FIG. 1

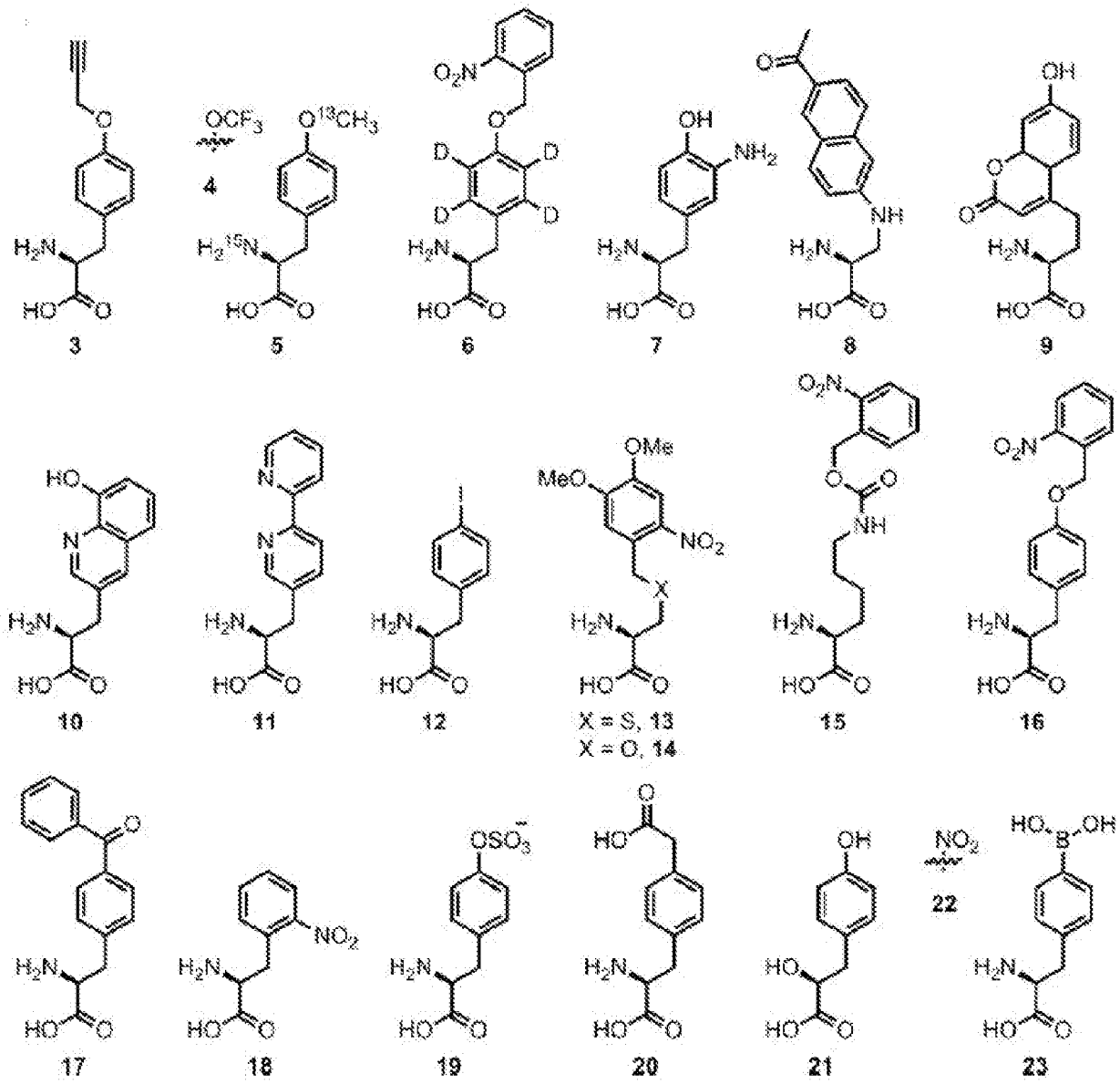


FIG. 2A

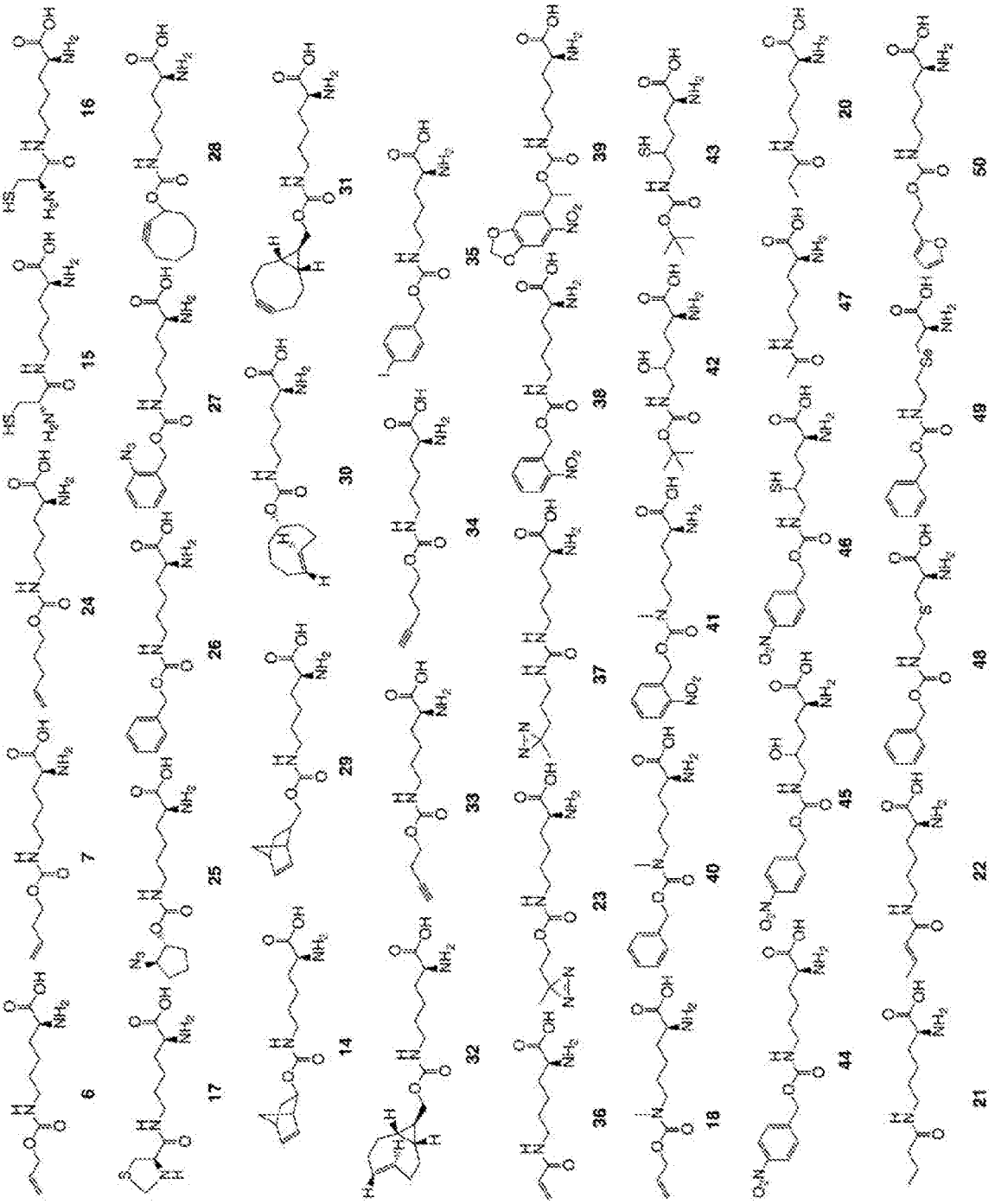

6
7
24
15
16
17
25
26
27
28
14
29
30
31
32
33
34
35
36
23
37
38
39
18
40
41
42
43
44
45
46
47
20
21
22
48
49
50
51

FIG. 2B

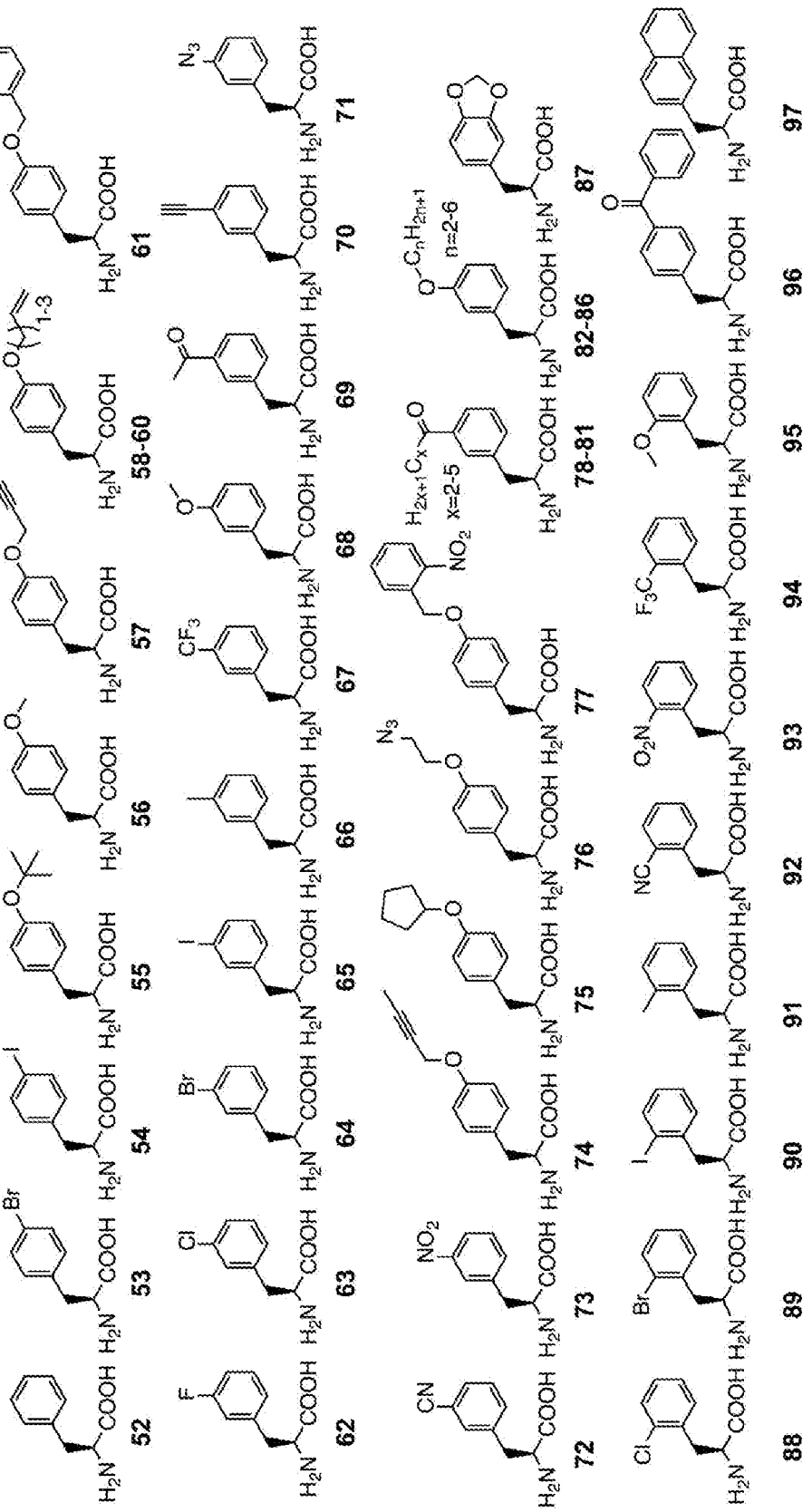

52
53
54
55
56
57
58-60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78-81
82-86
87
88
89
90
91
92
93
94
95
96
97

FIG. 3A

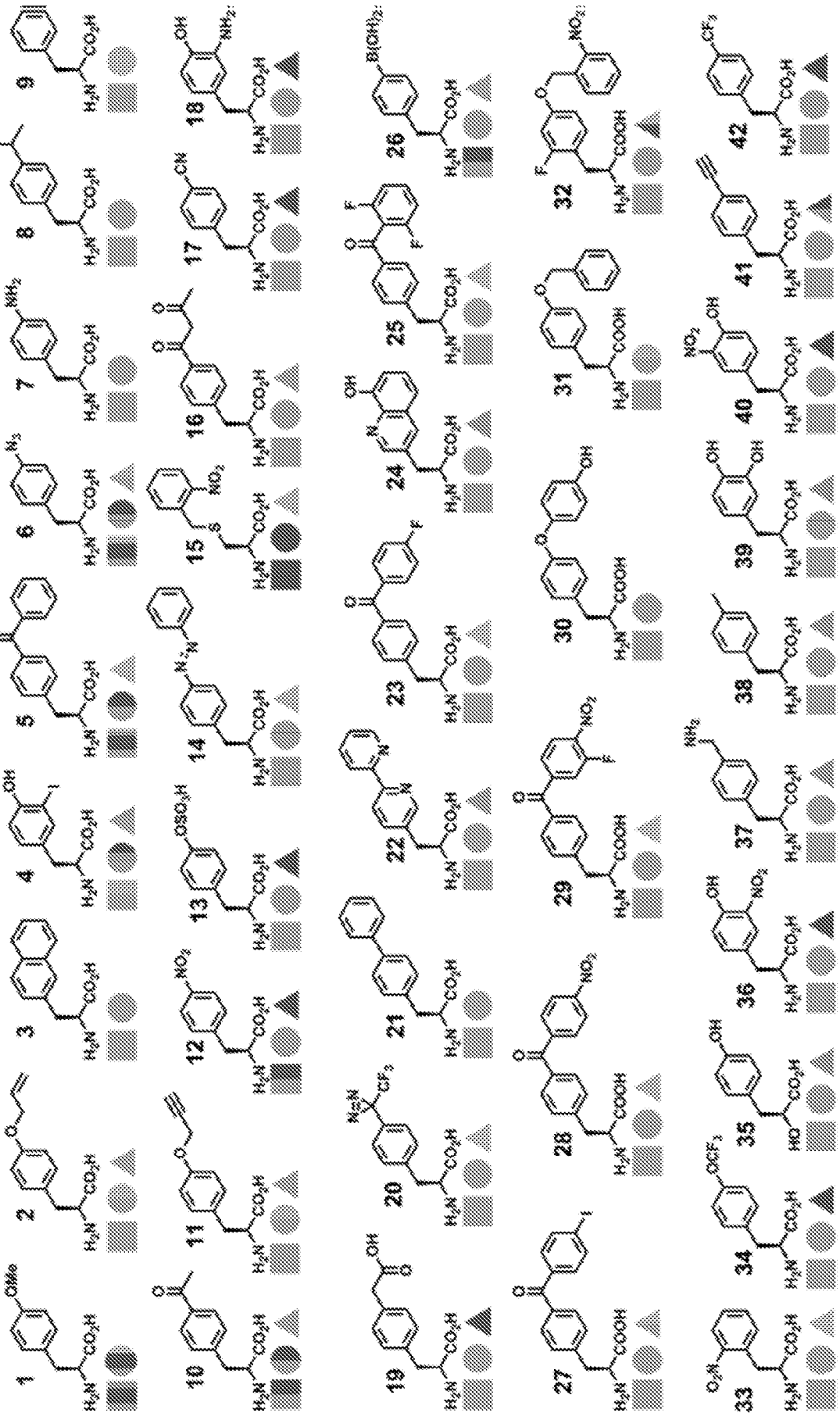


FIG. 3B

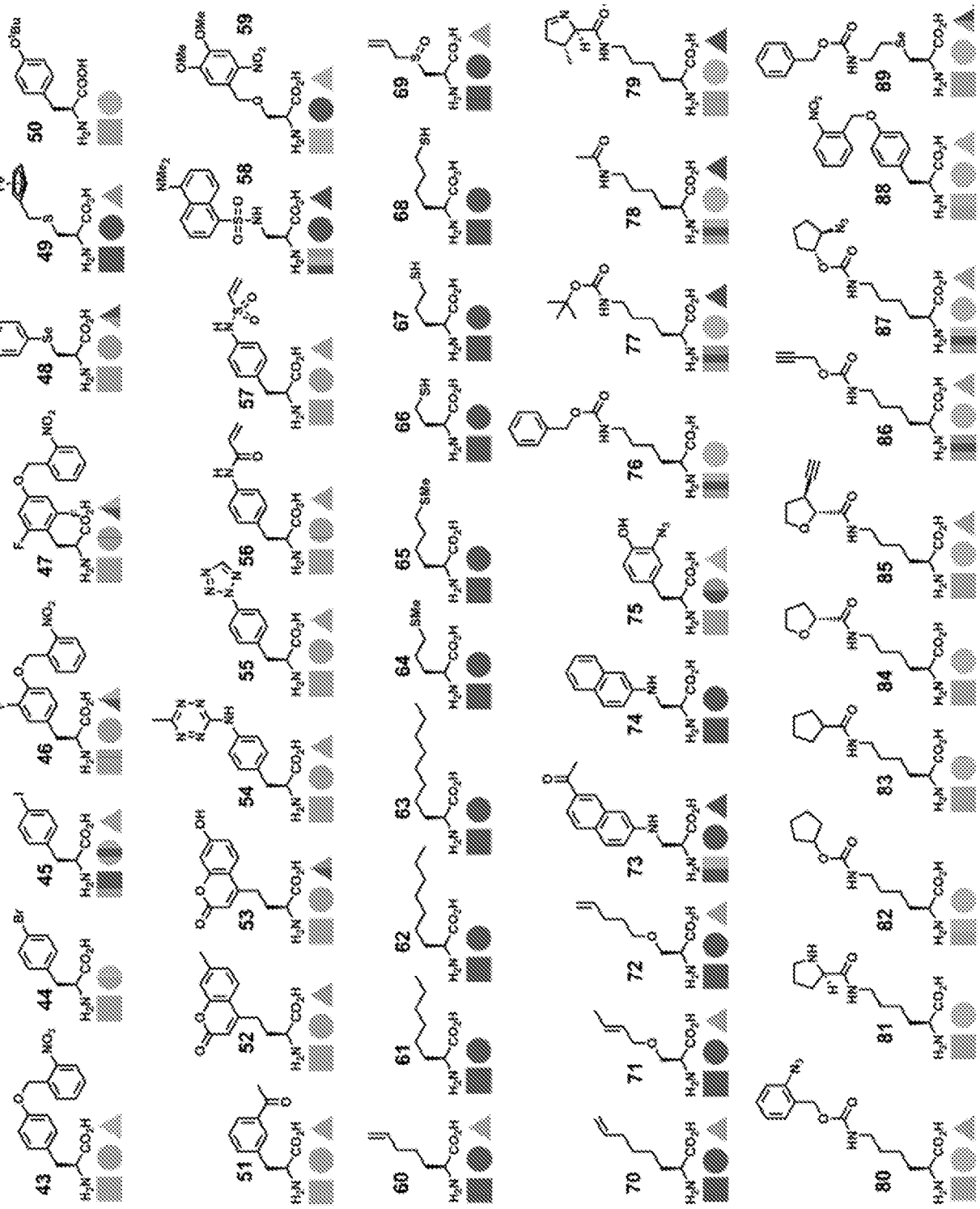


FIG. 3C

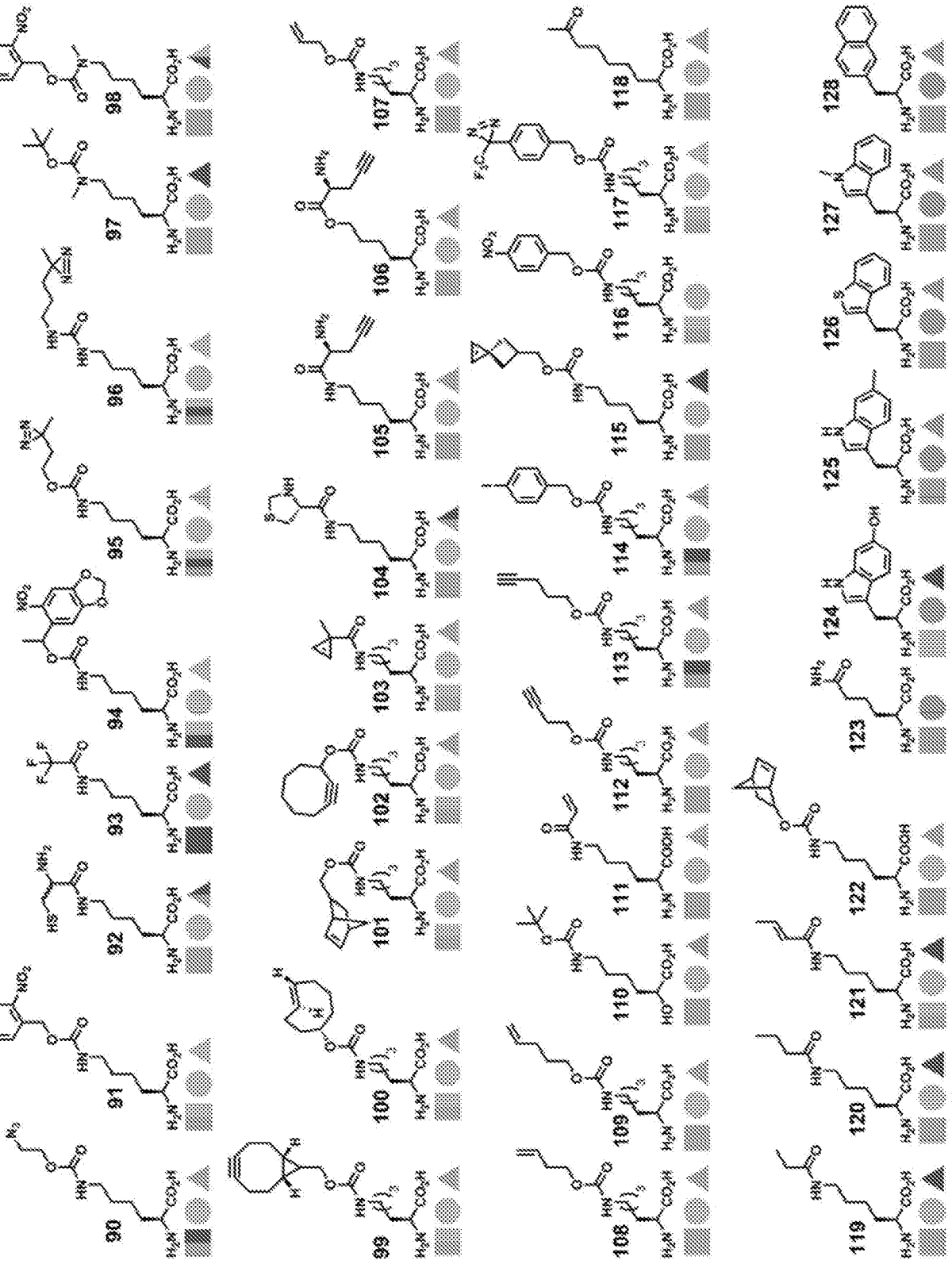
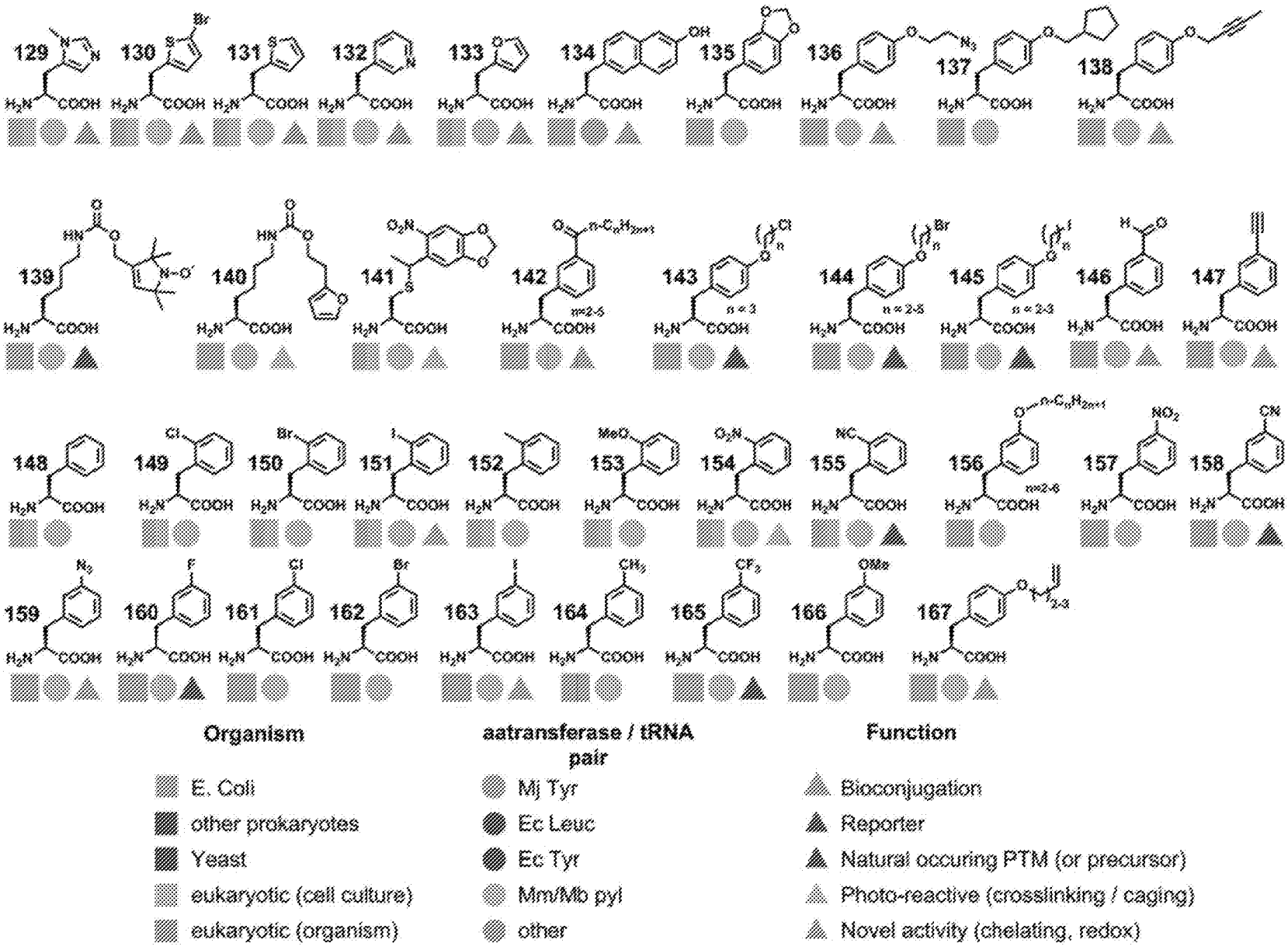


FIG. 3D


129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
Organism
E. Coli
other prokaryotes
Yeast
eukaryotic (cell culture)
eukaryotic (organism)
aatransferase / tRNA pair
Mj Tyr
Ec Leuc
Ec Tyr
Mm/Mb pyl
other
Function
Bioconjugation
Reporter
Natural occuring PTM (or precursor)
Photo-reactive (crosslinking / caging)
Novel activity (chelating, redox)