581}$	(Z)-6-Nonen-1-ol	${\rm HMDB0040581}$	536279
700	${\rm HMDB0041498}$	2-Nonen-1-ol	${\rm HMDB0041498}$	536494
701	${\rm HMDB0041499}$	(\mathbf{Z}) -2-Nonen-1-ol	${\rm HMDB0041499}$	536502
702	HMDB0041601	(E)-3-Nonen-1-ol	HMDB0041601	535280
703	HMDB0059835	Nonanal	HMDB0059835	31289
704	HMDB0059887	(E)-6-Nonenol	HMDB0059887	536281
705	HMDB0013822	NA	NA	NΑ

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706
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                         NA
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                                                                                                                                     NA
                                                                                                                                     NΑ
707
      CHEBI:77927
                         NΑ
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      CHEBI:84268
708
                         NΑ
                                                                                                                    NA
                                                                                                                                     NA
709
      CHEBI:87594
                                                                                                                    NA
                                                                                                                                     NΑ
710
      {\rm HMDB0000894}
                         Vinylacetylglycine
                                                                                                                    HMDB0000894
                                                                                                                                     53477
      HMDR0014491
711
                         Trimethadione
                                                                                                                    HMDB0014491
                                                                                                                                     5576
      HMDB0032161
712
                                                                                                                                     NA
      {\rm HMDB0061082}
                        5-ethyl-5-methyl-2.4-oxazolidinedione
                                                                                                                    HMDB0061082
                                                                                                                                     232592
713
714
      {\rm HMDB0061705}
                         6-Oxopiperidine-2-carboxylic acid
                                                                                                                    HMDB0061705
                                                                                                                                     301423
      HMDB0006723
715
716
      {\rm HMDB0006724}
                         NΑ
                                                                                                                    NΑ
                                                                                                                                     NA
717
      C17357
                         NΑ
                                                                                                                    NΑ
                                                                                                                                     ΝΑ
      CHEBI:131804
                                                                                                                                     NΑ
718
                         NA
                                                                                                                    NA
      CHEBI:415036
                         NΑ
                                                                                                                                     NΑ
719
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720
      CHEBI:74435
                         NΑ
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                                                                                                                                     NΑ
                                                                                                                                     NΑ
      CHEBI:82795
721
                         NA
                                                                                                                    NA
722
      CHEBI:87998
                                                                                                                                     NΑ
                                                                                                                    HMDB0004827
723
      HMDB0004827
                        Proline betaine
                                                                                                                                     115244
      HMDB0030410
                                                                                                                    HMDB0030410
                        L-2-Amino-3-methylenehexanoic acid
724
                                                                                                                                     762235
      HMDB0038949
                         3beta,6beta-Dihydroxynortropane
                                                                                                                    HMDB0038949
                                                                                                                                     222975
725
      C04114
726
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727
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728
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                         NA
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729
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                                                                                                                                     NA
730
      CHEBI:35280
                         NA
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                                                                                                                                     NΑ
      CHEBI:86534
731
                         NΑ
                                                                                                                    NA
                                                                                                                                     NA
      HMDB0032429
                        3-(Methylthio)methylthiophene
                                                                                                                    HMDB0032429
                                                                                                                                     201580
732
      HMDB0034901
733
                         2-Vinyl-4H-1,3-dithiine
                                                                                                                    HMDB0034901
                                                                                                                                     133337
734
      HMDB0040259
                         2-Met hyl-5-(methylthio)thiophene
                                                                                                                    HMDB0040259
                                                                                                                                     142508
735
      {\rm HMDB0000482}
                         Caprylic acid
                                                                                                                    {\rm HM\,DB0000482}
                                                                                                                                     379
736
      HMDB0001877
                         Valproic acid
                                                                                                                    HMDB0001877
                                                                                                                                     3121
      HMDB0029980
                                                                                                                    HM DB0029980
                        Hexyl acetate (3R,5Z)-5-Octene-1,3-diol
737
                                                                                                                                     8908
                                                                                                                    HMDB0030368
      {\rm HMDB0030368}
                                                                                                                                     211594
738
      HMDB0031230
                                                                                                                    HMDB0031230
739
                         2-Ethylhexanoic acid
                                                                                                                                     8697
                         1-Hydroxy-3-octanone
      HMDB0031290
                                                                                                                    HMDB0031290
                                                                                                                                     138647
740
741
      HMDB0031478
                         Methyl heptanoate
                                                                                                                    HMDB0031478
                                                                                                                                     7826
742
      HMDB0031579
                         Ethyl (\pm)-2-methylpentanoate
                                                                                                                    HMDB0031579
HMDB0031587
                                                                                                                                     62902
      HMDB0031587
743
                        2-Methylheptanoic acid
                                                                                                                                     14475
                        6-Methylheptanoic acid
Methyl 5-methylhexanoate
      HMDB0031588
                                                                                                                    HMDB0031588
                                                                                                                                     90716
744
      HMDB0031596
                                                                                                                    HMDB0031596
745
                                                                                                                                     519894
      HMDB0031638
                         Pentyl propanoate
                                                                                                                    HMDB0031638
                                                                                                                                     12217
746
747
      {\rm HMDB0031703}
                         2-Ethylbutyl acetate
                                                                                                                    {\rm HM\,DB0031703}
                                                                                                                                     61448
      HMDB0032046
HMDB0032047
748
                         Isopropyl 3-methylbutanoate
                                                                                                                    HMDB0032046
                                                                                                                                     61914
749
                        Propyl 3-methylbutanoate cis- and trans-2-Isobutyl-4-methyl-1,3-dioxolane
                                                                                                                    HMDB0032047
                                                                                                                                     11176
                                                                                                                    HMDB0032203
750
      HMDB0032203
                                                                                                                                     86733
751
      HMDB0032225
                         1,1-Dimethoxy-trans-2-hexene
                                                                                                                    HMDB0032225
                                                                                                                                     643648
      {\rm HMDB0032272}
                                                                                                                    HMDB0032272
752
                         Ethyl 4-methylpentanoate
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753
      {\rm HMDB0032335}
                         3-Hydroxy-2-octanone
                                                                                                                    HMDB0032335
                                                                                                                                     642854
754
      {\rm HMDB0032551}
                         Valeraldehyde propyleneglycol acetal
                                                                                                                    {\rm HMDB0032551}
                                                                                                                                     156273
      HMDB0034161
                                                                                                                    HMDB0034161
755
                        2\hbox{-}Met\, hylpropyl\,\,but\, an oat\, e
                                                                                                                                     10885
      HMDB0034164
                        3-Methylbutyl propanoate
Ethyl (±)-3-methylpentanoate
                                                                                                                    HM DB0034164
756
                                                                                                                                     7772
                                                                                                                    HMDB0034234
      HMDB0034234
                                                                                                                                     560255
757
758
      HMDB0034459
                         Heptyl formate
                                                                                                                    HMDB0034459
                                                                                                                                     8169
      HMDB0035457
                         (±)-5-Hydroxy-4-octanone
                                                                                                                    HMDB0035457
                                                                                                                                     219794
759
760
      HMDB0036165
                         3-(Hydroxymethyl)-2-heptanone
                                                                                                                    HMDB0036165
                                                                                                                                     536256
      HMDB0039217
                        Isopropyl 2-methylbutanoate
                                                                                                                    HMDB0039217
761
                                                                                                                                     522214
      HMDB0039620
                                                                                                                    HMDB0039620
                         Butyl butyrate
762
                                                                                                                                     7983
      HMDB0040209
                                                                                                                    HMDB0040209
763
                         Ethyl hexanoate
                                                                                                                                     31265
      HMDB0040251
                                                                                                                    HMDB0040251
764
                         Butyl isobutyrate
                                                                                                                                     7353
                         Isobutyl isobutyrate
765
      {\rm HMDB0040252}
                                                                                                                    {\rm HM\,DB0040252}
                                                                                                                                     7351
766
      HMDB0040296
                         Propyl pentanoate
                                                                                                                    HMDB0040296
                                                                                                                                     67328
      HMDB0040298
767
                        Ethyl 2-ethylbutanoate
                                                                                                                    HMDB0040298
                                                                                                                                     76326
      HMDB0061931
                         {\bf Tetrahydro-2,5-dimethyl-2H-pyranmethanol}
                                                                                                                    HMDB0061931
768
                                                                                                                                     98034
      C06423
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769
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      C07185
770
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772
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773
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774
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775
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776
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778
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779
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781
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782
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                                                                                                                                     48
783
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784
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785
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786
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787
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788
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789
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                                                                                                                                     NA
790
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791
      HMDB0000641
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                         Glutamine
                                                                                                                                     5961
792
      HMDB0002031
                        Ureidoisobutyric acid
                                                                                                                    HMDB0002031
                                                                                                                                     885587
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HMDB0003423
                                                                                                                 HMDB0003423
793
                        D-Glutamine
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794
      HMDB0006899
                        Alanylglycine
                                                                                                                 HMDB0006899
                                                                                                                                  699802
      HMDB0028687
                        NΑ
                                                                                                                                  NA
      C00064
796
                        NΑ
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797
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                        NA
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798
      C00819
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      C05100
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799
                        NΑ
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      C16673
                                                                                                                                  NΑ
800
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801
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802
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817
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839
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                                                                                                                                  154904
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854
                                                                                                                                  114691
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                        2,3,6-Trimethylbenzaldehyde
Duryl aldehyde
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855
      HMDB0032015
                                                                                                                 HMDB0032015
                                                                                                                                  22013
856
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                                                                                                                 HMDB0032016
857
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858
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      {\rm HMDB0032140}
                          4'-Dimethylacetophenone
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                                                                                                                                  6985
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HMDB0034121
860
                        2\hbox{-} \big(4\hbox{-}Met\,hy\,lpheny\,l\big)prop\,an\,al
                                                                                                                 {\rm HM\,DB0033382}
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                        1-Methoxy-4-(2-propenyl) benzene
p-Ethylacet ophenone
                                                                                                                 HMDB0034121
861
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883
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884
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HMDB0031613
                        2\hbox{-}Met\,hy\,l\hbox{-}1\hbox{-}pheny\,l\hbox{-}2\hbox{-}propanol
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                        4-Phenyl-2-butanol
                                                                                                                  HMDB0031613
885
                                                                                                                                   61302
      HMDB0031817
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                        Cuminvl alcohol
886
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887
                        4-tert-Butylphenol
                                                                                                                                   7393
      {\rm HMDB0032213}
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(2E,4Z,7Z)-2,4,7-Decatrienal
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      HMDB0034921
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                        Teresantalal
                                                                                                                                   858612
892
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893
      HMDB0035089
                        (R)-Carvone
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894
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      {\rm HMDB0035250}
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m HM\,DB0035250}
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896
      HMDB0035591
                        3-Caren-5-one
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897
                        (-)-Pinocarvone
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                        5-Isopropyl-2-methylphenol
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898
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899
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900
                        Safranal
                                                                                                                                   61041
901
      HMDB0036070
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                                                                                                                  HMDB0036070
                                                                                                                                   126345
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                                                                                                                  HMDB0036089
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                                                                                                                  HMDB0036999
                                                                                                                                   381152
      HMDB0037561
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                        Linden ether
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962
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      HMDB0001182
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963
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CHEBI:17712

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966

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969	CHEBI:72574	NA	NA	NA
970	HMDB0000020	p-Hydroxyphenylacetic acid	${ m HMDB0000020}$	127
971	HMDB0000440	3-Hydroxyphenylacetic acid	HMDB0000440	12122
972	HMDB0000669	ortho-Hydroxyphenylacetic acid	HMDB0000669	11970
973	HMDB0000703	Mandelic acid	HMDB0000703	439616
974	HMDB0001101	p-Anisic acid	HMDB0001101	7478
975	HMDB0002390	3-Cresotinic acid	HMDB0002390	6738
976	HMDB0003791	3,4-Dihydroxyphenylacetaldehyde	HMDB0003791	119219
977	HMDB0004815	4-Hydroxy-3-methylbenzoic acid	HMDB0004815	68138
978	HMDB0012308	Vanillin	HMDB0012308	1183
979	HMDB00126657	2,4'-Dihydroxyacetophenone	HMDB0029657	440082
980	HMDB0029658	2',3'-Dihy droxyacetophenone	${ m HMDB0029658}$	642911
981	HMDB0029659	2',4'-Dihy droxyacetophenone	HMDB0029659	6990
982	HMDB0029660	2',6'-Dihy droxyacetophenone	HMDB0029660	69687
983	HMDB0029661	3',4'-Dihy droxyacetophenone	HMDB0029661	14530
984	HMDB0029662	3',5'-Dihy droxyacetophenone	${ m HMDB0029662}$	103993
985	HMDB0031609	Phenoxyacetic acid	HMDB0031609	19188
986	HMDB0032399	Methyl furfuracrylate	${ m HMDB0032399}$	535541
987	HMDB0032572	Methylparaben	${ m HMDB0032572}$	7456
988	HMDB0032594	2-(Hydroxymethyl)benzoic acid	HMDB0032594	11920
989	HMDB0032604	2-Methoxybenzoic acid	${ m HMDB0032604}$	11370
990	HMDB0032606	3-Methoxybenzoic acid	${ m HMDB0032606}$	11461
991	HMDB0032629	2',5'-Dihydroxyacetophenone	HMDB0032629	10279
992	HMDB0032919	Ethyl 2-furanyl diketone	HMDB0032919	197761
993	HMDB0033003	1-(5-Methyl-2-furanyl)-1,2-propanedione	HMDB0033003	70968
994	HMDB0034172	Methyl 2-hydroxybenzoate	${\rm HMDB0034172}$	4133
995	HMDB0036907	2-Propenyl 2-furancarboxylate	HMDB0036907	61337
996	HMDB0041283	1-(2-Furanyl)-1,3-butanedione	${\rm HMDB0041283}$	12168
997	HMDB0060390	4-Hydroxyphenyl acetate	${ m HMDB0060390}$	96009
998	HMDB0062635	(R)-mandelic Acid	${ m HMDB0062635}$	11914
999	HMDB0124926	ŇÁ	NA	NA
1000	${\rm HMDB0125528}$	NA	NA	NA
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1002	HMDB0006256	NA	NA	NA
1003	HMDB0006778	NA	NA	NA
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1013	C04043	NA	NA	NA
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1016	C10675	NA	NA	NA
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1051	CHEBI:8075	NA	NA	NA
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1055
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       HMDB0030892
                          p-Menth-3-en-9-al
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1056
                                                                                                                                      884256
1057
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1058
       {\rm HMDB0031854}
                         3-M\,et\,hy\,l\hbox{-} 5-p\,rop\,y\,l\hbox{-} 2-c\,y\,c\,l\,o\,h\,ex\,en\hbox{-} 1\hbox{-} on\,e
                                                                                                                    HMDB0031854
                                                                                                                                     378213
       HMDB0032120
                         2,6-Dimethyl-1,7-octadien-3-one (E)-3,7-Dimethyl-1,5,7-octatrien-3-ol
                                                                                                                    HMDB0032120
1059
                                                                                                                                     158402
       HMDB0032242
                                                                                                                    HMDB0032242
1060
                                                                                                                                     62842
1061
       {\rm HMDB0032536}
                         2-(trans-2-Pentenyl)cyclopentanone
                                                                                                                    HMDB0032536
                                                                                                                                     643700
       {\rm HMDB0034715}
                         p-Mentha-1(6),8-dien-3-ol
                                                                                                                    HMDB0034715
1062
                                                                                                                                     148446
1063
       HMDB0034916
                          cis-2-Thujen-4-ol
                                                                                                                    HMDB0034916
                                                                                                                                     561870
1064
       {\rm HMDB0034973}
                          (R)-Campholenic aldehyde
                                                                                                                    {\rm HM\,DB0034973}
                                                                                                                                     98497
1065
       HMDB0034974
                          (R)-Carvot an acet on e
                                                                                                                    HMDB0034974
                                                                                                                                     521267
       HMDB0034975
                                                                                                                    HMDB0034975
1066
                          Piperitone
                                                                                                                                     6987
1067
       HMDB0034985
                          (+)-Fenchone
                                                                                                                    HMDB0034985
                                                                                                                                     14525
1068
       HMDB0035054
                          (1S,4R)-p-Mentha-2,8-dien-1-ol
                                                                                                                    HMDB0035054
                                                                                                                                      111055
       HMDB0035077
                          (1R,4R)-p-Mentha-2,8-dien-1-ol
                                                                                                                    HMDB0035077
1069
                                                                                                                                     111274
1070
       HMDB0035078
                                                                                                                    HMDB0035078
                                                                                                                                     638011
                          Geranial
       \begin{array}{c} {\rm HMDB0035092} \\ {\rm HMDB0035100} \end{array}
1071
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                                                                                                                    HMDB0035092
                                                                                                                                     643779
                                                                                                                    HMDB0035100
                         2-Pinen-10-ol
1072
                                                                                                                                     10582
       HMDB0035120
                                                                                                                    HMDB0035120
1073
                          Dehydrolinalool
                                                                                                                                     854707
       HMDB0035125
                                                                                                                    HMDB0035125
1074
                          Darwinol
                                                                                                                                     636475
1075
       HMDB0035158
                          1,2-Epoxy-p-menth-8-ene
                                                                                                                    HMDB0035158
                                                                                                                                     91496
1076
       HMDB0035203
                          (S)-9,10-Cyclo-p-menth-1-en-4-ol
                                                                                                                    HMDB0035203
                                                                                                                                     738151
1077
       HMDB0035241
                          (Z)-2-Methyl-6-methylene-2,7-octadien-1-ol
                                                                                                                    HMDB0035241
                                                                                                                                     531972
       HMDB0035277
                          (2S,4R)-p-Mentha-1(7),5-dien-2-ol
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1078
                                                                                                                                     531936
       HMDB0035280
                                                                                                                    HM DB0035280
1079
                          Teresantalol
                                                                                                                                     578221
       {\rm HMDB0035600}
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1080
                          (S)-Phellandral
                                                                                                                                     89488
       HMDB0035604
                                                                                                                    HMDB0035604
1081
                          Pulegone
                                                                                                                                     442495
1082
       HMDB0035622
                          (+)-cis-Carveol
                                                                                                                    HMDB0035622
                                                                                                                                      443177
1083
       {\rm HMDB0035656}
                          3-Pinanone
                                                                                                                    {\rm HM\,DB0035656}
                                                                                                                                     11038
                         alpha-Cyclocitral
       HMDB0035706
1084
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                                                                                                                                     94143
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1085
                          (R)-Piperitone
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       HMDB0035738
1086
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                          NA
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                                                                                                                                      34645
1087
                          (-)-trans-Isopulegone
       HMDB0035743
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                                                                                                                    HMDB0035743
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1088
1089
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                          (-)-Isopinocamphone
                                                                                                                    HMDB0035744
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1090
       HMDB0036044
                          Marmelo oxide A
                                                                                                                    HMDB0036044
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       HMDB0036079
                         Dihydrocarvone
                                                                                                                    HMDB0036079
1091
                                                                                                                                     24473
       HMDB0036080
                          (1S,4S)-Dihydrocarvone
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1092
                                                                                                                                     443183
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                          (-)-cis-Carveol
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1093
                                                                                                                                     330573
       HMDB0036083
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1094
                          Carveol
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1095
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1096
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       HMDB0036088
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                          (+)-3-Thujone
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1098
       HMDB0036113
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1099
       HMDB0036114
                          (-)-3-Thujone
                                                                                                                    HMDB0036114
                                                                                                                                     655387
       HMDB0036115
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1100
                          (-)-3-Isothujone
1101
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                          (-)-Pinocamphone
                                                                                                                    HMDB0036127
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1102
       {\rm HMDB0036128}
                          (-)-trans-Pinocarveol
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1103
                          Verbenol
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       HMDB0036598
                          (E.E)-2.4-Decadienal
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1104
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                                                                                                                    HMDB0037008
       HMDB0037008
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1105
1106
       HMDB0037009
                          Terpinolene oxide
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       HMDB0037010
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1107
1108
       HMDB0037015
                          p-Mentha-1,8-dien-4-ol
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                          (R)-p-Mentha-1,8-dien-10-ol
       HMDB0037017
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1110
       HMDB0037025
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1111
                          Hop ether
       HMDB0037172
                          Tetrahydro-5-isopropenyl-2-methyl-2-vinylfuran
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1112
                                                                                                                                     61665
                         Junionone
xi-p-Mentha-3,8-dien-1-ol
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       HMDB0038251
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1119
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1124
                          3-Thujanone
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                          (+)-trans-Carveol
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                          4-(1-Met hylet hyl)-1-cyclohexene-4-carbox aldehyde
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1126
1127
       HMDB0059827
                         3-Cyclohexene-1-carboxaldehyde, 1,3,4-trimethyl-
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1128
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1227	C04112	NA

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1250	CHEBI:90886	NA
1251	HMDB0000798	Oenanthic ether
1252	HMDB0000847	Pelargonic acid
1253	HMDB0030331	xi-2-Ethylheptanoic acid
1254	HMDB0030331	Methyl caprylate
1255	HMDB0031480	Heptyl acetate
1256	HMDB0031557	4-Methyloctanoic acid
1257	HMDB0032042	Butyl 3-methylbutanoate
1258	HMDB0032309	3-Heptyl acetate
1259	HMDB0032406	5-Met hylhexyl acetate
1260	HMDB0032454	3-Octyl formate
1261	HMDB0034162	Pentyl butanoate
1262	HMDB0034165	Propyl hexanoate
1263	HMDB0034606	Hexyl propionate
1264	HMDB0036234	3-Methylbutyl 2-methylpropanoate
1265	HMDB0037143	1-Hydroxy-3-nonanone
1266	HMDB0037164	3-(Hydroxymethyl)-2-octanone
1267	HMDB0037288	4-Methyl-2-pentyl-1,3-dioxolane
1268	HMDB0038040	2-Methylpropyl 3-methylbutanoate
1269	HMDB0038603	Octyl formate
1270	HMDB0039216	Butyl 2-methylbutanoate
1271	HMDB0039219	1-Methylbutyl butanoate
1272	HMDB0040221	Isoamyl butyrate
1273	${ m HMDB0040295}$	Butyl pentanoate
1274	HMDB0040430	Isopropyl hexanoate
1275	${\rm HMDB0059822}$	Et hyl 5-met hylhex anoate
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1278	CHEBI:37108	NA
1279	CHEBI:86618	NA
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1286	CHEBI:87684	NA
1287	HMDB0000555	3-Methyladipic acid
1288	HMDB0000857	Pimelic acid
1289	HMDB0002441	3,3-Dimethylglutaric acid
1290	HMDB0029167	2-Methyladipic acid
1291	HMDB0029573	Diethyl malonate
1292	HMDB0041605	Propylenegly col diacetate
1293	HMDB0059722	Mono-methyl-adipate
1294	HMDB0059738	2-Ethylglutaric acid Ethyl methyl succinate
1295	HMDB0059893	· · · · -
1296	HMDB0061676	2,2-Dimethylglutaric acid
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1308	CHEBI:87360	NA NA
1309	HMDB0001890	Acetylcysteine
1310	C06809	NA
1311	C12876	NA
1312	CHEBI:28939	NA
1313	HMDB0030524	2(3H)-Benzothiazolethione
1314	C14437	NA '

NA NA NA

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NA NA NA

NΑ

NA

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NA

NA

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8159

62089

7981

537615 221829

227578

10890

12293

88454

519786 536257

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15336

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61137

16832

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291968

522068 12681 NA NA

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12035 N A

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HM DB0000857 HM DB0002441 HM DB0029167 HM DB0029573

 ${\rm HM\,DB0041605}$

HMDB0059722

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 ${\rm HM\,DB0059893}$

 ${\rm HM\,DB0061676}$

HMDB0001890

HMDB0030524

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NA NA

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NA

NA NA NA

NA NA

NA NA

NA NA

NA

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1318
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                          Furaneol acetate
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                          Herierin III
                                                                                                                       HMDB0038760
                                                                                                                                         131340
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1372
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                          8-Met hylnonenoat e
                                                                                                                       HMDB0012183
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1375
       HMDB0029358
                          5Z-Octenyl acetate
                                                                                                                       HMDB0029358
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1376
       HMDB0029859
                          Methyl (xi)-3-nonenoate
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1377
                                                                                                                                        87947
                                                                                                                       HMDB0031002
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                          3-Decenoic acid
                                                                                                                                        531235
1378
       HMDB0031003
                                                                                                                       HMDB0031003
1379
                          9-Decenoic acid
                                                                                                                                        61743
       HMDB0031297
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1382
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       HMDB0031441
                                                                                                                       HMDB0031441
1383
                          Linalool oxide III
                                                                                                                                        642857
       HMDB0032119
                          4-Hydroxy-2,6-dimethyl-7-octen-3-one
                                                                                                                       HMDB0032119
1384
                                                                                                                                        158402
       {\rm HMDB0032275}
                                                                                                                       HMDB0032275
1385
                          Ethyl 3-octenoate
                                                                                                                                        536439
1386
       HMDB0032393
                          2-Methylbutyl 3-methyl-2-butenoate
                                                                                                                       HMDB0032393
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       {\rm HMDB0032452}
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                          6-Decanolide
cis-3-Hexenyl butyrate
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m HM\,DB0033203}
                                                                                                                                        62583
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       HMDB0033377
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                                                                                                                                        535243
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1390
                          Cyclohexyl butanoate
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1391
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                          2-Hexenvl butanoate
                                                                                                                       HMDB0034581
                                                                                                                                        535246
1392
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                                                                                                                                        529481
1393
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                          (S,E)-2,6-Dimethyl-5,7-octadiene-2,3-diol
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1394
       {\rm HMDB0035365}
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                                                                                                                       HMDB0035365
                                                                                                                                        26396
1395
       HMDB0035837
                          Citronellic acid
                                                                                                                       HMDB0035837
                                                                                                                                        10402
                          (E)\text{-}3\text{-}(Tetrahydro\text{-}5,5\text{-}dimethyl\text{-}2\text{-}furanyl})\text{-}2\text{-}buten\text{-}1\text{-}ol
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1396
                                                                                                                       HMDB0035839
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                          Linalyl oxide
1397
       HMDB0035907
                                                                                                                       HMDB0035907
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       HMDB0036099
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1398
                          Lilac alcohol
                                                                                                                                         526973
1399
       HMDB0036211
                          Hexyl crotonate
                                                                                                                       HMDB0036211
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1400
       HMDB0036990
                          2,6-Dimethyl-3,7-octadiene-2,6-diol
                                                                                                                       HMDB0036990
                                                                                                                                        535245
1401
       HMDB0036992
                          1\hbox{-}Cy \operatorname{clopropy} \operatorname{l-} 4\hbox{-}methy \operatorname{l-} 1, 3\hbox{-}\operatorname{cy} \operatorname{clohex} \operatorname{ane}\operatorname{diol}
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                         delta-Decalactone
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       HMDB0037217
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1405
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(+)-6-Hy droxy-2,6-dimethyl-7-octen-4-one
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Isopentyl 3-methyl-2-butenoate
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                         (±)-trans-Linalyl oxide
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                                                                                                               NA
1552
       CHEBI:16795
1553
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       CHEBI:16939
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1554
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1555
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1556
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                                                                                                                                NA
                                                                                                                                NA
1557
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                                                                                                               NA
       CHEBI:28479
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1558
                        NΑ
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       CHEBI:32763
1559
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                                                                                                                                NA
1560
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1561
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                        NΑ
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                                                                                                                                NΑ
1562
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                                                                                                                                NA
1563
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                                                                                                               NA
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                                                                                                                                NΑ
1564
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                                                                                                               NA
1565
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                                                                                                                                NΑ
                                                                                                               NA
1566
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                                                                                                                                NΑ
1567
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1568
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                        NA
                                                                                                               NA
                                                                                                                                NA
1569
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                                                                                                               NA
                                                                                                                                NA
       CHEBI:91038
                                                                                                                                NΑ
1570
                        NA
                                                                                                               NA
1571
       CHEBI:91041
                                                                                                               NA
                                                                                                                                NA
                        NΑ
                                                                                                               HMDB0036117
       HMDB0036117
                                                                                                                                123132
1572
                        (1'R)-Nepetalic acid
                                                                                                               HMDB0036998
1573
       HMDB0036998
                        (S)-Óleuropeic acid
                                                                                                                                123137
1574
       HMDB0039052
                         (4S,8R)-8,9-Dihydroxy-p-menth-1(6)-en-2-one
                                                                                                               HMDB0039052
                                                                                                                                731208
1575
       HMDB0039710
                        1-Acetylcyclohexyl acetate
                                                                                                               HMDB0039710
                                                                                                                                62017
```

1576	HMDB0040883	(E)-10-Oxo-8-decenoic acid	HMDB0040883	124315
1577	C03843	ŇÁ	NA	NA
1578	C04718	NA	NA	NA
1579	C06066	NA	NA	NA
1580	C11405	NA	NA	NA
1581	C11419	NA	NA	NA
1582	C19079	NA	NA	NA
1583	C19084	NA	NA	NA
1584	C20324	NA	NA	NA
1585	CHEBI:29064	NA NA	NA	NA
1586	CHEBI:37287	NA NA	NA	NA
1587	CHEBI:37291	NA NA	NA	NA
1588	CHEBI:37379	NA NA	NA	NA
$1589 \\ 1590$	CHEBI:64264	NA NA	NA NA	NA NA
	CHEBI:64274 CHEBI:64899	NA NA	NA NA	NA NA
$1591 \\ 1592$	CHEBI:70741	NA NA	NA NA	N A
1593	CHEBI:87777	NA NA	NA NA	NA NA
1594	HMDB0031062	(Z)-3-Methyl-3-decenoic acid	HM DB0031062	129711
1595	HMDB0031063	(Z)-3-Methyl-4-decenoic acid	HMDB0031063	131751
1596	HMDB0031087	trans-2-Hexyl-1-cyclopropaneacetic acid	HMDB0031087	543595
1597	HMDB0031272	Ethyl (E)-2-nonenoate	HMDB0031272	122775
1598	HMDB0031406	Ethyl 3-cyclohexylpropionate	HMDB0031406	61466
1599	HMDB0031691	cis-3-Hexenyl pentanoate	HMDB0031691	536768
1600	HMDB0031843	2,3-Undecanedione	HMDB0031843	61404
1601	${\rm HMDB0032308}$	(E)-3-Heptenyl 2-methylpropanoate	${\rm HMDB0032308}$	643713
1602	${\rm HMDB0032320}$	3-Hexenyl 2-methylbutyrate	${\rm HMDB0032320}$	616510
1603	${\rm HMDB0032396}$	Methyl 2-decenoate	${\rm HMDB0032396}$	536806
1604	${\rm HMDB0032404}$	6-Met hyl-5-hepten-2-one propyleneglycol acetal	${\rm HMDB0032404}$	109257
1605	${\rm HMDB0032453}$	cis-3-Octenyl propionate	${\rm HMDB0032453}$	208363
1606	${\rm HMDB0032461}$	Pent-2-enyl hexanoate	${ m HMDB0032461}$	536314
1607	${\rm HMDB0032489}$	Prenyl caproate	${ m HMDB0032489}$	173534
1608	${ m HMDB0032534}$	trans-2-Hexenyl 2-methylbutyrate	${ m HMDB0032534}$	535245
1609	HMDB0033371	Citronelly l format e	${ m HMDB0033371}$	7778
1610	HMDB0033724	Undecylenic acid	HMDB0033724	5634
1611	HMDB0034428	Cyclohexyl 3-methylbutanoate	HMDB0034428	287439
1612	HMDB0034429	Cyclohexyl pentanoate	HMDB0034429	73772
1613	HMDB0036140	5-Hexyldihydro-5-methyl-2(3H)-furanone	HMDB0036140	285097
1614	HMDB0036784	6-Hexyltetrahydro-2H-pyran-2-one	HMDB0036784	61204
1615	HMDB0037106	(x)-1-Nonen-3-yl acetate Rhodinyl formate	HMDB0037106	169364
$\frac{1616}{1617}$	HMDB0037185 HMDB0037225	Methyl citronellate	HMDB0037185 HMDB0037225	$61092 \\ 61290$
1618	HMDB0037223	5-Hexyldihydro-4-methyl-2(3H)-furanone	HMDB0037223	106756
1619	HMDB0037309 HMDB0038273	2-Hexenyl valerate	HMDB0037309 HMDB0038273	535297
1620	HMDB0038273	2-Hexenyl isovalerate	HMDB0038273	535246
1621	HMDB0038277	cis-3-Hexenyl 2-methylbutanoate	HMDB0038277	536506
1622	HMDB0038278	cis-3-Hexenyl 3-methylbutanoate	HMDB0038278	536768
1623	HMDB0038311	xi-gamma-Undecalactone	HMDB0038311	7714
1624	HMDB0038906	5-Octenyl propanoate	HMDB0038906	110414
1625	HMDB0040593	2-Propenyl octanoate	HMDB0040593	20219
1626	C12295	NA P	NA	NA
1627	C13422	NA	NA	NA
1628	C13823	NA	NA	NA
1629	C13910	NA	NA	NA
1630	C19420	NA	NA	NA
1631	CHEBI:31676	NA	NA	NA
1632	CHEBI:35045	NA	NA	NA
1633	CHEBI:39449	NA	NA	NA
1634	CHEBI:39450	NA	NA	NA
1635	CHEBI:39451	NA	NA	NA
1636	CHEBI:39452	NA NA	NA	NA
1637	CHEBI:39453	NA NA	NA	NA
1638	CHEBI:39454	NA NA	NA	NA
1639	CHEBI:48944	NA NA	NA NA	N A
1640	CHEBI:59624	NA NA	NA NA	N A
1641	CHEBI:87312	NA NA	NA NA	N A
$\frac{1642}{1643}$	CHEBI:87689 HMDB0030988	NA 5-(2-Methylpropyl)tetrahydro-2-oxo-3-furancarboxylic acid	NA HMDB0030988	NA 131751
1643 1644	HMDB0030988	5-(2-Mee hypropy), tetrany dro-2-oxo-3-turan carboxy ne acid 5-Butyltetrahy dro-2-oxo-3-furan carboxy lic acid	HMDB0030988	131751 131751
$1644 \\ 1645$	C14112	NA	NA	NA
1646	CHEBI:78208	NA NA	NA NA	N A
1647	HMDB0000734	Indoleacry lic acid	HMDB0000734	537504
1648	CHEBI:90333	NA	NA	NA
1649	HMDB0002203	3-Hydroxycapric acid	HM DB0002203	531279
1650	HMDB0010725	(R)-3-Hydroxydecanoic acid	HMDB0010725	531279
1651	HMDB0033201	9-Hydroxydecanoic acid	HMDB0033201	457523
1652	HMDB0033574	(1R,2R,4R,8R)-p-Menthane-2,8,9-triol	HMDB0033574	738097
1653	HMDB0033640	7-Methyl-3-methylene-1,6,7-octanetriol	HMDB0033640	106076
1654	${\rm HMDB0034783}$	cis-p-Menthane-1,7,8-triol	${\rm HMDB0034783}$	126863
1655	${\rm HMDB0038186}$	2,6-Dimethyl-7-octene-2,3,6-triol	${\rm HMDB0038186}$	152414
1656	${\rm HMDB0039470}$	(1S,2S,4R,8R)-p-Menthane- $1,2,9$ -triol	${\rm HMDB0039470}$	738097
1657	${ m HMDB0039668}$	2-Hexyl-1,3-diox an-5-ol	${\rm HMDB0039668}$	74361
1658	HMDB0039669	2-Hexyl-1,3-dioxolane-4-methanol	${ m HMDB0039669}$	15571
1659	HMDB0039893	(1R,2R,4S)-p-Menthane-1,2,8-triol	${\rm HMDB0039893}$	186702
1660	HMDB0040329	xi-5-Hydroxydecanoic acid	HMDB0040329	1825
1661	HMDB0041600	Ethyl (\pm)-3-hydroxyoctanoate	HMDB0041600	110975
1662	C02774	NA	NA	NΑ

1663	C18067	NA	NA	NA
1664	CHEBI:132983	NA	NA	NA
1665	CHEBI:17409	NA	NA	NA
1666	CHEBI:37371	NA	NA	NΑ
1667	CHEBI:50451	NA	NA	NA
1668	CHEBI:64265	NA	NA	NA
1669	CHEBI:64269	NA	NA	NA
1670	CHEBI:78951	NA	NA	NA
1671	HMDB0012710	3-Dehydroquinic acid	HMDB0012710	439351
1672	HMDB0059927	NA NA	NA	NA
1673	C00944	NA NA	NA	N A
1674	C04049	NA NA	NA NA	NA NA
$\frac{1675}{1676}$	C05601 C06201	NA NA	NA NA	NA NA
1677	CHEBI:17947	NA NA	NA	NA NA
1678	CHEBI:51822	NA NA	NA	NA
1679	CHEBI:73089	NA	NA	NA
1680	CHEBI:87773	NA	NA	NA
1681	CHEBI:915	NA	NA	NA
1682	${\rm HMDB0029915}$	D-4-O-Methyl-myo-inositol	${ m HMDB0029915}$	
1683	${\rm HMDB0029916}$	NA	NA	NA
1684	${ m HMDB0029965}$	Methyl beta-D-glucopyranoside	${ m HMDB0029965}$	445238
1685	${\rm HMDB0031437}$	(-)-Bornesitol	${ m HMDB0031437}$	
1686	HMDB0031449	Sequoyitol	${ m HMDB0031449}$	439990
1687	HMDB0033816	Mytilitol	HMDB0033816	
1688	HMDB0034219	D-Pinitol	HMDB0034219	0
1689	HMDB0034221	L-Quebrachitol	HMDB0034221	0
1690	HMDB0034222	NA NA	NA	NA
1691	HMDB0062564	NA NA	NA NA	N A
1692	C03365	NA NA	NA NA	N A
$\frac{1693}{1694}$	C03619 C03659	NA NA	NA NA	NA NA
$1694 \\ 1695$	C03660	NA NA	NA NA	N A N A
1696	C03844	NA NA	NA NA	N A N A
1697	C05163	NA NA	NA	NA
1698	C06352	NA	NA	NA
1699	C06353	NA	NA	NA
1700	C08257	NA	NA	NA
1701	CHEBI:111	NA	NA	NA
1702	CHEBI:113524	NA	NA	NA
1703	CHEBI:15975	NA	NA	NA
1704	CHEBI:17540	NA	NA	NA
1705	CHEBI:18173	NA	NA	NA
1706	CHEBI:18266	NA	NA	NA
1707	CHEBI:18427	NA	NA	NA
1708	CHEBI:20741	NA	NA	NΑ
1709	CHEBI:28310	NA	NA	NA
1710	CHEBI:28548	NA	NA	NA
1711	CHEBI:28762	NA	NA	NA
1712	CHEBI:320055	NA NA	NA	NA
1713	CHEBI:320061	NA NA	NA	NA
1714	CHEBI:37209	NA NA	NA NA	N A
1715	CHEBI:37656	NA NA	NA NA	N A
$1716 \\ 1717$	CHEBI:37657 CHEBI:43943	NA NA	NA NA	NA NA
1718	CHEBI:55507	NA NA	NA NA	NA NA
1719	CHEBI:64171	NA	NA	NA
1720	CHEBI:73918	NA	NA	NA
1721	HMDB0031517	(R)-3-Hydroxy-5-phenylpentanoic acid	HMDB0031517	111062
1722	HMDB0031984	2,5-Dimethoxy-4-(2-propenyl)phenol	HMDB0031984	110525
1723	HMDB0032575	Butylparaben	${ m HMDB0032575}$	7184
1724	${\rm HMDB0032590}$	Zingerone	${\rm HMDB0032590}$	31211
1725	${\rm HMDB0034206}$	Ethyl 4-methylphenoxyacetate	${\rm HMDB0034206}$	404728
1726	${\rm HMDB0034990}$	4-Methoxy benzyl propanoate	${\rm HMDB0034990}$	61417
1727	${\rm HMDB0036432}$	Isobutyl salicylate	${\rm HMDB0036432}$	6873
1728	HMDB0037271	2,6-Dimethoxy-4-(1-propenyl)phenol	HMDB0037271	535290
1729	HMDB0040730	Butyl salicylate	HMDB0040730	16330
1730	HMDB0041194	Methoxyeugenol	HMDB0041194	226486
1731	HMDB0041505	5-Hydroxy-2-benzyl-1,3-dioxane	HMDB0041505	78476
1732	HMDB0041506	2-Benzyl-5-hydroxymethyl-1,3-dioxolane	HMDB0041506	21895
1733	HMDB0041666	3-Hydroxyphenyl-valeric acid	HMDB0041666	105597
1734	HMDB0059898	Ethyl 4-ethoxy benzoate	HMDB0059898	90232 N.A
1735	HMDB0059940	NA NA	NA NA	N A
$1736 \\ 1737$	HMDB0059941 HMDB0059942	NA NA	NA NA	NA NA
1738	HMDB0059942 HMDB0059943	NA NA	NA NA	N A N A
1739	HMDB0059945 HMDB0059944	NA NA	NA NA	NA NA
1740	HMDB0059944 HMDB0059945	NA NA	NA NA	N A N A
1740	HMDB0039943 HMDB0124918	NA NA	NA NA	NA NA
1741	HMDB0124918	NA NA	NA	NA NA
1743	HMDB0126162	NA	NA	NA
1744	HMDB0126163	NA	NA	NA
1745	HMDB0126262	NA	NA	NA
1746	HMDB0126462	NA	NA	NA
1747	${\rm HMDB0126463}$	NA	NA	NA
1748	${\rm HMDB0126464}$	NA	NA	NA
1749	${\rm HMDB0126465}$	NA	NA	NA

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1750
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1751
       HMDB0132270
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                                                                                                                     NA
       HMDB0133190
                                                                                                                                      NA
1752
1753
       {\rm HMDB0133191}
                          NΑ
                                                                                                                     NA
                                                                                                                                      NΑ
1754
       {\rm HMDB0133192}
                          NA
                                                                                                                     NA
                                                                                                                                      NA
       HMDB0133193
1755
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1756
       HMDB0133194
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1757
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       HMDB0133484
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1758
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1759
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1760
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                                                                                                                                      NA
1761
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                                                                                                                                      ΝΑ
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1762
       C17497
                          NA
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       C20342
1763
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1764
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1765
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1766
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                                                                                                                                      NΑ
                                                                                                                     NA
1767
       \mathbf{CHEBI:} \mathbf{86562}
                         NA
                                                                                                                     NA
                                                                                                                                      NA
       CHEBI:87513
1768
                          NA
                                                                                                                     NA
                                                                                                                                      NA
       HMDB0000529
                                                                                                                     HMDB0000529
1769
                         5Z-Dodecenoic acid
                                                                                                                                      531237
1770
       HMDB0010729
                         trans-Dodec-2-enoic acid
                                                                                                                     HMDB0010729
                                                                                                                                      528272
1771
       HMDB0029585
                          Methyl 10-undecenoate
                                                                                                                     {
m HM\,DB0029585}
                                                                                                                                      8138
1772
       {\rm HMDB0029763}
                          Allyl nonanoate
                                                                                                                     HMDB0029763
                                                                                                                                      61410
                          xi-Dihy dro-5-octy l-2(3H)-furanone
1773
       HMDB0031683
                                                                                                                     HMDB0031683
                                                                                                                                      16821
\begin{array}{c} 1774 \\ 1775 \end{array}
       HMDB0032214
                                                                                                                     HMDB0032214
                          cis-4-Decenvl acetate
                                                                                                                                      535283
       HMDB0032235
                         2,6-Dimethyl-5-heptenal propyleneglycol acetal
                                                                                                                     HMDB0032235
                                                                                                                                      441537
       {\rm HMDB0032248}
                                                                                                                     HMDB0032248
1776
                          11-Dodecenoic acid
                                                                                                                                      125207
       HMDB0033378
                          cis-3-Hexenyl hexanoate
                                                                                                                     HMDB0033378
1777
                                                                                                                                      535254
1778
       HMDB0034160
                          (±)-Citronellyl acetate
                                                                                                                     HMDB0034160
                                                                                                                                      9017
1779
       {\rm HMDB0034844}
                          Citronelly lacetate
                                                                                                                     {\rm HM\,DB0034844}
                                                                                                                                      670868
                          5,5-Dibuty l-4,5-dihy dro-2(3H) furanone
       HMDB0036182
1780
                                                                                                                     HMDB0036182
                                                                                                                                      106080
       HMDB0037186
                                                                                                                     HMDB0037186
                          Rhodinyl acetate
                                                                                                                                      8833
1781
                          Methyl 9-undecenoate
                                                                                                                     HM DB0037305
1782
       {\rm HMDB0037305}
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       HMDB0037329
                          Ethyl 2-decenoate
                                                                                                                     HMDB0037329
1783
                                                                                                                                      546390
       HMDB0037498
                          1-Ethenylhexyl butanoate
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                                                                                                                                      27892
1784
1785
       HMDB0037742
                          xi-5-Dodecanolide
                                                                                                                     HMDB0037742
                                                                                                                                      12844
                         3\hbox{-Heptyldihy}\,dro\hbox{-}5\hbox{-methy}\,l\hbox{-}2(\,3H)\hbox{-furanone}
1786
       HMDB0037813
                                                                                                                     HMDB0037813
                                                                                                                                      61990
       HMDB0038081
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1787
                         2-Octenvl butyrate
                                                                                                                                      124355
       HMDB0038269
                          Hexyl 2E-hexenoate
                                                                                                                     HMDB0038269
1788
                                                                                                                                      643586
       HMDB0038895
                          7-Hexyl-2-oxepanone
                                                                                                                     HMDB0038895
1789
                                                                                                                                      61835
       HMDB0038924
                          2-Hexenyl hexanoate
                                                                                                                     HMDB0038924
                                                                                                                                      535297
1790
1791
       {\rm HMDB0039220}
                         Ethyl 4-decenoate
                                                                                                                     {
m HM\,DB0039220}
                                                                                                                                      536258
1792
       HMDB0040158
                         Hexyl 2-methyl-3-pentenoate
                                                                                                                     HMDB0040158
                                                                                                                                      715871
       HMDB0040163
                         Hexyl 2-methyl-4-pentenoate
1,1-Dimethoxy-3,7-dimethyl-2,6-octadiene
1793
                                                                                                                     HMDB0040163
                                                                                                                                      573511
1794
       HMDB0040361
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1795
       HMDB0041264
                          (±)-Menthyl acetate
                                                                                                                     HMDB0041264
                                                                                                                                      220674
       HMDB0041449
                          (3,7-Dimethyl-6-octenyl)oxy]acetaldehyde
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1796
                                                                                                                                      61401
1797
       C09870
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1798
       C12298
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1799
       C16825
                          NΑ
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1800
       C16947
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1802
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1803
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1805
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1806
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1807
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1811
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1812
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1813
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1814
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1815
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1816
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1817
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1818
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1819
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1820
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                                                                                                                                      NA
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1821
1822
       CHEBI:87493
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                                                                                                                     NA
1823
       {\rm HMDB0032424}
                         2\hbox{-}(4\hbox{-}M\,et\,hy\,l\hbox{-}5\hbox{-}th\,iaz\,oly\,l)\,et\,hy\,l\,\,propion\,at\,e
                                                                                                                     HMDB0032424
                                                                                                                                      299333
1824
       CHEBL:61550
                         NΑ
                                                                                                                     NA
                                                                                                                                      NA
                          (S)-9-Hydroxy-10-undecenoic acid
                                                                                                                     HMDB0032662
       HMDB0032662
                                                                                                                                      104653
1825
1826
       HMDB0036029
                          Clarycet
                                                                                                                     HMDB0036029
                                                                                                                                      574833
1827
       HMDB0037179
                          3-Nonanon-1-yl acetate
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                                                                                                                                      126784
1828
       CHEBI:132854
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1829
       CHEBI:78953
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                                                                                                                     NA
                                                                                                                                      NA
       CHEBI:79123
1830
                         NA
                                                                                                                     NA
                                                                                                                                      NA
       HMDB0000638
                                                                                                                     HMDB0000638
                          Dodecanoic acid
                                                                                                                                      3893
1831
       HMDB0030998
                                                                                                                     HMDB0030998
                                                                                                                                      8048
1832
                          Ethyl decanoate
       HMDB0032310
                                                                                                                     HMDB0032310
1833
                          2-Heptyl butyrate
                                                                                                                                      89307
1834
       HMDB0032440
                          Nonanal propyleneglycol acetal
                                                                                                                     HMDB0032440
                                                                                                                                      95572
1835
       HMDB0033619
                         Hexyl hexanoate
                                                                                                                     HMDB0033619
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1836
       HMDB0034128
                         Isopropyl nonanoate
                                                                                                                     HMDB0034128
                                                                                                                                      119911
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```
1837
       HMDB0034136
                         Octvl butanoate
                                                                                                                  HMDB0034136
                                                                                                                                   61030
                                                                                                                  HMDB0034137
1838
       HMDB0034137
                         Octyl 2-methylpropanoate
                                                                                                                                   61024
1839
       HMDB0035410
                         (R)-Dihydrocitronellol acetate
                                                                                                                  HMDB0035410
                                                                                                                                   30249
1840
       {\rm HMDB0036225}
                         Pentyl heptanoate
                                                                                                                  {\rm HM\,DB0036225}
                                                                                                                                   61415
1841
       HMDB0040166
                         Decyl acetate
                                                                                                                  HMDB0040166
                                                                                                                                   8167
       HMDB0059868
1842
                         Isobutyl octanoate
                                                                                                                  HMDB0059868
                                                                                                                                   79582
1843
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                         NA
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1844
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                         NA
       CHEBI:30805
1845
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1846
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                                                                                                                                   NΑ
1847
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1848
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1849
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1850
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                                                                                                                                   NA
1851
       {\rm HMDB0032306}
                         Diethyl oxalpropionate
                                                                                                                  HMDB0032306
                                                                                                                                   97750
       {\rm HMDB0033092}
                                                                                                                  HMDB0033092
1852
                         3-(1-Hydroxymethyl-1-propenyl)pentanedioic acid
                                                                                                                                   10141
       C04067
CHEBI:16879
1853
                                                                                                                                   NA
1854
                         NA
                                                                                                                  NA
                                                                                                                                   NA
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1855
                         3-Hydroxynonyl acetate
                                                                                                                                   234237
       HMDB0061654
1856
                         NA
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1857
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                                                                                                                  NA
1858
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1859
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                                                                                                                                   NA
1860
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                         NA
                                                                                                                  NA
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                         O-methoxycatechol-O-sulphate
                                                                                                                                   22473
1861
       CHEBI:133460
1862
                                                                                                                                   NA
                                                                                                                  NA
1863
       CHEBI:85537
                         NA
                                                                                                                  NA
                                                                                                                                   NA
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                                                                                                                  HMDB0000929
1864
                         L-Tryptophan
                                                                                                                                   6305
1865
       HMDB0013609
                         D-Tryptophan
                                                                                                                  HMDB0013609
                                                                                                                                   9060
1866
       {\rm HMDB0013840}
                         3-Hydroxymethylantipyrine
                                                                                                                  {
m HM\,DB0013840}
                                                                                                                                   123963
1867
       HMDB0014892
                         Ethotoin
                                                                                                                  HMDB0014892
                                                                                                                                   3292
       HMDB0030396
                         (±)-Tryptophan
                                                                                                                  HMDB0030396
1868
                                                                                                                                   1148
                                                                                                                  HMDB0060533
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                                                                                                                                   91480
1869
                         Nirvanol
       HMDB0060878
                         4-Hydroxyantipyrine
                                                                                                                  HMDB0060878
1870
                                                                                                                                   98889
       HMDB0060967
                         S-nirvanol
                                                                                                                  HMDB0060967
                                                                                                                                   65408
1871
1872
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                                                                                                                                   NΑ
1873
       C00525
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                                                                                                                  NA
                                                                                                                                   NA
       C00806
1874
                         NA
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                                                                                                                                   NA
       C07839
1875
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                                                                                                                                   NΑ
1876
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                                                                                                                  NA
1877
       C14916
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1878
       CHEBI:16296
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1879
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1880
       CHEBI:27897
                         NΑ
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1881
       CHEBI:32713
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1882
       CHEBI:32724
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       CHEBI:32729
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1883
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1884
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1885
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1886
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1887
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       CHEBI:57912
1888
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1889
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                         NA
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1890
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1891
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                                                                                                                  NA
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HMDB0059752
1892
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                                                                                                                  NA
                                                                                                                                   NΑ
1893
                                                                                                                                   NA
                         NA
                                                                                                                  NA
       HMDB0060016
1894
                         Pyrogallol-1-O-sulphate
                                                                                                                  HMDB0060016
                                                                                                                                   541106
       HMDB0060018
                         Pyrogallol-2-O-sulphate
                                                                                                                  HMDB0060018
1895
                                                                                                                                   920136
1896
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1897
       {\rm CHEBI:} 89615
                         NΑ
                                                                                                                  NA
                                                                                                                                   NA
       HMDB0030762
                                                                                                                  HMDB0030762
1898
                         Ethyl trans-p-methoxycinnamate
                                                                                                                                   528178
       HMDB0031729
                         Phenylmethylglycidic ester (2RS,5RS)-(E)-2-(2-Phenylethenyl)-1,3-dioxan-5-ol
                                                                                                                  HMDB0031729
1899
                                                                                                                                   6501
       HMDB0031973
                                                                                                                  HMDB0031973
1900
                                                                                                                                   131751
       HMDB0032348
                         Isoeugenyl acetate
                                                                                                                  HMDB0032348
1901
                                                                                                                                   876160
       HMDB0033594
                                                                                                                  HMDB0033594
1902
                         Cuelure
                                                                                                                                   19137
1903
       {\rm HMDB0034122}
                         Aceteugenol
                                                                                                                  HMDB0034122
                                                                                                                                   7136
       HMDB0034135
HMDB0035071
1904
                         Isoeugenol acetate
                                                                                                                  HMDB0034135
                                                                                                                                   171513
                                                                                                                  HMDB0035071
1905
                         Verimal I
                                                                                                                                   109326
1906
       HMDB0041410
                         2.3-Dihydro-6-methoxy-2.2-dimethyl-4H-1-benzopyran-4-one
                                                                                                                  HMDB0041410
                                                                                                                                   125316
       {\rm HMDB0127763}
1907
                                                                                                                                   NΑ
                                                                                                                  NA
       HMDB0132972
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1908
1909
       HMDB0132974
                         NΑ
                                                                                                                  NΑ
                                                                                                                                   NΑ
1910
       {\rm HMDB0132975}
                         NΑ
                                                                                                                  NA
                                                                                                                                   ΝΑ
1911
       HMDB0132976
                         NA
                                                                                                                  NA
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       HMDB0132977
                                                                                                                                   NΑ
1912
                         NA
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1913
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                                                                                                                                   NΑ
                                                                                                                  NA
1914
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                         NΑ
                                                                                                                  NΑ
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1915
       C04000
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1916
       C10476
                         NΑ
                                                                                                                  NΑ
                                                                                                                                   NA
1917
       C12458
                         NΑ
                                                                                                                  NA
                                                                                                                                   NA
                                                                                                                                   NΑ
1918
       C14567
                         NA
                                                                                                                  NA
                                                                                                                                   NΑ
1919
       CHEBI:16079
                         NΑ
                                                                                                                  NA
       CHEBI:259672
                                                                                                                                   NA
1920
                         NA
                                                                                                                  NA
1921
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                         NΑ
                                                                                                                  NA
                                                                                                                                   NA
1922
       CHEBI:86583
                                                                                                                                   NΑ
                                                                                                                  HMDB0013825
1923
       HMDB0013825
                         4-(1,1,3,3-\text{Tet ramet hylbutyl})-\text{phenol}
                                                                                                                                   8814
```

```
HMDB0031737
1924
       HMDB0031737
                         delta-Methylionone
                                                                                                                                    537219
1925
       HMDB0031738
                         3-Methyl-4-(2,6,6-trimethyl-2-cyclohexen-1-yl)-3-buten-2-one
                                                                                                                   HMDB0031738
                                                                                                                                    537217
       HMDB0032397
                         Methyl-delta-ionone
                                                                                                                   HMDB0032397
                                                                                                                                    546391
1926
1927
       {\rm HMDB0032528}
                                                                                                                   NA
                                                                                                                                    NΑ
                                                                                                                   HMDB0035245
1928
       {\rm HMDB0035245}
                         1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1-penten-3-one
                                                                                                                                    537108
       HMDB0035631
1929
                         alpha-Irone
                                                                                                                   HMDB0035631
                                                                                                                                    537100
                                                                                                                   HM DB0036023
1930
       HMDB0036023
                         Etaspirene
                                                                                                                                    222190
1931
       HMDB0036024
                         10-Isopropyl-2,7-dimethyl-1-oxaspiro[4.5]deca-3,6-diene
                                                                                                                   HMDB0036024
                                                                                                                                    202686
       HMDB0038130
1932
                         1-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-1-penten-3-one
                                                                                                                   HMDB0038130
                                                                                                                                    537521
1933
       HMDB0061831
                         (Z)-alpha-Irone
                                                                                                                   HMDB0061831
                                                                                                                                    643114
1934
       HMDB0133179
                         ΝÁ
                                                                                                                   NA
                                                                                                                                    NA
1935
       C09690
                         NΑ
                                                                                                                   NA
                                                                                                                                    ΝΑ
       C11350
                                                                                                                                    NΑ
1936
                         NA
                                                                                                                   NA
1937
       C14132
                         NΑ
                                                                                                                   NΑ
                                                                                                                                    NΑ
1938
       C14205
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                                                                                                                   NA
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       CHEBI:10284
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1939
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1940
       CHEBI:34432
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                                                                                                                                    NΑ
                                                                                                                   NA
       CHEBI:88618
CHEBI:88921
1941
                         NA
                                                                                                                   NA
                                                                                                                                    NA
1942
                         NΑ
                                                                                                                   NA
                                                                                                                                    NA
       HMDB0032797
                                                                                                                   HMDB0032797
1943
                         Jasmonic acid
                                                                                                                                    528116
       HMDB0032871
                                                                                                                   HMDB0032871
1944
                         Sedanonic acid
                                                                                                                                    123670
1945
       HMDB0033102
                         Dihydro-3-(2-octenyl)-2,5-furandione
                                                                                                                   HMDB0033102
                                                                                                                                    536268
1946
       HMDB0037104
                         (R)-8-Acetoxycarvotanacetone
                                                                                                                   HMDB0037104
                                                                                                                                    538920
                         1-Benzyloxy-1-(2-methoxyethoxy)ethane
4-(Butoxymethyl)-2-methoxyphenol
Isoamyl 2-furonpropionate
1947
       HMDB0037135
                                                                                                                   HMDB0037135
                                                                                                                                    222351
       HMDB0037642
                                                                                                                   HMDB0037642
1948
                                                                                                                                    508414
       HMDB0037735
                                                                                                                   HMDB0037735
                                                                                                                                    538506
1949
       HMDB0037816
                         Dihydro-3-(1-octenyl)-2,5-furandione
1950
                                                                                                                   HMDB0037816
                                                                                                                                    536272
       {\rm HMDB0041573}
                         3-Ethenyl-2,5-dimethyl-4-oxohex-5-en-2-yl acetate
                                                                                                                   HMDB0041573
1951
                                                                                                                                    216308
1952
       C08491
                                                                                                                   NA
                                                                                                                                    NA
1953
       C16317
                         NΑ
                                                                                                                   NA
                                                                                                                                    NA
1954
       CHEBI:18292
                         NΑ
                                                                                                                   NA
                                                                                                                                    NΑ
       CHEBI:18435
                                                                                                                                    NΑ
1955
                         NA
                                                                                                                   NA
       CHEBI:84246
1956
                                                                                                                                    NΑ
                         NΑ
                                                                                                                   NA
       HMDB0029707
                                                                                                                   HMDB0029707
1957
                         2-Amino-3,4-dimethylimidazo[4,5-f]quinoline
                                                                                                                                    62274
       C19254
1958
                                                                                                                   NA
                                                                                                                                    NΑ
       HMDB0031017
                                                                                                                   HMDB0031017
1959
                         10-Undecenyl acetate
                                                                                                                                    61035
1960
       HMDB0031028
                         Methyl (E)-2-dodecenoate
                                                                                                                   HMDB0031028
                                                                                                                                    637723
       HMDB0031741
                                                                                                                   HMDB0031741
                                                                                                                                    62240
1961
                         Coniferan
       HMDB0032792
                         (±)-(E)-3-Methyl-4-decen-1-yl acetate
                                                                                                                   HMDB0032792
1962
                                                                                                                                    101416
       HMDB0034286
                         Ethyl 10-undecenoate
                                                                                                                   HMDB0034286
1963
                                                                                                                                    12729
       HMDB0037187
                         Rhodinyl propionate
                                                                                                                   HMDB0037187
1964
                                                                                                                                    7781
1965
       {\rm HMDB0037226}
                         Citronelly I propionate
                                                                                                                   {
m HM\,DB0037226}
                                                                                                                                    8834
1966
       HMDB0037626
                         1-Ethylhexyl tiglate
                                                                                                                   HMDB0037626
                                                                                                                                    131752
       HMDB0037907
                         2,6,10,10\text{-Tetramethy l-1-oxaspiro} [4.5] \\ \text{decan-6-ol}
1967
                                                                                                                   HMDB0037907
                                                                                                                                    65428
                                                                                                                   HMDB0038078
1968
       HMDB0038078
                         1,1-Diethoxy-2,6-nonadiene
                                                                                                                                    208387
1969
       HMDB0039805
                         4-(3-Hydroxybutyl)-3,3,5-trimethylcyclohexanone
                                                                                                                   HMDB0039805
                                                                                                                                    131752
       {\rm HMDB0040451}
                                                                                                                   HMDB0040451
1970
                         Oxacy clotet rade can-2-one
                                                                                                                                    15596
1971
       C18206
                                                                                                                   NA
                                                                                                                                    NA
       CHEBI:87153
1972
                         NΑ
                                                                                                                   NA
                                                                                                                                    NA
       HMDB0000682
                                                                                                                   HMDB0000682
1973
                         Indoxyl sulfate
                                                                                                                                    10258
       HMDB0003309
1974
                         NA
                                                                                                                   NA
                                                                                                                                    NA
1975
       CHEBI:43355
                         NΑ
                                                                                                                   NA
                                                                                                                                    NΑ
1976
       HMDB0030984
                         5-Hexyltetrahydro-2-oxo-3-furancarboxylic acid
                                                                                                                   HMDB0030984
                                                                                                                                    103759
1977
       HMDB0030985
                         alpha-Carboxy-delta-decalactone
                                                                                                                   HMDB0030985
                                                                                                                                    131751
1978
       HMDB0030986
                         2-Carboxy-5,7-dimethyl-4-octanolide
                                                                                                                   HMDB0030986
                                                                                                                                    131751
       HMDB0010727
                                                                                                                   HMDB0010727
1979
                         3-Oxododecanoic acid
                                                                                                                                    439717
       HMDB0037398
1980
                         4-Acetoxy-2-hexyltetrahydrofuran
                                                                                                                   HMDB0037398
                                                                                                                                    61457
1981
       C02367
                         NΑ
                                                                                                                   NA
                                                                                                                                    NA
       CHEBI:18037
                                                                                                                                    NΑ
1982
                         NA
                                                                                                                  NA
1983
       CHEBI:78977
                                                                                                                   NA
                                                                                                                                    NA
1984
       CHEBI:79164
                         NΑ
                                                                                                                   NA
                                                                                                                                    NA
       HMDB0000910
                                                                                                                   HMDB0000910
1985
                         Tridecanoic acid
                                                                                                                                    12530
       HMDB0029552
                                                                                                                   HMDB0029552
1986
                         Ethyl undecanoate
                                                                                                                                    12327
       HMDB0031018
                         Methyl dodecanoate
                                                                                                                   HMDB0031018
                                                                                                                                    8139
1987
       HMDB0032211
                                                                                                                   HMDB0032211
1988
                         Decanal propyleneglycol acetal
                                                                                                                                    95397
       HMDB0034140
                         Octyl 3-methylbutanoate
                                                                                                                   HMDB0034140
                                                                                                                                    228769
1989
1990
       {\rm HMDB0036217}
                         Pentyl octanoate
                                                                                                                   HMDB0036217
                                                                                                                                    61185
       {\rm HMDB0036219}
1991
                         Octyl 2-methylbutyrate
                                                                                                                   {
m HM\,DB0036219}
                                                                                                                                    520455
       HMDB0037311
                                                                                                                   HMDB0037311
1992
                         Decyl propionate
                                                                                                                                    229385
       HMDB0038729
                         3-Methylbutyl octanoate
                                                                                                                   HMDB0038729
1993
                                                                                                                                    16255
       {\rm HMDB0059900}
                                                                                                                   HMDB0059900
1994
                         Propyl decanoate
                                                                                                                                    121739
       HMDB0061828
                         9-Methyldodecanoic acid
                                                                                                                   HMDB0061828
1995
                                                                                                                                    528264
       {\rm HMDB0061829}
                         Isopropyl dodecanoic acid
                                                                                                                   HMDB0061829
                                                                                                                                    16833
1996
1997
       C04780
                                                                                                                                    NΑ
                                                                                                                   NA
1998
       C16640
                         NA
                                                                                                                   NA
                                                                                                                                    NA
       C17076
1999
                         NA
                                                                                                                   NA
                                                                                                                                    NΑ
2000
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2001
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                                                                                                                                    NΑ
                         NA
2002
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                                                                                                                   NA
2003
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                                                                                                                   NΑ
                                                                                                                                    NA
2004
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                                                                                                                   NA
                                                                                                                                    NA
       CHEBI:86973
                                                                                                                                    NΑ
2005
                         NA
                                                                                                                   NA
2006
       CHEBI:87386
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                                                                                                                                    NA
                                                                                                                   NA
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2007
                         NA
                                                                                                                   NA
                                                                                                                                    NA
2008
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2009
       {\rm HMDB0012204}
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                                                                                                                                    449093
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2010
       C00371
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                                                                                                                                    NA
                                                                                                                   NA
```

```
2011
       C15545
                         NA
                                                                                                                  NA
                                                                                                                                   NA
       CHEBI:15333
                                                                                                                  NA
                                                                                                                                   NΑ
2012
                         NΑ
2013
       CHEBI:16522
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                                                                                                                  NA
                                                                                                                                    NA
2014
       \mathbf{CHEBI:} \mathbf{46570}
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                                                                                                                  NA
2015
       HMDB0041942
                         N-Acety l-S-(N-methylcarbamoyl)cysteine
                                                                                                                  HMDB0041942
                                                                                                                                   108218
       C11490
CHEBI:77702
2016
                         NA
                                                                                                                  NA
                                                                                                                                   NA
2017
                                                                                                                                   NA
                         NA
                                                                                                                  NA
2018
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2019
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2020
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2021
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2022
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                                                                                                                  NA
                                                                                                                                   NA
       CHEBI:62111
2023
                         NA
                                                                                                                  NA
                                                                                                                                   NA
       CHEBI:87248
2024
                         NA
                                                                                                                  NA
                                                                                                                                    NΑ
2025
       HMDB0002056
                         Monoisobutyl phthalic acid
                                                                                                                  HMDB0002056
                                                                                                                                   92272
       HMDB0013247
                                                                                                                  HMDB0013247
2026
                         Monobutylpht halat e
                                                                                                                                   8575
2027
       HMDB0029226
                         5'-(3'-Met hoxy-4'-hydroxyphenyl)-gamma-valerolactone
                                                                                                                  HMDB0029226
                                                                                                                                   30284
                         Isodillapiole
2028
       HMDB0029470
                                                                                                                  HMDB0029470
                                                                                                                                   114359
       HMDB0030725
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2029
                         Dillapiol
                                                                                                                                   10231
       HMDB0031668
                         Dihydrodeoxy-8-epiaustdiol
                                                                                                                  HMDB0031668
2030
                                                                                                                                    765513
       HMDB0033776
                                                                                                                  HMDB0033776
2031
                         Apiole
                                                                                                                                    10659
2032
       HMDB0034056
                         5-(3,4-Methylenedioxyphenyl)pentanoic acid
                                                                                                                  HMDB0034056
                                                                                                                                    532185
2033
       HMDB0037130
                         Piperonyl isobutyrate
                                                                                                                  HMDB0037130
                                                                                                                                   62580
2034
       HMDB0037681
                         Vanillin isobutvrate
                                                                                                                  HMDB0037681
                                                                                                                                   539829
                         (Z)-3-(2,4,5-Trimethoxyphenyl)-2-propenal
2,3-Dihydro-3-hydroxy-6-methoxy-2,2-dimethyl-4H-1-benzopyran-4-one
       HMDB0038563
                                                                                                                  HMDB0038563
2035
                                                                                                                                   469067
       HMDB0041379
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2036
                                                                                                                                   728008
       HMDB0094660
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2037
                         Diethyl phthalic acid
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       HMDB0127824
2038
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                                                                                                                                   NA
2039
       HMDB0131283
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2040
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2041
       HMDB0131285
                         NA
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                                                                                                                                   NΑ
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2042
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2043
       {\rm HMDB0135900}
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                         NΑ
                                                                                                                  NA
       HMDB0135904
2044
                         NA
                                                                                                                  NA
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       HMDB0135906
                                                                                                                                    NΑ
2045
                                                                                                                  NA
2046
       C10429
                         NΑ
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2047
       C10449
                         NΑ
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                                                                                                                                   NA
2048
       C14175
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                                                                                                                  NA
                                                                                                                                   NA
       C19228
                                                                                                                                    NΑ
2049
                         NA
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                                                                                                                                    NΑ
2050
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2051
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2052
       {\rm CHEBI:} 34698
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2053
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                                                                                                                  NΑ
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NA
2054
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2055
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2056
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                         NA
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                                                                                                                                    NA
       CHEBI:86899
2057
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                                                                                                                  NΑ
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2058
       CHEBI:90038
                         NΑ
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2059
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                         Goshuyic acid
                                                                                                                                   531240
       HMDB0030426
                                                                                                                  HMDB0030426
2060
                         Linaly l isobutyrate
                                                                                                                                   6532
       HMDB0030427
                                                                                                                  HMDB0030427
                         Linalvl butyrate
                                                                                                                                   62321
2061
                         Ethyl (2E,6Z)-dodecadienoate
2062
       HMDB0031015
                                                                                                                  HMDB0031015
                                                                                                                                   643820
2063
       HMDB0032053
                         alpha-Terpineol butanoate
                                                                                                                  HMDB0032053
                                                                                                                                   578423
       {\rm HMDB0032342}
                         Isobornyl isobutyrate
                                                                                                                  HMDB0032342
                                                                                                                                   112645
2064
2065
       HMDB0032524
                         Terpinyl isobutyrate
                                                                                                                  {
m HM\,DB0032524}
                                                                                                                                   522673
       HMDB0036424
                         Allyl undecylenate
2066
                                                                                                                  HMDB0036424
                                                                                                                                   61412
       HMDB0037814
                                                                                                                  HMDB0037814
2067
                         2-Propenyl cyclohexanepentanoate
                                                                                                                                   61407
       HMDB0038246
                                                                                                                  HMDB0038246
                                                                                                                                   97897
2068
                         Bornyl butyrate
       HMDB0038259
                         Neryl butyrate
                                                                                                                   HMDB0038259
2069
                                                                                                                                   535216
2070
       HMDB0038260
                         Geranyl 2-methylpropanoate
                                                                                                                  HMDB0038260
                                                                                                                                    536599
2071
       HMDB0039129
                         NA
                                                                                                                  NA
                                                                                                                                   NA
       CHEBI:70719
2072
                         NA
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                                                                                                                                   NA
       CHEBI:72000
2073
                         NΑ
                                                                                                                  NA
                                                                                                                                   NA
       HMDB0000499
                         5-Tetradecenoic acid
                                                                                                                  HMDB0000499
                                                                                                                                   528274
2074
       HMDB0000521
                         5Z-Tetradecenoic acid
                                                                                                                  HMDB0000521
2075
                                                                                                                                   531240
       HMDB0002000
                         Myristoleic acid
                                                                                                                  HMDB0002000
2076
                                                                                                                                   528111
2077
       {\rm HMDB0005051}
                         Tsuzuic acid
                                                                                                                  HMDB0005051
                                                                                                                                   531239
                         trans-Tetra-dec-2-enoic acid
2078
       HMDB0010732
                                                                                                                  {\rm HM\,DB0010732}
                                                                                                                                   528273
       HMDB0030921
                         (R)\text{-}14\text{-}M\,et\,hy\,lox\,acy\,clotetradec\,an-2-on\,e
                                                                                                                  HMDB0030921
2079
                                                                                                                                   543405
       HMDB0031029
                         Ethyl (E)-2-dodecenoate
                                                                                                                  HMDB0031029
                                                                                                                                    112875
2080
       HMDB0031073
                         12-Methyl-13-tridecanolide
                                                                                                                  HMDB0031073
2081
                                                                                                                                   534607
       HMDB0032152
                         Acetaldehyde di-cis-3-hexenyl acetal
                                                                                                                  HMDB0032152
2082
                                                                                                                                    536776
       HMDB0032321
                         2-Hexenyl octanoate
                                                                                                                  HMDB0032321
                                                                                                                                   536513
2083
       HMDB0034561
HMDB0037188
2084
                         Houttuynin
                                                                                                                  HMDB0034561
                                                                                                                                    144433
                         Rhodinyl butyrate
2085
                                                                                                                  HMDB0037188
                                                                                                                                   61093
       HMDB0037189
                         Rhodinyl isobutyrate
                                                                                                                  HMDB0037189
2086
                                                                                                                                   61085
2087
       HMDB0037227
                         Citronellyl butyrate
                                                                                                                  HMDB0037227
                                                                                                                                   8835
2088
       HMDB0037228
                         Citronelly lisobutyrate
                                                                                                                  HMDB0037228
                                                                                                                                   60985
2089
       HMDB0037369
                         Butyl 2-decenoate
                                                                                                                  HMDB0037369
                                                                                                                                   546390
                         xi-Tetrahy dro-3-nony l-2H-pyran-2-one
2090
       {\rm HMDB0037633}
                                                                                                                  HMDB0037633
                                                                                                                                   684594
       HMDB0038056
                                                                                                                  HMDB0038056
2091
                         delta-Tetradecalactone
                                                                                                                                   520296
       HMDB0040228
                         1,1-Diethoxy-3,7-dimethyl-2,6-octadiene
                                                                                                                  HMDB0040228
                                                                                                                                   577203
2092
                                                                                                                  HMDB0062243
2093
       HMDB0062243
                         7Z-tetradecenoic acid
                                                                                                                                   531240
       HMDB0062248
                                                                                                                  HMDB0062248
2094
                         9E-tetradecenoic acid
                                                                                                                                    531240
2095
       HMDB0094671
                         Heptyl cyclohexane carboxylic acid
                                                                                                                  HMDB0094671
                                                                                                                                    229794
2096
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       CHEBI:131381
2097
                         NA
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2098
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2099
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2100
2101
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2102
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2103
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2104
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2105
       CHEBI:61367
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2106
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2107
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                                                                                                                      NA
2108
       \mathbf{CHEBI:87152}
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                                                                                                                                        NA
2109
       CHEBI:87291
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                                                                                                                      NΑ
                                                                                                                                        NA
                          11-Hydroxy-9-tridecenoic acid
                                                                                                                      HMDB0035881
       HMDB0035881
                                                                                                                                        531836
2110
2111
       HMDB0036139
                          Menthone 1,2-glyceryl ketal
                                                                                                                      HMDB0036139
                                                                                                                                        162184
2112
       HMDB0037212
                          Menthyl lactate
                                                                                                                      HMDB0037212
                                                                                                                                        62151
       {\rm HMDB0040004}
                                                                                                                      HMDB0040004
2113
                          Menthone 1,3-glyceryl ketal
                                                                                                                                        106791
2114
       CHEBI:78979
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                                                                                                                                        NA
                                                                                                                      ^{\rm NA}_{\rm HM\,DB0000806}
2115
       CHEBI:79165
                          NA
                                                                                                                                        NΑ
       HMDB0000806
                          Myristic acid
                                                                                                                                        11005
2116
       HMDB0002221
                          2,6,10-Trimethylundecanoic acid
                                                                                                                      HMDB0002221
                                                                                                                                        304776
2117
                          12-Methyltridecanoic acid
                                                                                                                      HMDB0031072
2118
       HMDB0031072
                                                                                                                                        520298
2119
       HMDB0032318
                          Hexanal octane-1,3-diol acetal
                                                                                                                      HMDB0032318
                                                                                                                                        526993
2120
       HMDB0032548
                          Undecanal propyleneglycol acetal
                                                                                                                      HMDB0032548
                                                                                                                                        229153
2121
       HMDB0033788
                          Ethyl dodecanoate
                                                                                                                      HMDB0033788
                                                                                                                                        7800
                          Heptyl heptanoate
Hexyl octanoate
       HMDB0034461
                                                                                                                      HMDB0034461
2122
                                                                                                                                        69350
       HMDB0036216
                                                                                                                      HM DB0036216
2123
                                                                                                                                        14228
       HMDB0037312
                                                                                                                      HMDB0037312
2124
                          Decyl butanoate
                                                                                                                                        229387
       {\rm HMDB0037495}
                                                                                                                      HMDB0037495
2125
                          3-Methylbutyl nonanoate
                                                                                                                                        522676
2126
       HMDB0038034
                          Nonyl isovalerate
                                                                                                                      HMDB0038034
                                                                                                                                        546391
2127
       {\rm HMDB0038969}
                          Dodecyl acetate
                                                                                                                      {
m HM\,DB0038969}
                                                                                                                                        8205
       HMDB0059865
2128
                          Isobutyl decanoate
                                                                                                                      HMDB0059865
                                                                                                                                        121738
       HMDB0061781
                                                                                                                      HMDB0061781
                          10-Methyltridecanoic acid
2129
                                                                                                                                        222518
       C06424
                                                                                                                                        NA
2130
                          NΑ
                                                                                                                      NA
2131
       C13798
                          NΑ
                                                                                                                      NA
                                                                                                                                        NA
       CHEBI:23580
                                                                                                                      NA
                                                                                                                                        NΑ
2132
2133
       CHEBI:28875
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2134
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2135
       CHEBI:43722
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2136
       CHEBI:542954
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                                                                                                                                        NΑ
2137
       CHEBI:87427
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       CHEBI:87490
                                                                                                                                        NA
2138
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2139
       {\rm CHEBI:}87570
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                                                                                                                                        NA
2140
       CHEBI:90062
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                                                                                                                                        NA
                          Thymol Sulfate
                                                                                                                      HMDB0062720
2141
       HMDB0062720
                                                                                                                                        124563
2142
       HMDB0133674
                          NA
                                                                                                                                        NA
                                                                                                                      NA
2143
       CHEBI:82911
                          NA
                                                                                                                      NA
                                                                                                                                        NA
       HMDB0002335
                                                                                                                      HMDB0002335
2144
                          Asparty l-L-proline
                                                                                                                                        170612
2145
       {\rm HMDB0028761}
                          Asparty l-Proline
                                                                                                                      HMDB0028761
                                                                                                                                        146476
2146
       {\rm HMDB0029013}
                          Prolyl-Aspartate
                                                                                                                      HMDB0029013
                                                                                                                                        383887
                          (1R, 2S, 3\hat{R}) - 2 - Acetyl - 4(5) - (1, 2, 3, 4 - tetrahydroxybutyl) imidazole
       HMDB0029756
2147
                                                                                                                      HMDB0029756
                                                                                                                                        180624
       HMDB0021701
                          1-(gamma-Glutamylamino) cyclopropanecarboxylic acid (2S,3'S)-alpha-Amino-2-carboxy-5-oxo-1-pyrrolidinebutanoic acid
                                                                                                                      HMDB0031701
2148
                                                                                                                                        131751
       HMDB0039110
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                                                                                                                                        141011
2149
2150
       CHEBI:18317
                                                                                                                      NA
                                                                                                                                        NA
       CHEBI:41988
                          NΑ
                                                                                                                      NA
                                                                                                                                        NA
2151
2152
       CHEBI:74756
                                                                                                                                        NΑ
                          3\hbox{-}[[5\hbox{-}M\,ethy\,l\hbox{-}2\hbox{-}(1\hbox{-}methy\,lethy\,l)\,cy\,cloh\,ex\,y\,l]\,oxy]\hbox{-}1\,,2\hbox{-}prop\,ane\,diol
                                                                                                                      HMDB0036133
                                                                                                                                        536259
2153
       HMDB0036133
       HMDB0061655
                                                                                                                      HMDB0061655
2154
                          3-hydroxytridecanoic acid
                                                                                                                                        531274
       CHEBI:78980
                          NA
2155
                                                                                                                      NA
                                                                                                                                        NA
       CHEBI:79166
                          ΝA
                                                                                                                      NA
                                                                                                                                        ΝA
2156
2157
       CHEBI:84852
                                                                                                                                        NΑ
2158
       HMDB0030582
                          Dillapional
                                                                                                                      HMDB0030582
                                                                                                                                        924758
                                                                                                                      HMDB0030858
2159
       HMDB0030858
                          Austdiol
                                                                                                                                        352023
       HMDB0033096
                                                                                                                      HMDB0033096
2160
                          Apional
                                                                                                                                        994277
       HMDB0040407
                                                                                                                      HMDB0040407
2161
                          (S)-2.3-Dihydro-7-hydroxy-2-methyl-4-oxo-4H-1-benzopyran-5-acetic acid
                                                                                                                                        591742
       HMDB0128676
2162
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                                                                                                                      NA
                                                                                                                                        ΝA
       {\rm HMDB0137293}
2163
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2164
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2165
       C09958
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                                                                                                                      NA
                                                                                                                                        NA
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2166
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2167
       CHEBI:67369
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2168
       CHEBI:71303
                          NA
                                                                                                                      NA
                                                                                                                                        NA
       CHEBI:86582
2169
2170
       HMDB0030254
                          3-(3,4,5-Trimethoxyphenyl)propanoic acid
                                                                                                                      HMDB0030254
                                                                                                                                        64860
2171
       HMDB0038627
                          Ethyl 3,4,5-trimethoxybenzoate
                                                                                                                      HMDB0038627
                                                                                                                                        231162
                          Isopropy 1\ 3\hbox{-}(3,4\hbox{-}dihydroxyphenyl)\hbox{-}2\hbox{-}hydroxypropano ate}
       HMDB0041756
2172
                                                                                                                      HMDB0041756
                                                                                                                                        442345
       HMDB0061112
2173
                          3-Carboxy-4-methyl-5-propyl-2-furanpropionic acid
                                                                                                                      HMDB0061112
                                                                                                                                        123979
       HMDB0062776
                          NΑ
2174
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                                                                                                                      NA
2175
       HMDB0125802
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                                                                                                                                        ΝA
2176
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                                                                                                                                        NA
2177
       {\rm HMDB0127748}
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                                                                                                                                        NA
       HMDB0127826
2178
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                                                                                                                      NA
                                                                                                                                        NA
       HMDB0128672
                                                                                                                                        NΑ
2179
                          NA
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       {\rm HMDB0128705}
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2180
                          NΑ
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       HMDB0128721
2181
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                                                                                                                                        NΑ
2182
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                                                                                                                                        NΑ
2183
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                                                                                                                                        NΑ
2184
       CHEBI:583580
                          NA
                                                                                                                      NA
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2185	CHEBI:87585	NA	NA	NA
2186	HMDB0029765	9-Pentadecenoic acid	${\rm HMDB0029765}$	636514
2187	HMDB0032347	Isobutyl 10-undecenoate	${ m HMDB0032347}$	79457
2188	${ m HMDB0034455}$	Exaltolide	${ m HMDB0034455}$	235414
2189	HMDB0036426	Butyl undecylenate	HMDB0036426	61027
2190	HMDB0037190	Rhodinyl isovalerate	HMDB0037190	162045
2191	HMDB0037211	Menthyl isovalerate	HMDB0037211	119900
2192	HMDB0037229	Citronelly I pentanoate	HMDB0037229	61416
2193	HMDB0038954	Citronelly 1 isovalerate	HMDB0038954 HMDB0039715	111440
$\frac{2194}{2195}$	HMDB0039715 HMDB0040997	Auberganol 15,5-Farnesanolide	HMDB0039713 HMDB0040997	851579 131753
$\frac{2195}{2196}$	C17676	NA	NA	NA
$\frac{2190}{2197}$	CHEBI:75087	NA NA	NA	NA
2198	CHEBI:75089	NA	NA	NA
2199	CHEBI:75090	NA NA	NA	NA
2200	CHEBI:78992	NA	NA	NA
2201	CHEBI:79000	NA	NA	NA
2202	CHEBI:87148	NA	NA	NA
2203	CHEBI:87151	NA	NA	NA
2204	CHEBI:87377	NA	NA	NA
2205	HMDB0000826	Pentadecanoic acid	HMDB0000826	13849
2206	HMDB0030469	Methyl tetradecanoate	HMDB0030469	31284
2207	HMDB0032250	Dodecyl propionate	HMDB0032250	80354
$\frac{2208}{2209}$	HMDB0032328 HMDB0036218	Hexyl nonanoate Heptyl octanoate	HMDB0032328 HMDB0036218	$81045 \\ 61342$
$\frac{2209}{2210}$	HMDB0036218	Octyl heptanoate	HM DB0036218	521326
$\frac{2210}{2211}$	HMDB0030220	Pentyl decanoate	HM DB0030220	521320 550768
2212	HMDB0031900	3-Methylbutyl decanoate	HM DB0037300	75320
2213	HMDB0030307	7(14)-Farnesene-9,12-diol	HM DB0030307	131753
2214	HMDB0041588	2,6,10-Trimethyldodecanoic acid	HMDB0041588	157651
2215	${\rm HMDB0059820}$	Isopropyl_laurate	${\rm HMDB0059820}$	25068
2216	${\rm HMDB0059833}$	Ethyl tridecanoate	${ m HMDB0059833}$	119908
2217	${\rm HMDB0061707}$	13-Methylmyristic acid	${ m HMDB0061707}$	151014
2218	C16537	NA	NA	NA
2219	C16665	NA	NA	NA
2220	CHEBI:32361	NA NA	NA	NA
2221	CHEBI:39250	NA NA	NA	NA
2222	CHEBI:39251	NA NA	NA	NA
$\frac{2223}{2224}$	CHEBI:42504 CHEBI:447965	NA NA	NA NA	NA NA
$\frac{2224}{2225}$	CHEBI:87330	NA NA	NA NA	NA NA
$\frac{2225}{2226}$	HMDB0124975	NA NA	NA	NA NA
$\frac{2220}{2227}$	HMDB0125166	NA	NA	NA
2228	HMDB0127985	NA	NA	NA
2229	HMDB0128093	NA NA	NA	NA
2230	HMDB0134054	NA	NA	NA
2231	HMDB0028866	Hydroxyprolyl-Isoleucine	${\rm HMDB0028866}$	611573
2232	${\rm HMDB0028867}$	Hydroxyprolyl-Leucine	${ m HMDB0028867}$	217775
2233	HMDB0028908	Isoleucylhydroxyproline	${ m HMDB0028908}$	611588
2234	HMDB0028930	Leucy lhy droxy proline	HMDB0028930	208478
2235	HMDB0002261	2-Hydroxymyristic acid	HMDB0002261	1563
2236	HMDB0010731	(R)-3-Hydroxy-tetradecanoic acid	HMDB0010731	528826
2237	HMDB0032417	3-(L-Menthoxy)-2-methylpropane-1,2-diol	HMDB0032417	167348
$\frac{2238}{2239}$	HMDB0059850 HMDB0061656	Ethyl 3-hydroxydodecanoate	HMDB0059850	575843 531286
$\frac{2239}{2240}$	C13790	3-Hydroxytetradecanoic acid NA	HMDB0061656 NA	NA
2241	CHEBI:37374	NA NA	NA	NA
2242	CHEBI:42539	NA	NA	NA
2243	CHEBI:59270	NA	NA	NA
2244	CHEBI:77168	NA	NA	NA
2245	CHEBI:78989	NA	NA	NA
2246	CHEBI:85148	NA	NA	NA
2247	CHEBI:85934	NA NA	NA	NA
2248	CHEBI:85937	NA	NA	NA
2249	HMDB0000413	3-Hydroxydodecanedioic acid	HMDB0000413	166633
2250	HMDB0031696	Dibutyl malate	HMDB0031696	95385 N A
$\frac{2251}{2252}$	CHEBI:78812 HMDB0028829	NA Glutamylthreonine	NA HMDB0028829	NA 600803
$\begin{array}{c} 2252 \\ 2253 \end{array}$	HMDB0028829 HMDB0029159	gamma-Glutamylthreonine	HM DB0028829 HM DB0029159	699803 538611
$\begin{array}{c} 2253 \\ 2254 \end{array}$	CHEBI:133747	gamma-Giutamyithreonine NA	NA	538611 NA
$\frac{2254}{2255}$	CHEBI:73510	NA NA	NA NA	NA NA
$\frac{2256}{2256}$	CHEBI:74857	NA NA	NA	NA
2257	CHEBI:82968	NA	NA	NA
2258	${\rm HMDB0035293}$	Norambreinolide	${\rm HMDB0035293}$	61129
2259	HMDB0037631	3-Methyl-alpha-ionyl acetate	${\rm HMDB0037631}$	643746
2260	${\rm HMDB0037712}$	$[2,2 ext{-} ext{Bis}(2 ext{-} ext{met} ext{hylpropoxy}) ext{ethyl}] ext{benzene}$	${\rm HMDB0037712}$	71544
2261	C16503	NA	NA	NA
2262	CHEBI:22340	NA NA	NA	NA
2263	CHEBI:80535	NA	NA	NA
2264	HMDB0030668	1-(2,4,6-Trimethoxyphenyl)-1,3-butanedione	HMDB0030668	531727
2265	HMDB0038551	Methyl 3,4,5-trimethoxycinnamate	HMDB0038551	735846
$\frac{2266}{2267}$	HMDB0125460	NA NA	NA NA	N A
$\frac{2267}{2268}$	HMDB0137142 C18541	NA NA	NA NA	NA NA
$\frac{2268}{2269}$	C18541 C20207	NA NA	NA NA	NA NA
$\frac{2209}{2270}$	CHEBI:69472	NA NA	NA NA	NA NA
2271	CHEBI:70192	NA	NA	NA

2272	CHEBI:81817	NA	NA	NA
2273	CHEBI:86898	NA	NA HMDB0000477	NA
$\frac{2274}{2275}$	HMDB0000477 HMDB0029351	7Z,10Z-Hexadecadienoic acid Geranyl hexanoate	HMDB0000477 HMDB0029351	$\begin{array}{c} 139321 \\ 125713 \end{array}$
$\frac{2275}{2276}$	HMDB0029351 HMDB0030429	Geranyl hexanoate Linalyl hexanoate	HMDB0029351 HMDB0030429	125713 564550
$\frac{2276}{2277}$	HMDB0030429 HMDB0031086	(Z)-7-Hexadecen-1,16-olide	HMDB0030429 HMDB0031086	536570
2278	${\rm HMDB0032340}$	İsoambrettolide	${\rm HMDB0032340}$	535529
2279	${\rm HMDB0037805}$	D6-Ambrettolide	${\rm HMDB0037805}$	586960
2280	HMDB0038255	Geranyl 2-ethylbutyrate	HMDB0038255	924758
2281	HMDB0039131	Ethyl (Z,Z) -5,8-tetradecadienoate	HMDB0039131	131752 N.A
$\frac{2282}{2283}$	C16795 CHEBL:61671	NA NA	NA NA	N A N A
$\frac{2283}{2284}$	CHEBI:61671 CHEBI:61675	NA NA	NA NA	NA NA
$\frac{2284}{2285}$	CHEBI:77522	NA NA	NA NA	N A N A
$\frac{2286}{2286}$	CHEBI:86142	NA NA	NA	NA
2287	CHEBI:86147	NA	NA	NA
2288	${\rm HMDB0029604}$	Lubiminol	${\rm HMDB0029604}$	744277
2289	HMDB0035780	8-Hydroxy-4(6)-lactarene-5,14-diol	HMDB0035780	141098
$\frac{2290}{2291}$	HMDB0036053	(3beta,9beta)-7-Drimene-3,11,12-triol	HMDB0036053	144330
$\frac{2291}{2292}$	HMDB0036866 HMDB0037197	7-Drimene-11,12,14-triol Kessyl glycol	HMDB0036866 HMDB0037197	$\frac{144330}{123048}$
$\frac{2292}{2293}$	HMDB0037197 HMDB0040276	5-Acetoxydihydrotheaespirane	HMDB0037197 HMDB0040276	93838
$\frac{2293}{2294}$	C17603	NA	NA	NA
2295	C17606	NA	NA	NA
2296	C17608	NA NA	NA	NA
2297	C17610	NA NA	NA NA	N A
$\frac{2298}{2299}$	C18538 CHEBL:67346	NA NΔ	NA NA	NA NA
$\frac{2299}{2300}$	CHEBI:67346 HMDB0002186	NA Hypogeic acid	NA HMDB0002186	N A 531839
$\frac{2300}{2301}$	HMDB0002186 HMDB0003229	Hypogeic acid Palmitoleic acid	HMDB0002186 HMDB0003229	531839 445638
$\frac{2301}{2302}$	HMDB0003229 HMDB0010735	Trans-Hexa-dec-2-enoic acid	HMDB0003229 HMDB0010735	528274
2303	${\rm HMDB0012328}$	Palmitelaidic acid	${\rm HMDB0012328}$	528274
2304	HMDB0031053	(E)-6-Hexadecenoic acid	HMDB0031053	528274
2305	HMDB0031145	5-Dodecyldihydro-2(3H)-furanone	HMDB0031145	97747
$\frac{2306}{2307}$	HMDB0031711	15-Hexadecanolide	HMDB0031711	543385
$\frac{2307}{2308}$	HMDB0032638 HMDB0033791	(Z)-5-Hexadecenoic acid (E)-3-Hexadecenoic acid	HMDB0032638 HMDB0033791	$131053 \\ 535537$
$\frac{2308}{2309}$	HMDB0033791 HMDB0035877	(E)-3-Hexadecenoic acid (Z)-13-Hexadecenoic acid	HMDB0033791 HMDB0035877	535537 531241
$\frac{2309}{2310}$	HMDB0033647	(E)-11-Hexadecenic acid	HMDB0033877	531241 531241
2311	HMDB0038958	Citronelly l hexanoate	${\rm HMDB0038958}$	114416
2312	${\rm HMDB0041422}$	(Z) -14-Met hyl-6-pentadecenoic acid	${\rm HMDB0041422}$	875089
2313	HMDB0060082	NA NA	NA	NA
2314	C08362	NA NA	NA NA	N A
$\frac{2315}{2316}$	CHEBI:28716 CHEBI:35464	NA NA	NA NA	NA NA
$\frac{2316}{2317}$	CHEBI:35464 CHEBI:35465	NA NA	NA NA	N A N A
2318	CHEBI:37252	NA NA	NA NA	NA NA
2319	CHEBI:59265	NA	NA	NA
2320	CHEBI:72004	NA	NA	NA
2321	CHEBI:76244	NA	NA	NA
2322	CHEBI:86140	NA NA	NA NA	NA NA
$\frac{2323}{2324}$	CHEBI:87146 HMDB0030993	NA 5-Nonyltetrahydro-2-oxo-3-furancarboxylic acid	NA HMDB0030993	NA 131751
$2324 \\ 2325$	HMDB0030993 HMDB0036143	5-NonyItetrahydro-2-oxo-3-furancarboxylic acid Monomenthyl succinate	HMDB0030993 HMDB0036143	$\frac{131751}{101990}$
$\frac{2325}{2326}$	CHEBI:76281	NA	NA	101990 NA
2327	HMDB0000592	Glucosamine 6-sulfate	HMDB0000592	72361
2328	HMDB0001481	N-Sulfo-D-glucosamine	${\rm HMDB0001481}$	439388
2329	C01075	NA	NA	NA
2330	C04132	NA NA	NA	N A
2331	CHEBI:16702	NA NA	NA NA	NA NA
$2332 \\ 2333$	CHEBI:743540 CHEBI:84776	NA NA	NA NA	NA NA
$\frac{2333}{2334}$	HMDB0032857	NA Glycerol tripropanoate	NA HMDB0032857	N A 8763
$\frac{2334}{2335}$	CHEBI:88153	NA	NA	N A
2336	${\rm HMDB0011170}$	gamma-Glutamylisoleucine	HMDB0011170	228850
2337	HMDB0011171	gamma-Glutamy lleucine	${\rm HMDB0011171}$	151023
2338	HMDB0028822	Glutamylisoleucine	HMDB0028822	981385
2339	HMDB0028823	Glutamylleucine	HMDB0028823	985650 N A
$\frac{2340}{2341}$	HMDB0029152 HMDB0029153	NA NA	NA NA	N A N A
$2341 \\ 2342$	HMDB0029153 CHEBI:68433	NA NA	NA NA	NA NA
$\frac{2342}{2343}$	CHEBI:68433 CHEBI:68434	NA NA	NA NA	N A N A
$\frac{2343}{2344}$	CHEBI:73506	NA NA	NA	NA NA
2345	CHEBI:74531	NA	NA	NA
2346	${\rm HMDB0030327}$	Perlolyrine	${\rm HMDB0030327}$	160179
2347	C09231	NA NA	NA	NA
2348	C20280	NA NA	NA NA	NA NA
2349 2350	C20281 CHEBI:610215	NA NA	NA NA	NA NA
$2350 \\ 2351$	CHEBI:610215 HMDB0030997	NA Cyclohexaneundecanoic acid	NA HMDB0030997	N A 192796
$\frac{2351}{2352}$	HMDB0030997 HMDB0031046	9E-Heptadecenoic acid	HMDB0030997 HMDB0031046	531244
$\frac{2352}{2353}$	HMDB0031040	2,4-Heptadecanedione	HMDB0031040	116363
2354	${\rm HMDB0060038}$	10Z-Heptadecenoic acid	${\rm HMDB0060038}$	531243
2355	HMDB0061858	7-Hexadecenoic acid, methyl ester	${\rm HMDB0061858}$	140298
2356	HMDB0062437	9Z-Heptadecenoic acid	HMDB0062437	528274
$\frac{2357}{2358}$	C12100 C16536	NA NA	NA NA	N A N A
2556	C10550	NA	NA	NΑ

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CHEBI:75094
2359
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2360
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                         NΑ
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       CHEBI:75098
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2361
                         NΑ
                                                                                                                    NA
2362
       CHEBI:78448
                         NΑ
                                                                                                                    NA
                                                                                                                                     NΑ
2363
       CHEBI:84156
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                                                                                                                                     NA
       CHEBI:84328
HMDB0002259
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2364
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2365
                         Heptadecanoic acid
                                                                                                                                     10465
       HMDB0031067
2366
                         (S)-14-Methylhexadecanoic acid
                                                                                                                    HMDB0031067
                                                                                                                                     22207
       HMDB0034131
2367
                         Nonyl octanoate
                                                                                                                    HMDB0034131
                                                                                                                                     589365
2368
       HMDB0037372
                         3-Methylbutyl dodecanoate
                                                                                                                    HMDB0037372
                                                                                                                                     61386
2369
       {\rm HMDB0040392}
                         Isopropyl tetradecanoate
                                                                                                                    {\rm HM\,DB0040392}
                                                                                                                                     8042
2370
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                                                                                                                    HMDB0040598
HMDB0059870
                                                                                                                                     531229
       HMDB0059870
                         Ethyl pentadecanoate
Methyl hexadecanoic acid
2371
                                                                                                                                     38762
2372
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2373
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                                                                                                                                     NA
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2374
2375
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CHEBI:85057
2376
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2377
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       CHEBI:87343
2378
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                                                                                                                                     NA
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2379
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                                                                                                                                     125759
2381
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                         3-Hydroxyhexadecanoic acid
                                                                                                                    HMDB0061658
                                                                                                                                     109894
2382
       HMDB0112184
                         5\hbox{-Hydroxyhexadecanoic acid}
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                                                                                                                                     531276
       HMDB0112185
                         7-Hydroxyhexadecanoic acid
8-Hydroxyhexadecanoic acid
                                                                                                                    HMDB0112185
2383
                                                                                                                                     155697
       HMDB0112186
                                                                                                                    HM DB0112186
2384
                                                                                                                                     155697
       HMDB0112187
                                                                                                                    HMDB0112187
2385
                         9-Hydroxyhexadecanoic acid
                                                                                                                                     155697
       HMDB0112188
                         10-Hydroxyhexadecanoic acid
                                                                                                                    HMDB0112188
2386
                                                                                                                                     155697
2387
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                                                                                                                                     301389
2388
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                         12-Hydroxyhexadecanoic acid
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                                                                                                                                     155697
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2389
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                                                                                                                    HMDB0112191
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       HMDB0112192
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2390
                         6-Hydroxyhexadecanoic acid
                                                                                                                                     123989
2391
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2392
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2393
2394
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2395
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2396
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2397
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2398
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2399
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2402
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                         19-Norandrosterone
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2404
       HMDB0004590
                         19-Nor-5-androstenediol
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                                                                                                                                     990024
       HMDB0005886
                         19-Noretiocholanolone
                                                                                                                    HMDB0005886
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2405
2406
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                         Stearidonic acid
                                                                                                                    HMDB0006547
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       HMDB0032464
HMDB0032672
2407
                         Phenethyl decanoate
                                                                                                                    {\rm HM\,DB0032464}
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                                                                                                                    HMDB0032672
2408
                         4,8,12,15-Octadecatetraenoic acid
                                                                                                                                     131751
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                         (E,E)-11,13-Octadecadien-9-ynoic acid
2409
                                                                                                                                     131751
       HMDB0062677
2410
                         17beta-hydroxy-5beta-estran-3-one
                                                                                                                    HMDB0062677
                                                                                                                                     216342
2411
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2412
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2428
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2444
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2445
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2458
2459
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       HMDB0005048
                         (10E,12Z)-Octadecadienoic acid
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2462
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2463
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                         Linalyl caprylate
Ethyl 2E,4Z-hexadecadienoate
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2464
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2466
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2468
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m HMDB0062784}
                                                                                                                                  531245
2469
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                         NΑ
                                                                                                                 NA
                                                                                                                                  NA
2470 \\ 2471
       C04056
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                                                                                                                                  NA
       C08282
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       C08321
2472
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2476
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2477
                         NA
                                                                                                                 NA
       CHEBI:32798
                                                                                                                                  NΑ
2478
                         NΑ
                                                                                                                 NA
       CHEBI:36025
2479
                         NA
                                                                                                                 NA
                                                                                                                                  NΑ
                         NΑ
       CHEBI:36331
                                                                                                                                  NΑ
2480
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2481
       CHEBI:38362
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2482
       CHEBI:38394
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                                                                                                                 NA
                                                                                                                                  NA
2483
       CHEBI:38401
                         NA
                                                                                                                 NA
                                                                                                                                  NA
       CHEBI:38402
                                                                                                                                  NΑ
2484
                         NA
                                                                                                                 NA
                                                                                                                                  NΑ
2485
       CHEBI:44526
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2486
       CHEBI:61389
                                                                                                                                  NΑ
                         NΑ
2487
       CHEBI:61391
                         NA
                                                                                                                 NA
                                                                                                                                  NA
2488
       CHEBI:6673
                         NΑ
                                                                                                                 NA
                                                                                                                                  NA
                                                                                                                                  NΑ
2489
       CHEBI:75108
                         NΑ
                                                                                                                 NA
2490
       CHEBI:82749
                         NA
                                                                                                                 NA
                                                                                                                                  NA
2491
       CHEBI:83063
                         NΑ
                                                                                                                                  NA
                                                                                                                 NA
       CHEBI:86141
2492
                                                                                                                                  NΑ
2493
       {\rm HMDB0060994}
                         alpha-Hydroxymetoprolol
                                                                                                                 HMDB0060994
                                                                                                                                  114962
2494
       C10263
                         NA
                                                                                                                 NA
                                                                                                                                  NA
       CHEBI-2617
2495
                         NA
                                                                                                                 NA
                                                                                                                                  NA
                                                                                                                 HM DB0060593
       HMDB0060593
                         Alpha-dihydroartemisinin
                                                                                                                                  456410
2496
2497
       {\rm HMDB0061088}
                                                                                                                 HMDB0061088
                                                                                                                                  713168
                         Dihydroartemisinin (DHA)
2498
       CHEBI:207229
                         NA
                                                                                                                 NA
                                                                                                                                  NA
2499
       HMDB0035473
                                                                                                                 HMDB0035473
                                                                                                                                  301518
                         Avocadyne
2500
       HMDB0038685
                         Muricatacin
                                                                                                                 HMDB0038685
                                                                                                                                  100167
2501
       C13792
                         NA
                                                                                                                 NΑ
                                                                                                                                  NA
       C13946
2502
                         NA
                                                                                                                 NA
                                                                                                                                  NA
       C14996
2503
                         NΑ
                                                                                                                                  NΑ
                                                                                                                 NA
       CHEBI:78999
                         NΑ
                                                                                                                 NA
                                                                                                                                  NΑ
2504
2505
       CHEBI:79175
                         NΑ
                                                                                                                                  NA
2506
       HMDB0000827
                         Stearic acid
                                                                                                                 HMDB0000827
                                                                                                                                  5281
                                                                                                                 HMDB0029811
2507
       HMDB0029811
                         Ethyl hexadecanoate
                                                                                                                                  12366
       HMDB0031066
                         16-Methylheptadecanoic acid
                                                                                                                 HMDB0031066
                                                                                                                                  21859
2508
       HMDB0061946
2509
                                                                                                                 HMDB0061946
                                                                                                                                  94454
                         Hexvl dodecanoate
2510
       C01530
                                                                                                                                  NA
                         NΑ
                                                                                                                 NA
       C20356
                                                                                                                                  NΑ
2511
                         NΑ
                                                                                                                 NA
2512
       CHEBI:1305874
                         NΑ
                                                                                                                 NA
                                                                                                                                  NΑ
2513
       CHEBI{:}28842
                         NA
                                                                                                                 NA
                                                                                                                                  NA
       CHEBI:65084
                                                                                                                                  NA
2514
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                                                                                                                 NA
       CHEBI:84896
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2515
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                                                                                                                 NA
2516
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                                                                                                                 NA
                                                                                                                                  NA
       CHEBI:85218
2517
2518
       HMDB0060995
                         10-alpha-methoxy-9,10-dihydrolysergol
                                                                                                                 HMDB0060995
                                                                                                                                  107927
       C20410
CHEBI:40149
2519
                                                                                                                                  NΑ
2520
                         NA
                                                                                                                 NA
                                                                                                                                  NA
                                                                                                                                  NΑ
2521
       CHEBI:67248
                         NA
                                                                                                                 NA
2522
       CHEBI:68464
                                                                                                                                  NΑ
                         NΑ
                                                                                                                 NA
2523
       CHEBI:90609
                         NA
                                                                                                                 NA
                                                                                                                                  NA
2524
       HMDB0000153
                         Estriol
                                                                                                                 HMDB0000153
                                                                                                                                  5756
2525
       {\rm HMDB0000338}
                         2-Hydroxyestradiol
                                                                                                                 HMDB0000338
                                                                                                                                  247304
2526
       HMDB0000347
                         16b-Hydroxyest radiol
                                                                                                                 HMDB0000347
                                                                                                                                  68929
       HMDB0000356
                         17-Epiestriol
16,17-Epiestriol
                                                                                                                 HMDB0000356
                                                                                                                                  256737
2527
2528
       HMDB0000431
                                                                                                                 HMDB0000431
                                                                                                                                  212522
       HMDB0005896
                                                                                                                 HMDB0005896
2529
                         4-Hydroxyestradiol
                                                                                                                                  528236
2530
       HMDB0040864
                         O-Gerany lvanillin
                                                                                                                 HMDB0040864
                                                                                                                                  644428
2531
       HMDB0060353
                         2-Polyprenyl-3-methyl-6-methoxy-1,4-benzoquinone
                                                                                                                 HMDB0060353
                                                                                                                                  109022
2532
       HMDB0060999
                         4-hydroxystradiol
                                                                                                                 HMDB0060999
                                                                                                                                  1743
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2533	HMDB0062741	7alpha-hydroxyestradiol	${\rm HMDB0062741}$	259693
2534	${ m HMDB0003962}$	NA	NA	NA
2535	C03935	NA	NA	NA
2536	C05141	NA	NA	NA
2537	C05301	NA	NA	NA
2538	C14209	NA	NA	NA
2539	C15385	NA	NA	NA
2540	CHEBI:1150237	NA	NA	NA
2541	CHEBI:16784	NA	NA	NA
2542	CHEBI:27974	NA	NA	NA
2543	CHEBI:28744	NA	NA	NA
2544	CHEBI:38236	NA NA	NA	NA
2545	CHEBI:62845	NA NA	NA	NA
2546	CHEBI:62847	NA NA	NA NA	N A N A
2547	CHEBI:62848	NA NA	NA NA	N A N A
$2548 \\ 2549$	CHEBI:87593 CHEBI:87598	NA NA	NA NA	N A
$\frac{2549}{2550}$	CHEBI:87620	NA NA	NA NA	NA NA
2550 2551	HMDB0004667	13-HODE	HM DB0004667	644301
2552	HMDB0004670	alpha-Dimorphecolic acid	HMDB0004670	531283
2553	HMDB0004701	9,10-Epoxyoctadecenoic acid	HMDB0004701	624615
2554	HMDB0004702	12,13-EpOME	HMDB0004702	535642
2555	HMDB0010223	NÅ F	NA	NA
2556	${\rm HMDB0029796}$	(Z)-13-Oxo-9-oct adecenoic acid	${ m HMDB0029796}$	446121
2557	HMDB0029978	Avenoleic acid	${\rm HMDB0029978}$	755360
2558	${\rm HMDB0029998}$	12-Hydroxy-8,10-octadecadienoic acid	${\rm HMDB0029998}$	131750
2559	${ m HMDB0061708}$	NA	NA	NA
2560	HMDB0062652	$(10\mathrm{E},12\mathrm{Z})$ -9-HODE	${ m HMDB0062652}$	528294
2561	HMDB0112194	NA	NA	NA
2562	HMDB0006939	NA NA	NA	NA
2563	C08318	NA NA	NA	NA
2564	C08368	NA NA	NA	NA
2565	C14762	NA NA	NA	NA
2566	C14767	NA NA	NA	NA
2567	C14825	NA NA	NA	NA
$2568 \\ 2569$	C14826	NA NA	NA NA	N A N A
$\frac{2509}{2570}$	C19617 CHEBI:27706	NA NA	NA NA	N A
$\frac{2570}{2571}$	CHEBI:28932	NA NA	NA NA	NA
$2571 \\ 2572$	CHEBI:34154	NA NA	NA	NA NA
2573	CHEBI:34494	NA NA	NA	NA
2574	CHEBI:34496	NA	NA	NA
2575	CHEBI:38299	NA	NA	NA
2576	CHEBI:38300	NA	NA	NA
2577	CHEBI:595882	NA NA	NA	NA
2578	CHEBI:72639	NA	NA	NA
2579	CHEBI:72651	NA	NA	NA
2580	CHEBI:78730	NA	NA	NA
2581	CHEBI:86022	NA	NA	NA
2582	${\rm HMDB0013622}$	$10\mathrm{Z ext{-}Nonade}$ cenoic acid	${\rm HMDB0013622}$	531251
2583	${ m HMDB0035575}$	4,6-Nonadecanedione	${ m HMDB0035575}$	917131
2584	C00174	NA	NA	NA
2585	C03425	NA	NA	NA
2586	C13787	NA NA	NA	NA
2587	C13838	NA NA	NA	NA
2588	CHEBI:27542	NA NA	NA NA	N A
2589	CHEBI:34811	NA NA	NA NA	N A
$2590 \\ 2591$	CHEBI:37527 CHEBI:61456	NA NA	NA NA	NΑ NΔ
$\begin{array}{c} 2591 \\ 2592 \end{array}$	CHEBI:61456 CHEBI:78443	NA NA	NA NA	N A N A
$\frac{2592}{2593}$	CHEBI:83050	NA NA	NA NA	N A
$\frac{2595}{2594}$	CHEBI:83050	NA NA	NA	NA
$\frac{2594}{2595}$	HMDB0010736	3-Oxooctadecanoic acid	HM DB0010736	528300
2596	HMDB0030979	9-Oxooctadecanoic acid	HM DB0030979	308383
2597	HMDB0030980	10-Oxooctadecanoic acid	HMDB0030980	361941
2598	HMDB0030981	11-Oxooctadecanoic acid	HMDB0030981	531290
2599	HMDB0031127	5-Hexyltetrahydro-2-furanoctanoic acid	HMDB0031127	536566
2600	${\rm HMDB0034074}$	5-Oxooctadecanoic acid	${\rm HMDB0034074}$	85548
2601	${ m HMDB0034297}$	Ricinoleic acid	${\rm HMDB0034297}$	528294
2602	${\rm HMDB0061650}$	9,10-Epoxyoctadecanoic acid	${\rm HMDB0061650}$	160610
2603	C00869	NA	NA	NA
2604	C08365	NA	NA	NA
2605	C13791	NA NA	NA	NA
2606	C19418	NA NA	NA	NA
2607	C19616	NA NA	NA	NA
2608	CHEBI:28592	NA NA	NA	NA
2609	CHEBI:30820	NA NA	NA NA	N A
2610	CHEBI:45478	NA NA	NA NA	N A
$\frac{2611}{2612}$	CHEBI:50576 CHEBI:75828	NA NA	NA NA	N A N A
$\frac{2612}{2613}$	CHEBI:75828 CHEBI:79002	NA NA	NA NA	N A N A
$\frac{2613}{2614}$	CHEBI:79002 CHEBI:79178	NA NA	NA NA	N A N A
$\frac{2614}{2615}$	CHEBI:79178 CHEBI:79312	NA NA	NA NA	N A
$\frac{2615}{2616}$	CHEBI:85639	NA NA	NA NA	NA NA
2617	CHEBI:85641	NA NA	NA	NA
2618	CHEBI:85661	NA NA	NA	NA
2619	HMDB0015500	Allylestrenol	HMDB0015500	235905
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2620
       HMDB0029816
                                                                                                                    HMDB0029816
                                                                                                                                     535611
                         Cardanoldiene
2621
       C12811
                         NA
                                                                                                                                     NA
                                                                                                                    NA
       C15420
                                                                                                                                      NΑ
2622
                          NΑ
                                                                                                                    NA
2623
       C15431
                          NΑ
                                                                                                                    NA
                                                                                                                                     NΑ
2624
       CHEBI:36725
                          NA
                                                                                                                    NA
                                                                                                                                     NA
                                                                                                                    HMDB0000380
       HMDB0000380
                         2-Hydroxyestradiol-3-methyl ether
2625
                                                                                                                                     515
       HMDB0000405
                                                                                                                    HMDB0000405
2626
                         2-Methoxyestradiol
                                                                                                                                     66414
2627
       HMDB0003955
                          19-Hydroxyandrost-4-ene-3,17-dione
                                                                                                                    HMDB0003955
                                                                                                                                     252379
       HMDB0003959
                          19-Oxotestosterone
                                                                                                                    HMDB0003959
2628
                                                                                                                                     704858
2629
       HMDB0006771
                          7a-Hydroxyandrost-4-ene-3,17-dione
                                                                                                                    HMDB0006771
                                                                                                                                     65542
2630
       {\rm HMDB0006773}
                          11b-Hydroxyandrost-4-ene-3,17-dione
                                                                                                                    HMDB0006773
                                                                                                                                     4762
2631
       HMDB0006774
                          16a-Hydroxyandrost-4-ene-3,17-dione
                                                                                                                    HMDB0006774
                                                                                                                                     440574
       HMDB0012782
                                                                                                                    HMDB0012782
                         4-Methoxy-17beta-estradiol (2Z,8S,9Z)-2,9-Heptadecadiene-8-hydroxy-4,6-diyne-1-yl acetate
2632
                                                                                                                                     68578
2633
       HMDB0031038
                                                                                                                    HMDB0031038
                                                                                                                                     131751
2634
       HMDB0033125
                          [8]-Dehydroshogaol
                                                                                                                    HMDB0033125
                                                                                                                                      131751
       {\rm HMDB0034028}
                          2-(3,7-Dimethyl-2,6-octadienyl)-4-hydroxy-6-methoxyacetophenone
                                                                                                                    HMDB0034028
2635
                                                                                                                                      142366
2636
       HMDB0034167
                          Falcarindiol 3-acetate
                                                                                                                    HMDB0034167
                                                                                                                                      131751
       \begin{array}{c} {\rm HMDB0036696} \\ {\rm HMDB0039568} \end{array}
                          Yucalexin B'11
2637
                                                                                                                    HMDB0036696
                                                                                                                                     141911
                                                                                                                    HMDB0039568
2638
                                                                                                                                     157258
                         Ginsenovne H
       HMDB0040927
                         2-Hexyl-5-[2-(4-hydroxy-3-methoxyphenyl)ethyl]furan
                                                                                                                    HMDB0040927
                                                                                                                                     159291
2639
       HMDB0041204
                                                                                                                    HMDB0041204
2640
                          Acetylpanaxydol
                                                                                                                                     129509
2641
       C04676
                                                                                                                    NA
                                                                                                                                      NΑ
2642
       C05140
                          NA
                                                                                                                    NA
                                                                                                                                     NA
2643
       C05284
                          NΑ
                                                                                                                    NA
                                                                                                                                     NA
       C05290
2644
                          NA
                                                                                                                    NA
                                                                                                                                     NA
       C05295
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2645
                                                                                                                    NΑ
                          NΑ
       C05296
2646
                          NΑ
                                                                                                                                     NA
                                                                                                                    NA
       C05302
                                                                                                                                      NΑ
2647
                          NΑ
                                                                                                                    NA
2648
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                                                                                                                                      NΑ
2649
       C14269
                          NΑ
                                                                                                                    NΑ
                                                                                                                                     ΝΑ
                                                                                                                                     NA
NA
2650
       C14337
                          NΑ
                                                                                                                    NA
2651
       C14593
                          NA
                                                                                                                    NA
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2652
       C14907
                          NΑ
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       C15072
                                                                                                                                      NΑ
2653
                          NA
                                                                                                                    NA
       C15103
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                                                                                                                                      NΑ
2654
2655
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                                                                                                                                      NΑ
2656
       C20693
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                                                                                                                                     NA
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2657
                          NA
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       CHEBI:18084
2658
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2659
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2660
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2661
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                                                                                                                                     NA
2662
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2663
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2664
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2665
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2666
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2667
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                                                                                                                    NA
2668
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                          NA
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2669
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2670
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       CHEBI:39135
2671
                          ΝA
                                                                                                                                     NΑ
                                                                                                                    NA
                         ΝA
2672
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                                                                                                                                      NΑ
2673
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2674
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CHEBI:39140
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2675
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                                                                                                                                     NΑ
2676
                          NA
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       CHEBI:63783
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2677
                          NΑ
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       CHEBI:65580
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2678
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2679
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2681
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2682
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2683
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2684
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2685
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2686
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                                                                                                                    NA
                                                                                                                                     NΑ
                                                                                                                    HMDB0001999
2687
       {\rm HMDB0001999}
                         Eicosapentaenoic acid
                                                                                                                                     446284
       HMDB0003598
                                                                                                                    HM DB0003598
2688
                         Retinvl ester
                                                                                                                                     546016
                                                                                                                    HM DB0015655
2689
       HMDB0015655
                          Methyltestosterone
                                                                                                                                     6010
       {\rm HMDB0035692}
                                                                                                                    HMDB0035692
2690
                          8,15-Isopimaradien-18-oic acid
                                                                                                                                     156277
       HMDB0036703
                                                                                                                    HMDB0036703
                                                                                                                                      146816
2691
                          Siderone
2692
       HMDB0036709
                          Yucalexin B14
                                                                                                                    HMDB0036709
                                                                                                                                     141911
                         Yucalexin A16
8(17),12-Labdadiene-15,16-dial
       HMDB0036775
HMDB0036805
2693
                                                                                                                    HMDB0036775
                                                                                                                                     141912
2694
                                                                                                                    HMDB0036805
                                                                                                                                     990451
       HMDB0036811
                                                                                                                    HMDB0036811
2695
                         Isopimaric acid
                                                                                                                                     442048
       HMDB0036826
                                                                                                                    HMDB0036826
2696
                          Cascarillone
                                                                                                                                     156275
2697
       HMDB0038172
                          8,13-Abietadien-18-oic acid
                                                                                                                    HMDB0038172
                                                                                                                                      16040
                         (ent-15beta,16beta)-15,16-Epoxy-3-kauranone
ent-8(17),13(16),14-Labdatrien-18-oic acid
2698
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                                                                                                                    HMDB0038687
                                                                                                                                      131752
2699
       HMDB0039486
                                                                                                                    HMDB0039486
                                                                                                                                     727809
       HMDB0041928
                                                                                                                    HMDB0041928
2700
                          Methenolone
                                                                                                                                     303770
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2701
                          NA
                                                                                                                    NA
                                                                                                                                     NA
2702
       C06087
                                                                                                                    NA
                                                                                                                                     NA
                          NΑ
       C06428
2703
                         NA
                                                                                                                    NA
                                                                                                                                     NA
2704
       C07198
                          NΑ
                                                                                                                    NA
                                                                                                                                     NA
2705
       C09118
                          NA
                                                                                                                    NA
                                                                                                                                     NA
```

NA

NA

2706

C09148

NΑ

2707	C09159	NA	NA	NA
2708	C11874	NA	NA	NA
2709	C11888	NA	NA	NA
2710	C11889	NA	NA	NA
2711	C12077	NA NA	NA	NA
2712	C12083	NA NA	NA NA	N A
$\frac{2713}{2714}$	C14255	NA NA	NA NA	NA NA
$2714 \\ 2715$	C14490 C14588	NA NA	NA NA	NA NA
$\frac{2713}{2716}$	C14388 C14890	NA NA	NA NA	NA NA
2717	C15003	NA NA	NA	NA
2718	C15008	NA	NA	NA
2719	C15017	NA	NA	NA
2720	C15036	NA	NA	NA
2721	C15070	NA	NA	NA
2722	C15184	NA	NA	NA
2723	C15188	NA NA	NA	NA
2724	C15259	NA NA	NA	NA
2725	C15318	NA NA	NA NA	NA
2726	C15412	NA NA	NA NA	NA NA
$\frac{2727}{2728}$	C15460 C20149	NA NA	NA NA	N A N A
$\frac{2728}{2729}$	C20149 C20208	NA NA	NA NA	NA NA
$\frac{2729}{2730}$	CHEBI:15417	NA NA	NA NA	NA
2731	CHEBI:27436	NA	NA	NA
2732	CHEBI:28364	NA	NA	NA
2733	CHEBI:28987	NA	NA	NA
2734	CHEBI:29457	NA	NA	NA
2735	CHEBI:34849	NA	NA	NA
2736	CHEBI:545914	NA	NA	NA
2737	CHEBI:6039	NA NA	NA	NA
2738	CHEBI:63731	NA NA	NA NA	NA
$\frac{2739}{2740}$	CHEBI:65960	NA NA	NA NA	NA NA
$2740 \\ 2741$	CHEBI:66459 CHEBI:66549	NA NA	NA NA	NA NA
$\frac{2741}{2742}$	CHEBI:70577	NA NA	NA NA	NA NA
2743	CHEBI:70577 CHEBI:72658	NA NA	NA NA	NA NA
2744	CHEBI:78258	NA NA	NA	NA
2745	CHEBI:79761	NA	NA	NA
2746	HMDB0001043	Arachidonic acid	HMDB0001043	444899
2747	${\rm HMDB0002177}$	Cis-8,11,14,17-Eicosatetraenoic acid	${\rm HMDB0002177}$	117225
2748	HMDB0006036	Mesterolone	${\rm HMDB0006036}$	15020
2749	HMDB0014996	Drostanolone	HMDB0014996	6011
2750	HMDB0036702	Sideridiol	HMDB0036702	123155
2751	HMDB0036721	ent-17-Hydroxy-16beta-kauran-19-al	HMDB0036721	348185
2752	HMDB0036754	Yucalexin P21	HMDB0036754	141912
$\frac{2753}{2754}$	HMDB0036829	Copalic acid	HMDB0036829	131752 131752
$\frac{2754}{2755}$	HMDB0036830 HMDB0037824	Junicedral 7,13-Eperudien-15-oic acid	HMDB0036830 HMDB0037824	$131752 \\ 131752$
$\frac{2755}{2756}$	HMDB0037824 HMDB0039687	7,15-Брегинен-15-отс acid Oryzalexin S	HM DB0037824 HM DB0039687	131752 131752
$\frac{2750}{2757}$	HMDB0039087 HMDB0039702	Oryzalexin S	HM DB0039087	862894
2758	HMDB0060102	NA	NA	NA
2759	C00219	NA	NA	NA
2760	C09057	NA	NA	NA
2761	C09124	NA	NA	NA
2762	C11897	NA	NA	NA
2763	C14493	NA V	NA	NA
2764	C14605	NA NA	NA	NA
2765	C14956	NA NA	NA NA	NA
$2766 \\ 2767$	C15176 C15252	NA NA	NA NA	NA NA
$\frac{2767}{2768}$	C15252 C15367	NA NA	NA NA	NA NA
$\frac{2768}{2769}$	C17920	NA NA	NA NA	NA NA
2770	C20329	NA NA	NA	NA
2771	CHEBI:15843	NA	NA	NA
2772	CHEBI:30041	NA	NA	NA
2773	CHEBI:34838	NA	NA	NA
2774	CHEBI:36033	NA	NA	NA
2775	CHEBI:36035	NA	NA	NA
2776	CHEBI:36038	NA NA	NA	NA
2777	CHEBI:36039	NA NA	NA	NA
2778	CHEBI:36040	NA NA	NA NA	NA
2779	CHEBI:36042 CHEBI:36045	NA NA	NA NA	N A N A
$2780 \\ 2781$	CHEBI:36045 CHEBI:36232	NA NA	NA NA	N A N A
$\frac{2781}{2782}$	CHEBI:36302	NA NA	NA NA	NA NA
2783	CHEBI:36306	NA NA	NA	NA
2784	CHEBI:50900	NA NA	NA	NA
2785	CHEBI:63668	NA	NA	NA
2786	CHEBI:64014	NA	NA	NA
2787	CHEBI:71488	NA	NA	NA
2788	CHEBI:78256	NA	NA	NA
2789	CHEBI:78259	NA	NA	NA
2790	CHEBI:79754	NA	NA	NA
2791	CHEBI:82835	NA NA	NA	NA
2792	CHEBI:84856	NA NA	NA NA	N A
2793	CHEBI:84971	NA	NA	NA

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2794
       D04947
                         NΑ
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HMDB0005060
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       HMDB0005060
                         Eicosadienoic acid
2795
                                                                                                                                  643984
                                                                                                                                  521332
2796
       HMDB0036827
                                                                                                                 HMDB0036827
                         Sclareol
2797
       {\rm HMDB0061864}
                         Dihomolinoleic acid
                                                                                                                 HMDB0061864
                                                                                                                                  528279
2798
       HMDB0062432
                         8Z,11Z-eicosadienoic acid
                                                                                                                 HMDB0062432
                                                                                                                                  531252
2799
       C09183
                         NA
                                                                                                                 NA
                                                                                                                                  NA
       C16525
2800
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                                                                                                                                  NΑ
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2801
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2802
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2803
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2804
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2805
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                                                                                                                                  NΑ
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                                                                                                                                  140356
2806
2807
       C01095
                                                                                                                                  NA
                         NA
                                                                                                                 NA
2808
       C01151
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2809
       C01182
                         NA
                                                                                                                 NA
2810
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2811
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2812
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2813
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2814
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2815
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2816
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2817
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                         (9Z,11R,12S,13S,15Z)-12,13-Epoxy-11-hydroxy-9,15-octadecadienoic acid
2818
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                                                                                                                 HMDB0035337
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2819
                         Sterebin A
                                                                                                                                  131751
       HMDB0038484
2820
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                                                                                                                                  103739
                         Aux in b
                         NA
2821
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                                                                                                                 NA
                                                                                                                                  NA
2822
       C07357
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2823
       C15753
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2824
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       C16341
2825
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                                                                                                                 NA
2826
       C19936
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2827
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2828
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2829
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2831
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2832
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2833
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2834
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2835
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2836
       CHEBI:85474
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2837
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                         11Z-Eicosenoic acid
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2838
       HMDB0034296
                         NΑ
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2839
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                         Ethyl oleate
                                                                                                                 HMDB0034451
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       HMDB0035159
                                                                                                                 HMDB0035159
2840
                         Paullinic acid
                                                                                                                                  531251
2841
       {\rm HMDB0035572}
                         6,8-Icosanedione
                                                                                                                 {\rm HM\,DB0035572}
                                                                                                                                  917011
2842
       {\rm HMDB0035573}
                         5,7-Icosanedione
                                                                                                                 {\rm HM\,DB0035573}
                                                                                                                                  916988
       HMDB0035574
2843
                         4,6-Icosanedione
                                                                                                                 HMDB0035574
                                                                                                                                  131751
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                                                                                                                 HM DB00337127
2844
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2845
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2846
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2847
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2857
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                         NA
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2858
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                                                                                                                 HMDB0000417
                                                                                                                                  103808
2859
2860
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                         3L,7D,11D-Phytanic acid
                                                                                                                 HMDB0000553
                                                                                                                                  997284
2861
       {\rm HMDB0000801}
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                                                                                                                 HMDB0000801
                                                                                                                                  26840
       HMDB0002212
                                                                                                                 HMDB0002212
2862
                         Arachidic acid
                                                                                                                                  10467
       HMDB0031318
                         2,2,6,10,14-Pentamethylpentadecanoic acid
                                                                                                                 HMDB0031318
                                                                                                                                  855991
2863
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2864
                         Ethyl stearate
                                                                                                                                  8122
       HMDB0035672
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2865
2866
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                         4-Hydroxy-6-eicosanone
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2867
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                                                                                                                                  468706
2868
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2869
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2874
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2875
2876
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2877
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                                                                                                                                  NA
2878
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2879
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                                                                                                                 HMDB0031008
                                                                                                                                  531276
2880
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2896
                         S-6-Hydroxywarfarin
                                                                                                                                  134272
2897
       HMDB0013881
                         S-4'-Hydroxywarfarin
                                                                                                                 HMDB0013881
                                                                                                                                  693599
2898
       {\rm HMDB0013882}
                         R-4'-Hydroxywarfarin
                                                                                                                 HMDB0013882
                                                                                                                                  693600
       HMDB0013883
2899
                         R\hbox{-} 6\hbox{-} Hy droxywarfarin
                                                                                                                 HMDB0013883
                                                                                                                                  134272
                         R-10-Hydroxywarfarin
       HMDB0013884
                                                                                                                 HMDB0013884
2900
                         R-8-Hydroxywarfarin
                                                                                                                 HMDB0013885
2901
       HMDB0013885
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2902
       HMDB0013886
                         R-7-Hydroxywarfarin
                                                                                                                 HMDB0013886
                                                                                                                                  134272
2903
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                         Moracin K
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m HM\,DB0041296}
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                         Moracin L
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2917
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2918
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       HMDB0030053
                         Neogrifolin
                                                                                                                 HMDB0030053
2919
                                                                                                                                  987442
                                                                                                                 HMDB0030446
2920
       HMDB0030446
                         Grifolin
                                                                                                                                  537231
       HMDB0035185
                                                                                                                 HMDB0035185
2921
                         Retinol acetate
                                                                                                                                  102459
2922
       HMDB0038908
                         (Z,Z)-2-Methyl-5-(8,11,14-pentadecatrienyl)-1,3-benzenediol
                                                                                                                 HMDB0038908
                                                                                                                                  131752
2023
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2924
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2925
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2926
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2933
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                         Docosapentaenoic acid (22n-3)
                                                                                                                 HMDB0006528
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2934
2935
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                                                                                                                 {
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                                                                                                                                  61182
                         ent-16-Kauren-19-ol acetate
       HMDB0035024
2936
                                                                                                                 HMDB0035024
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       HMDB0035581
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2937
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                                                                                                                                  199009
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2938
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2939
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2940
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2941
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2942
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2954
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2955
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2956
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                                                                                                                                  131751
2958
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                         3-Hydroxy-1-phenyl-1-hexadecanone
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2959
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                                                                                                                                  645220
2960
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2961
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2962
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                                                                                                                 HMDB0001244
2967
       HMDB0002710
                         Prostaglandin J2
                                                                                                                 HMDB0002710
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                         Prostaglandin A2
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                         12-Keto-leukotriene B4
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2969
       HMDB0004234
                                                                                                                                    528087
2970
       HMDB0004236
                         Prostaglandin B2
                                                                                                                   HMDB0004236
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2971
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                         Delta-12-Prostaglandin J2
                                                                                                                   HMDB0004238
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2972
       {\rm HMDB0005073}
                         Leukotriene B5
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                         5-Oxo-6-trans-leukotriene B4
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2973
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                         8alpha-8-Hydroxy-12-oxo-13-abieten-18-oic acid
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2976
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2977
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                         (ent-16betaOH)-16,17-Dihydroxy-9(11)-kauren-19-oic acid
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                         (ent-6alpha,7alpha)-6,7-Dihydroxy-16-kauren-19-oic acid
2978
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2980
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2981
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2982
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2983
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2985
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2986
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3063
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3064
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3106
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                         Tridecyl phloretate
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3108
3109
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3110
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3115
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3116
                         Prostaglandin D3
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Resolvin E1
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3122
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                         Oryzalic acid B
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3127
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15-oxo-5S,6R-dihydroxy-7E,9E,11Z,13E-eicosatetraenoic acid
(5S)-hydroperoxy-18-hydroxy-EPE
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3157
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                                                                                                                  HMDB0034119
                                                                                                                                   585998
3180
       HMDB0035527
                         Gly cyrrhizaflavonol A
                                                                                                                  HMDB0035527
3181
                                                                                                                                   531776
       HMDB0036555
                         Glycyrrhizaisoflavone A
                                                                                                                  HMDB0036555
                                                                                                                                    105471
3182
3183
       {\rm HMDB0038398}
                         Gancaonin P
                                                                                                                  HMDB0038398
                                                                                                                                   548196
3184
       HMDB0038900
                         2.3-Dehydrokievitol
                                                                                                                  HMDB0038900
                                                                                                                                   442573
       HMDB0038932
3185
                         Justisolin
                                                                                                                  HMDB0038932
                                                                                                                                   979950
3186
       HMDB0039731
                         Neouralenol
                                                                                                                  HMDB0039731
                                                                                                                                   532011
3187
       HMDB0039732
                         Uralenol
                                                                                                                  HMDB0039732
                                                                                                                                   531512
       {\rm HMDB0132502}
3188
                         NA
                                                                                                                  NA
                                                                                                                                   NA
3189
       {\rm HMDB0132503}
                         NΑ
                                                                                                                  NA
                                                                                                                                   NΑ
3190
       {\rm HMDB0137144}
                         NA
                                                                                                                  NA
                                                                                                                                   NΑ
3191
       C10887
                         NΑ
                                                                                                                  NA
                                                                                                                                   NΑ
       C20452
                                                                                                                                   NΑ
3192
                         NΑ
                                                                                                                  NA
3193
       CHEBI:65611
                         NΑ
                                                                                                                                   NΑ
                                                                                                                  NA
3194
       CHEBI:67538
                         NΑ
                                                                                                                  NA
                                                                                                                                    NΑ
       CHEBI:70489
                                                                                                                  NA
                                                                                                                                    NΑ
3195
3196
       CHEBI:71356
                                                                                                                                   NA
       HMDB0029782
                         6-Epi-7-isocucurbic acid glucoside
                                                                                                                  HMDB0029782
                                                                                                                                   131750
3197
       HMDB0000381
                                                                                                                  HMDB0000381
3198
                         Allolithocholic acid
                                                                                                                                   534776
       HMDB0000713
                         Isoallolithocholic acid
                                                                                                                  HMDB0000713
                                                                                                                                   94228
3199
                                                                                                                  HMDB0000717
       HMDB0000717
3200
                         Isolithocholic acid
                                                                                                                                   164853
3201
       HMDB0000761
                         Lithocholic acid
                                                                                                                  HMDB0000761
                                                                                                                                   9903
                         12b-Hydroxy-5b-cholanoic acid
3202
       HMDB0002431
                                                                                                                  HMDB0002431
                                                                                                                                   528381
3203
       HMDB0002492
                         7a-Hydroxy-5b-cholanic acid
                                                                                                                  HMDB0002492
                                                                                                                                   447718
       C03990
3204
                         NA
                                                                                                                  NA
                                                                                                                                    NΑ
       C17658
                                                                                                                  NA
                                                                                                                                   NA
3205
                         NΑ
       CHEBI:16325
3206
                         NA
                                                                                                                  NA
                                                                                                                                   NA
                                                                                                                                   ΝA
       CHEBI:542339
                                                                                                                  NA
3207
                         NA
3208
       CHEBI:73676
                         NΑ
                                                                                                                  NA
                                                                                                                                    NΑ
3209
       {\rm CHEBI:} 81253
                         NΑ
                                                                                                                  NA
                                                                                                                                   NA
       HMDB0036893
                         Gibberellin A75
                                                                                                                  HMDB0036893
                                                                                                                                   145831
3210
       HMDB0037056
                         8-Oxodiacetoxyscirpenol
                                                                                                                  HMDB0037056
                                                                                                                                   131752
3211
                         (S)-Bitalin A 12-glucoside
                                                                                                                  HMDB0038328
3212
       {\rm HMDB0038328}
                                                                                                                                   853910
       HMDB0038450
                         Gibberellin A86
                                                                                                                  HMDB0038450
                                                                                                                                    101663
3213
3214
       HMDB0040899
                         Methyl helianthenoate A glucoside
                                                                                                                  HMDB0040899
                                                                                                                                   131752
       HMDB0030760
HMDB0035166
3215
                         Pteroside B
                                                                                                                  HMDB0030760
                                                                                                                                   739817
                         Cinncassiol C
3216
                                                                                                                  HMDB0035166
                                                                                                                                   148415
       HMDB0035840
                                                                                                                  HMDB0035840
3217
                         Deacetylisovaltrate
                                                                                                                                   131751
       HMDB0041228
3218
                         6b-Angeloyl-3b,8b,9b-trihydroxy-7(11)-eremophilen-12,8-olide
                                                                                                                  HMDB0041228
                                                                                                                                   131753
3219
       HMDB0126521
                                                                                                                  NA
                                                                                                                                    NA
3220
       C08756
                                                                                                                  NΑ
                                                                                                                                    NΑ
                         NA
3221
       C17643
                         NA
                                                                                                                  NA
                                                                                                                                   NA
3222
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                                                                                                                  NA
                                                                                                                                   NA
       CHEBI:66623
3223
                         NΑ
                                                                                                                  NA
                                                                                                                                   NA
                                                                                                                  HMDB0010343
3224
       HMDB0010343
                         Ibuprofen glucuronide
                                                                                                                                   922784
       HMDB0035201
                         4,8-Diacety l-T2-tetrol
                                                                                                                  HMDB0035201
3225
                                                                                                                                    100227
3226
       HMDB0038916
                         7alpha,8alpha-Dihydroxycalonectrin
                                                                                                                  HMDB0038916
                                                                                                                                   557474
3227
       HMDB0039811
                         Cyclocalopin B
                                                                                                                  HMDB0039811
                                                                                                                                    731184
3228
       HMDB0060919
                                                                                                                  NA
                                                                                                                                   NA
```

3229	${\rm HMDB0132958}$	NA	NA	NA
3230	HMDB0140970	NA NA	NA	NA
$\frac{3231}{3232}$	C03033 CHEBI:68930	NA NA	NA NA	N A N A
$\frac{3232}{3233}$	HMDB0031676	5a,6a-Epoxy-7E-megastigmene-3a,9e-diol 3-glucoside	HMDB0031676	131751
3234	HMDB0036318	9,13-Dihydroxy-4-megastigmen-3-one 9-glucoside	HMDB0031010	727915
3235	${\rm HMDB0036846}$	Icariside B8	${\rm HMDB0036846}$	145399
3236	${\rm HMDB0038306}$	5a,6a-Epoxy-7E-megastigmene-3b,9e-diol 9-glucoside	${ m HMDB0038306}$	131752
3237	HMDB0040614	Dihydroroseoside	HMDB0040614	161969
$\frac{3238}{3239}$	C17452 HMDB0030564	NA trans-Piceid	NA HMDB0030564	N A 528171
3239 3240	HMDB0030565	(Z)-Resveratrol 4'-glucoside	HMDB0030565	131751
3241	HMDB0031422	cis-Piceid	HMDB0031422	101784
3242	${\rm HMDB0036294}$	(E)-2-Glucosyl-3,4',5-trihydroxystilbene	${\rm HMDB0036294}$	138517
3243	HMDB0135201	NA	NA	NA
3244	C10275	NA NA	NA	NA
$\frac{3245}{3246}$	C10823 CHEBI:336507	NA NA	NA NA	N A N A
3247	CHEBI:76155	NA	NA	NA
3248	CHEBI:8198	NA	NA	NA
3249	HMDB0002356	Hexacosanoic acid	HMDB0002356	10469
3250	HMDB0035628	6-Hydroxy-8-hexacosanone	HMDB0035628	131751
$\frac{3251}{3252}$	HMDB0060125 CHEBI:31009	NA NA	NA NA	N A N A
$\frac{3252}{3253}$	CHEBI:84063	NA NA	NA NA	NA NA
3254	CHEBI:84905	NA	NA	NA
3255	HMDB0000447	7a,12a-Dihydroxy-3-oxo-4-cholenoic acid	HMDB0000447	528399
3256	HMDB0014372	Lovastatin Lucidone C	HMDB0014372	53232
$\frac{3257}{3258}$	HMDB0038152 C07074	Lucidone C NA	HM DB0038152 NA	141094 N A
$\frac{3256}{3259}$	C15568	NA NA	NA NA	NA NA
3260	CHEBI:40303	NA	NA	NA
3261	CHEBI:49269	NA	NA	NA
3262	CHEBI:68416	NA NA	NA	NA
$\frac{3263}{3264}$	HMDB0011555 HMDB0011556	NA NA	NA NA	NA NA
3265	HMDB0011585	NA NA	NA NA	NA
3266	HMDB0011586	NA	NA	NA
3267	${\rm HMDB0012517}$	11'-Carboxy-gamma-chromanol	${\rm HMDB0012517}$	534814
3268	C14624	NA	NA	NA
$\frac{3269}{3270}$	HMDB0000312 HMDB0000320	3alpha,7alpha,12beta-Trihydroxy-5beta-cholanoic acid 3a,4b,7a-Trihydroxy-5b-cholanoic acid	HMDB0000312 HMDB0000320	528386 534776
$\frac{3270}{3271}$	HMDB0000326	1b,3a,12a-Trihydroxy-5b-cholanoic acid	HMDB0000326	534776
3272	HMDB0000330	3a,4b,12a-Trihydroxy-5b-cholanoic acid	HMDB0000330	308061
3273	HMDB0000364	3a,6a,7b-Trihydroxy-5b-cholanoic acid	HMDB0000364	528385
3274	HMDB0000371	1,3,12-Trihy droxy cholan-24-oic acid	HMDB0000371	208493
3275	HMDB0000376	3b,7a,12a-Trihydroxy-5a-Cholanoic acid	HMDB0000376	528387
$\frac{3276}{3277}$	HMDB0000390 HMDB0000395	3a,7b,12b-Trihydroxy-5b-cholanoic acid 3b,7b,12a-Trihydroxy-5b-cholanoic acid	HMDB0000390 HMDB0000395	528387 528387
3278	HMDB0000335	2b,3a,7a-Trihydroxy-5b-cholanoic acid	HMDB0000333	528384
3279	HMDB0000414	1b,3a,7a-Trihydroxy-5b-cholanoic acid	HMDB0000414	528384
3280	${ m HMDB0000415}$	3a,6b,7b-Trihydroxy-5b-cholanoic acid	${ m HMDB0000415}$	528385
3281	HMDB0000419	3b,7a,12a-Trihydroxy-5b-cholanoic acid	HMDB0000419	528387
$\frac{3282}{3283}$	HMDB0000427 HMDB0000432	3b,7b,12a-Trihydroxy-5a-Cholanoic acid 3a,7b,12a-Trihydroxy-5a-Cholanoic acid	HMDB0000427 HMDB0000432	$\frac{528387}{129}$
3284	HMDB0000452	Allocholic acid	HMDB0000492	160636
3285	${\rm HMDB0000506}$	alpha-Muricholic acid	${\rm HMDB0000506}$	528385
3286	HMDB0000527	6a,12a-Dihydroxylithocholic acid	HMDB0000527	228335
3287	HMDB0000619	Cholic acid	HMDB0000619	221493
$\frac{3288}{3289}$	HMDB0000760 HMDB0000865	Hyocholic acid Muricholic acid	HM DB0000760 HM DB0000865	$\begin{array}{c} 131750 \\ 119473 \end{array}$
3290	HMDB0000917	Ursocholic acid	HMDB0000917	122340
3291	${\rm HMDB0006053}$	NA	NA	NA
3292	C00695	NA NA	NA	NA
3293	C01558	NA NA	NA NA	N A
$\frac{3294}{3295}$	C04661 C17644	NA NA	NA NA	N A N A
3296	C17647	NA NA	NA NA	NA
3297	C17649	NA	NA	NA
3298	C17650	NA	NA	NA
3299	C17654	NA NA	NA NA	N A
$3300 \\ 3301$	C17657 C17667	NA NA	NA NA	N A N A
3302	C17668	NA NA	NA NA	NA NA
3303	C17726	NA	NA	NA
3304	C17727	NA	NA	NA
3305	C17737	NA NA	NA	NA
3306	CHEBI:134216	NA NA	NA NA	N A N A
$\frac{3307}{3308}$	CHEBI:16359 CHEBI:36240	NA NA	NA NA	N A N A
3309	CHEBI:803879	NA	NA	NA
3310	CHEBI:85490	NA	NA	NA
3311	CHEBI:88105	NA NA	NA	NA
$3312 \\ 3313$	CHEBI:89219 HMDB0011470	NA NA	NA NA	N A N A
3314	HMDB0011470 HMDB0011500	NA NA	NA NA	NA NA
3315	CHEBI:84299	NA	NA	NA

3316	HMDB0012607	18-Carboxy-dinor-LTE4	${ m HMDB0012607}$	534814
3317	CHEBI:74017	NA	NA	NA
3318	${\rm HMDB0002829}$	Androsterone glucuronide	${ m HMDB0002829}$	114833
3319	HMDB0004484	Etiocholanolone glucuronide	${ m HMDB0004484}$	443078
3320	HMDB0006203	5-alpha-Dihydrotestosterone glucuronide	HMDB0006203	442633
3321	HMDB0010365	3-alpha-hydroxy-5-alpha-androstane-17-one 3-D-glucuronide	HMDB0010365	534804
3322	C11135	NA	NA	NA
3323	C11136	NA	NA	NA
3324	CHEBI:28832	NA	NA	NA
3325	CHEBI:37451	NA	NA	NA
3326	CHEBI:83024	NA	NA	NA
3327	CHEBI:89417	NA	NA	NA
3328	HMDB0000036	Taurocholic acid	${ m HMDB0000036}$	6675
3329	HMDB0000889	Tauroursocholic acid	${ m HMDB0000889}$	212522
3330	${\rm HMDB0000922}$	Taurallocholic acid	${ m HMDB0000922}$	123590
3331	HMDB0000932	Tauro-b-muricholic acid	${ m HMDB0000932}$	168408
3332	HMDB0011637	Taurohyocholate	${ m HMDB0011637}$	131750
3333	C05122	NA	NA	NA
3334	C15516	NA	NA	NA
3335	CHEBI:28865	NA	NA	NA
3336	CHEBI:52022	NA	NA	NA
3337	HMDB0038847	Apigenin 7-[rhamnosyl-(1->2)-galacturonide]	HMDB0038847	143097
3338	${\rm HMDB0041129}$	6"-O-(3-Hydroxy-3-methylglutaroyl)astragalin	HMDB0041129	237572
3339	HMDB0041719	Daidzin 4'-O-glucuronide	${ m HMDB0041719}$	131753
3340	HMDB0127121	NA	NA	NA
3341	${\rm HMDB0127122}$	NA	NA	NA
3342	${ m HMDB0127170}$	NA	NA	NA
3343	HMDB0127171	NA	NA	NA
3344	HMDB0127234	NA	NA	NA
3345	${\rm HMDB0127235}$	NA	NA	NA
3346	${ m HMDB0127275}$	NA	NA	NA
3347	${\rm HMDB0127276}$	NA	NA	NA
3348	${\rm HMDB0127295}$	NA	NA	NA
3349	${\rm HMDB0127296}$	NA	NA	NA
3350	${\rm HMDB0116652}$	NA	NA	NA
3351	HMDB0116688	NA	NA	NA

4 Pathway Analysis

In this step, users are asked to select a pathway library, as well as specify the algorithms for pathway enrichment analysis and pathway topology analysis.

4.1 Pathway Library

There are 15 pathway libraries currently supported, with a total of 1173 pathways:

- Homo sapiens (human) [80]
- Mus musculus (mouse) [82]
- Rattus norvegicus (rat) [81]
- Bos taurus (cow) [81]
- Danio rerio (zebrafish) [81]
- Drosophila melanogaster (fruit fly) [79]
- Caenorhabditis elegans (nematode) [78]
- Saccharomyces cerevisiae (yeast) [65]
- Oryza sativa japonica (Japanese rice) [83]
- Arabidopsis thaliana (thale cress) [87]
- Escherichia coli K-12 MG1655 [87]
- Bacillus subtilis [80]
- Pseudomonas putida KT2440 [89]
- Staphylococcus aureus N315 (MRSA/VSSA)[73]
- Thermotoga maritima [57]

Your selected pathway library code is hsa (KEGG organisms abbreviation).

4.2 Over Representation Analysis

Over-representation analysis tests if a particular group of compounds is represented more than expected by chance within the user uploaded compound list. In the context of pathway analysis, we are testing if compounds involved in a particular pathway are enriched compared to random hits. MetPA offers two of the most commonly used methods for over-representation analysis:

- Fishers'Exact test
- Hypergeometric Test

Please note, MetPA uses one-tailed Fisher's exact test which will give essentially the same result as the result calculated by the hypergeometric test.

The selected over-representation analysis method is 'Hypergeometric test'.

4.3 Pathway Topology Analysis

The structure of biological pathways represent our knowledge about the complex relationships among molecules within a cell or a living organism. However, most pathway analysis algorithms fail to take structural information into consideration when estimating which pathways are significantly changed under conditions of study. It is well-known that changes in more important positions of a network will trigger a more severe impact on the pathway than changes occurred in marginal or relatively isolated positions.

The pathway topology analysis uses two well-established node centrality measures to estimate node importance - degree centrality and betweenness centrality. Degree centrality is defined as the number of links occurred upon a node. For a directed graph there are two types of degree: in-degree for links come from other nodes, and out-degree for links initiated from the current node. Metabolic networks are directed graph. Here we only consider the out-degree for node importance measure. It is assumed that nodes upstream will have regulatory roles for the downstream nodes, not vice versa. The betweenness centrality measures the number of shortest paths going through the node. Since the metabolic network is directed, we use the relative betweenness centrality for a metabolite as the importance measure. The degree centrality measure focuses more on local connectivities, while the betweenness centrality measure focuses more on global network topology. For more detailed discussions on various graph-based methods for analyzing biological networks, please refer to the article by Tero Aittokallio, T. et al. ¹

Please note, for comparison among different pathways, the node importance values calculated from centrality measures are further normalized by the sum of the importance of the pathway. Therefore, the total/maximum importance of each pathway is 1; the importance measure of each metabolite node is actually the percentage w.r.t the total pathway importance, and the pathway impact value is the cumulative percentage from the matched metabolite nodes.

Your selected node importance measure for topological analysis is 'relative betweenness centrality'.

5 Pathway Analysis Result

The results from pathway analysis are presented graphically as well as in a detailed table.

A Google-map style interactive visualization system was implemented to facilitate data exploration. The graphical output contains three levels of view: **metabolome view**, **pathway view**, and **compound view**. Only the metabolome view is shown below. Pathway views and compound views are generated dynamically based on your interactions with the visualization system. They are available in your downloaded files.

¹Tero Aittokallio and Benno Schwikowski. *Graph-based methods for analyzing networks in cell biology*, Briefings in Bioinformatics 2006 7(3):243-255

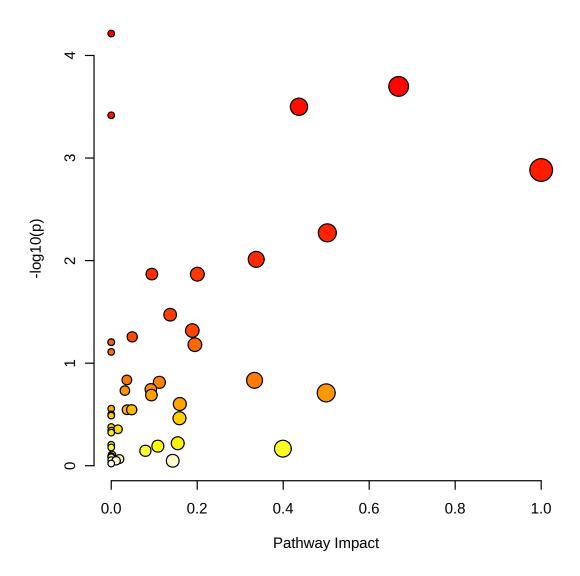


Figure 1: Summary of Pathway Analysis

The table below shows the detailed results from the pathway analysis. Since we are testing many pathways at the same time, the statistical p values from enrichment analysis are further adjusted for multiple testings. In particular, the **Total** is the total number of compounds in the pathway; the **Hits** is the actually matched number from the user uploaded data; the **Raw p** is the original p value calculated from the enrichment analysis; the **Holm p** is the p value adjusted by Holm-Bonferroni method; the **FDR p** is the p value adjusted using False Discovery Rate; the **Impact** is the pathway impact value calculated from pathway topology analysis.

Table 2: Result from Pathway Analysis

	Total	Expected	Hits	Raw p	-log10(p)	Holm adjust	FDR	Impact
D-Amino acid metabolism	15	0.79	6	6.11E-05	4.21E+00	4.89E-03	4.89E-03	0.00
Glycine, serine and threonine metabolism	33	1.74	8	2.00E-04	3.70E+00	1.58E-02	7.66E-03	0.67
Arachidonic acid metabolism	44	2.32	9	3.16E-04	3.50E+00	2.47 E-02	7.66E-03	0.44
Biosynthesis of unsaturated fatty acids	36	1.90	8	3.83E-04	3.42E+00	2.95 E-02	7.66E-03	0.00
Linoleic acid metabolism	5	0.26	3	1.31E-03	2.88E+00	9.94 E-02	2.09E-02	1.00
Glyoxylate and dicarboxylate	32	1.69	6	5.36E-03	2.27E+00	4.02 E-01	7.15E-02	0.50
metabolism					· ·			
Arginine and proline metabolism	36	1.90	6	9.73E-03	2.01E+00	7.20 E-01	1.11E-01	0.34
Steroid hormone biosynthesis	87	4.58	10	1.35E-02	1.87E+00	9.88E-01	1.21E-01	0.09
Alanine, aspartate and glutamate	28	1.48	5	1.36E-02	1.87E+00	9.88E-01	1.21E-01	0.20
metabolism					ı "			
Arginine biosynthesis	14	0.74	3	3.37E-02	1.47E+00	1.00E + 00	2.70E-01	0.14
Histidine metabolism	16	0.84	3	4.81E-02	1.32E+00	1.00E + 00	3.30E-01	0.19
Valine, leucine and isoleucine degrada-	40	2.11	5	5.54E-02	$1.26\mathrm{E}{+00}$	1.00E + 00	3.30E-01	0.05
tion			-					
Valine, leucine and isoleucine biosynthe-	8	0.42	2	6.25E-02	1.20E+00	1.00E + 00	3.30E-01	0.00
sis	-		-					
Phenylalanine metabolism	8	0.42	2	6.25E-02	1.20E+00	1.00E + 00	3.30E-01	0.00
Taurine and hypotaurine metabolism	8	0.42	2	6.25E-02	1.20E+00	1.00E + 00	3.30E-01	0.00
Tyrosine metabolism	42	2.21	5	6.60E-02	1.18E+00	1.00E + 00	3.30E-01	0.19
Ascorbate and aldarate metabolism	9	0.47	2	7.76E-02	1.11E+00	1.00E+00	3.65E-01	0.00
Pyrimidine metabolism	39	2.06	4	1.46E-01	8.36E-01	1.00E + 00	6.15E-01	0.04
alpha-Linolenic acid metabolism	13	0.69	2	1.47E-01	8.33E-01	1.00E + 00	6.15E-01	0.33
Glycolysis / Gluconeogenesis	26	1.37	3	1.54E-01	8.13E-01	1.00E + 00	6.15E-01	0.11
Glutathione metabolism	28	1.48	3	1.80E-01	7.45E-01	1.00E+00	6.73E-01	0.09
Butanoate metabolism	15	0.79	2	1.85E-01	7.32E-01	1.00E + 00	6.73E-01	0.03
Phenylalanine, tyrosine and tryptophan	4	0.21	1	1.95E-01	7.10E-01	1.00E + 00	6.78E-01	0.50
biosynthesis	*	0.21	*	1.002 01	1.101 01	1.001 00	0.102 01	0.50
Glycerolipid metabolism	16	0.84	2	2.05E-01	6.89E-01	1.00E + 00	6.82E-01	0.09
Cysteine and methionine metabolism	33	1.74	3	2.50E-01	6.02E-01	1.00E + 00	8.01E-01	0.16
Nitrogen metabolism	6	0.32	1	2.78E-01	5.56E-01	1.00E+00	8.13E-01	0.00
Fructose and mannose metabolism	20	1.05	2	2.85E-01	5.46E-01	1.00E+00	8.13E-01	0.04
Pantothenate and CoA biosynthesis	20	1.05	2	2.85E-01	5.46E-01	1.00E + 00	8.13E-01	0.05
Thiamine metabolism	7	0.37	1	3.16E-01	5.00E-01	1.00E+00	8.65E-01	0.00
Propanoate metabolism	22	1.16	2	3.24E-01	4.89E-01	1.00E+00	8.65E-01	0.00
Pentose phosphate pathway	23	1.21	2	3.44E-01	4.63E-01	1.00E+00	8.88E-01	0.16
Biotin metabolism	10	0.53	1	4.19E-01	3.78E-01	1.00E + 00	1.00E+00	0.00
Primary bile acid biosynthesis	46	2.42	3	4.41E-01	3.56E-01	1.00E+00 1.00E+00	1.00E+00	0.00
Fatty acid biosynthesis	47	2.48	3	4.55E-01	3.42E-01	1.00E+00	1.00E+00	0.02
Inositol phosphate metabolism	30	1.58	2	4.76E-01	3.23E-01	1.00E+00	1.00E+00	0.00
Retinol metabolism	17	0.90	1	6.04E-01	2.19E-01	1.00E + 00	1.00E+00	0.15
Ubiquinone and other terpenoid-quinone	18	0.95	1	6.25E-01	2.04E-01	1.00E+00	1.00E+00	0.00
biosynthesis	10	0.50	*	0.201 01	2.041.01	1.001 00	1.001 00	0.00
Pentose and glucuronate interconversions	19	1.00	1	6.45E-01	1.91E-01	1.00E + 00	1.00E+00	0.11
Selenocompound metabolism	20	1.05	1	6.64E-01	1.78E-01	1.00E+00 1.00E+00	1.00E+00	0.00
beta-Alanine metabolism	21	1.11	1	6.82E-01	1.66E-01	1.00E+00 1.00E+00	1.00E+00	0.40
Pyruvate metabolism	23	1.21	1	7.15E-01	1.46E-01	1.00E+00 1.00E+00	1.00E+00	0.40
Lipoic acid metabolism	28	1.48	1	7.13E-01 7.83E-01	1.46E-01 1.06E-01	1.00E+00 1.00E+00	1.00E+00	0.00
Lysine degradation	30	1.58	1	8.06E-01	9.37E-02	1.00E+00 1.00E+00	1.00E+00 1.00E+00	0.00
Porphyrin metabolism	31	1.63	1 1	8.16E-01	8.81E-02	1.00E+00 1.00E+00	1.00E+00 1.00E+00	0.00
Sphingolipid metabolism	32	1.69	1	8.26E-01	8.29E-02	1.00E+00 1.00E+00	1.00E+00 1.00E+00	0.00
Gly cerophospholipid metabolism	36	1.09	1	8.61E-01	6.51E-02	1.00E+00 1.00E+00	1.00E+00 1.00E+00	0.00
Fatty acid degradation	39	2.06	1	8.81E-01 8.82E-01	5.45E-02	1.00E+00 1.00E+00	1.00E+00 1.00E+00	0.02
Tryptophan metabolism	41	2.06	1	8.82E-01 8.95E-01	4.84E-02	1.00E+00 1.00E+00	1.00E+00 1.00E+00	0.00
Purine metabolism	70	3.69	$\begin{vmatrix} 1 \\ 2 \end{vmatrix}$	8.95E-01 8.95E-01	4.84E-02 4.83E-02	1.00E+00 1.00E+00	1.00E+00 1.00E+00	0.14
	55	2.90	1 1					0.01
Drug metabolism - cytochrome P450	55	_ ∠.90	1	9.52E-01	2.15E-02	1.00E+00	1.00E+00	0.00

6 Appendix: R Command History

```
[1] "mSet<-InitDataObjects(\"conc\", \"pathora\", FALSE)"
[2] "cmpd.vec<-c(\"HMDBOO00042\",\"HMDBO003344\",\"HMDBO002165\",\"C00033\",\"C00266\",\"CHEBI:1536
[3] "mSet<-Setup.MapData(mSet, cmpd.vec);"
[4] "mSet<-CrossReferencing(mSet, \"hmdb\");"
[5] "mSet<-CreateMappingResultTable(mSet)"
[6] "mSet<-SetKEGG.PathLib(mSet, \"hsa\", \"current\")"
[7] "mSet<-SetMetabolomeFilter(mSet, F);"
[8] "mSet<-CalculateOraScore(mSet, \"rbc\", \"hyperg\")"
[9] "mSet<-PlotPathSummary(mSet, F, \"path_view_O_\", \"png\", 72, width=NA, NA, NA)"
[10] "mSet<-SaveTransformedData(mSet)"
[11] "mSet<-PreparePDFReport(mSet, \"guest5869009112759895119\")\n"</pre>
```

The report was generated on Fri Aug 2 03:46:11 2024 with R version 4.2.2 (2022-10-31), OS system: Linux.