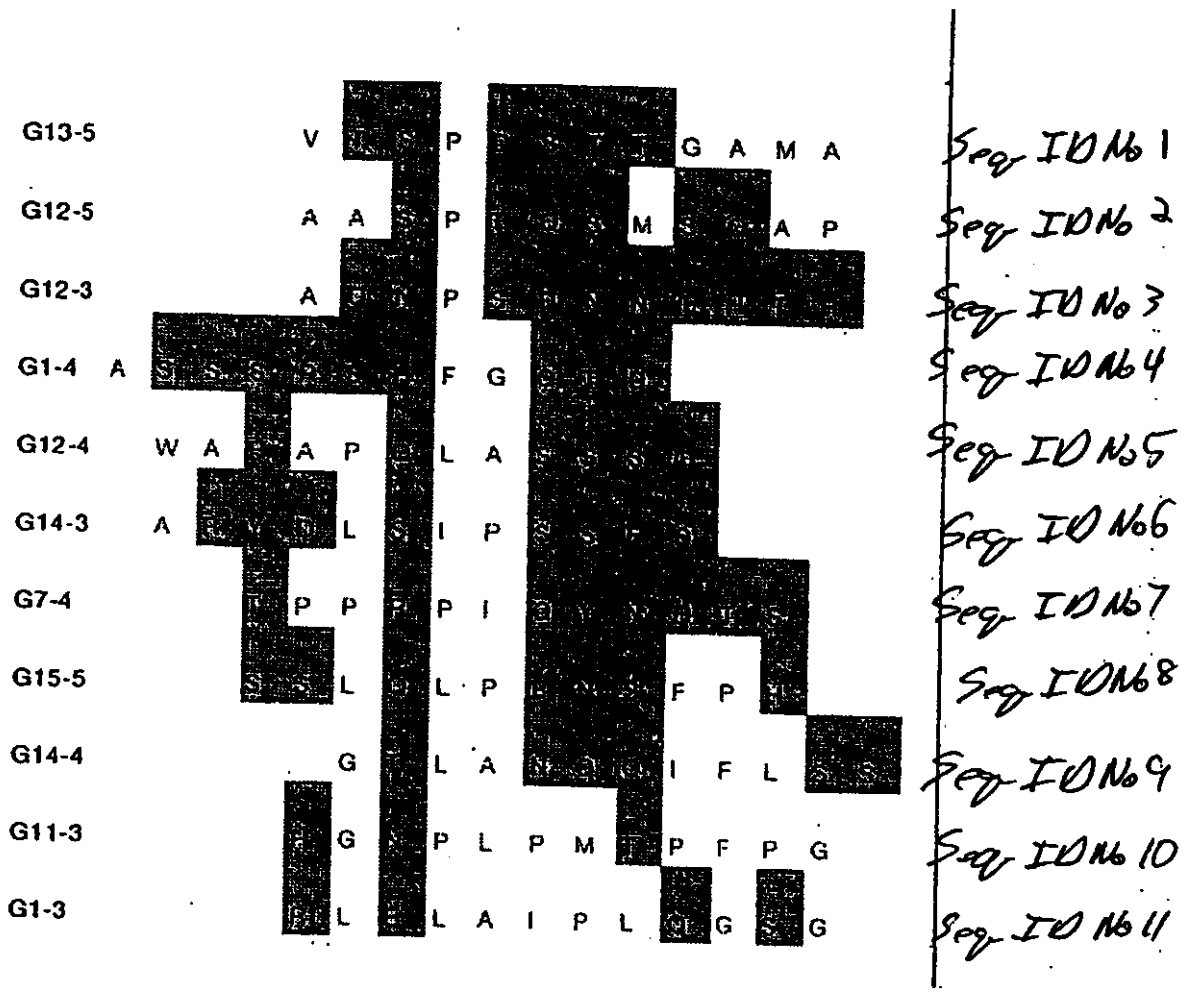

G13-5
G12-5
G12-3
G1-4
G12-4
G14-3
G7-4
G15-5
G14-4
G11-3
G1-3
Seq ID No 1
Seq ID No 2
Seq ID No 3
Seq ID No 4
Seq ID No 5
Seq ID No 6
Seq ID No 7
Seq ID No 8
Seq ID No 9
Seq ID No 10
Seq ID No 11

Fig 1

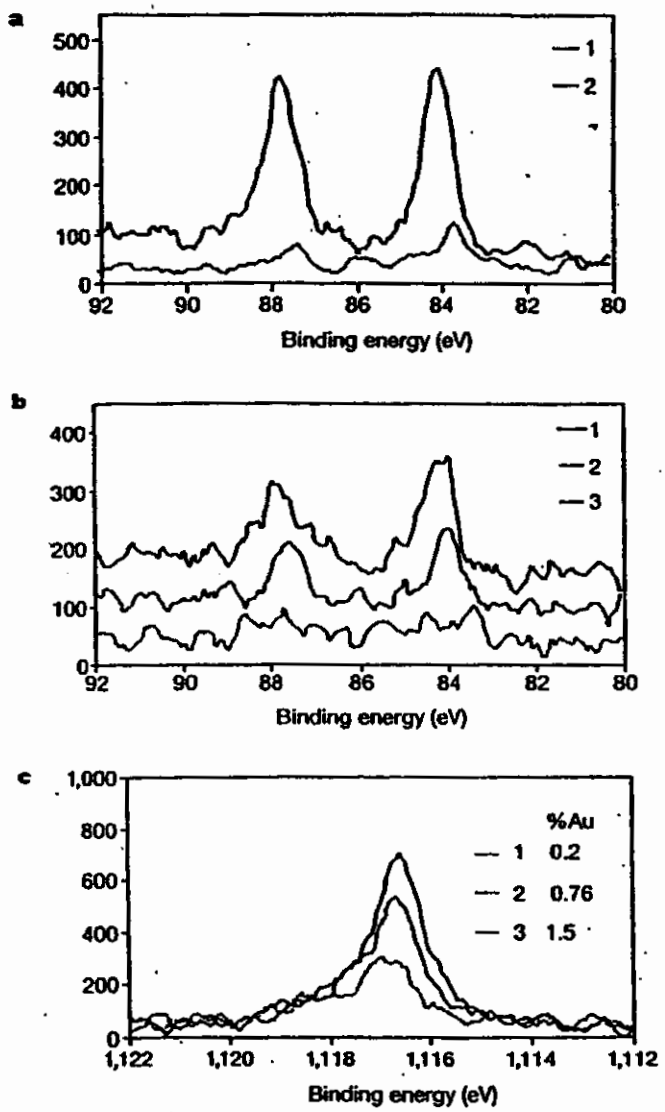

a
500
400
300
200
100
0
92
90
88
86
84
82
80
Binding energy (eV)
—1
—2
b
400
300
200
100
0
92
90
88
86
84
82
80
Binding energy (eV)
—1
—2
—3
c
1,000
800
600
400
200
0
1,122
1,120
1,118
1,116
1,114
1,112
Binding energy (eV)
%Au
— 1 0.2
— 2 0.76
— 3 1.5

Fig 2

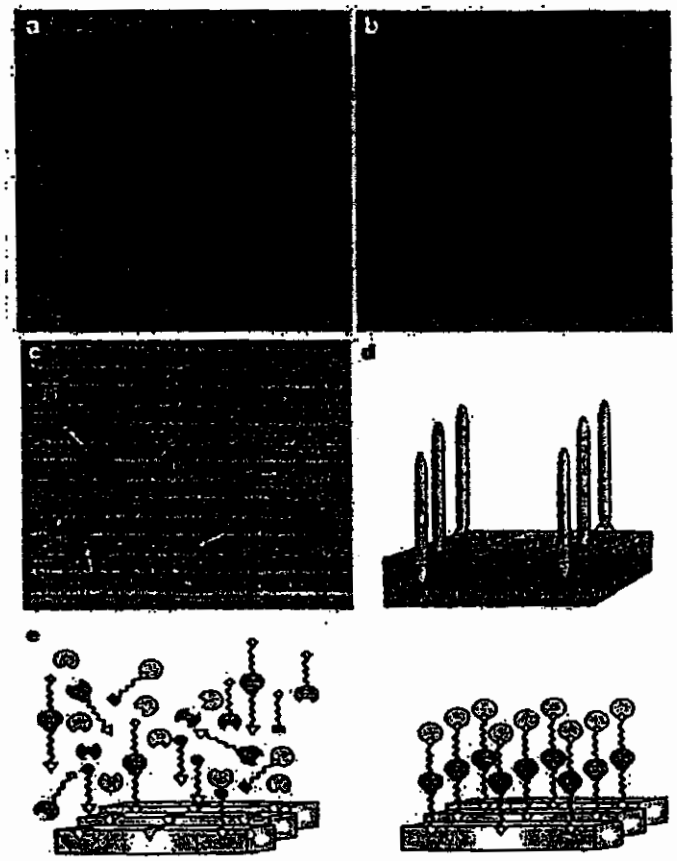


Fig 3

CdS Single Crystal

12-mer library

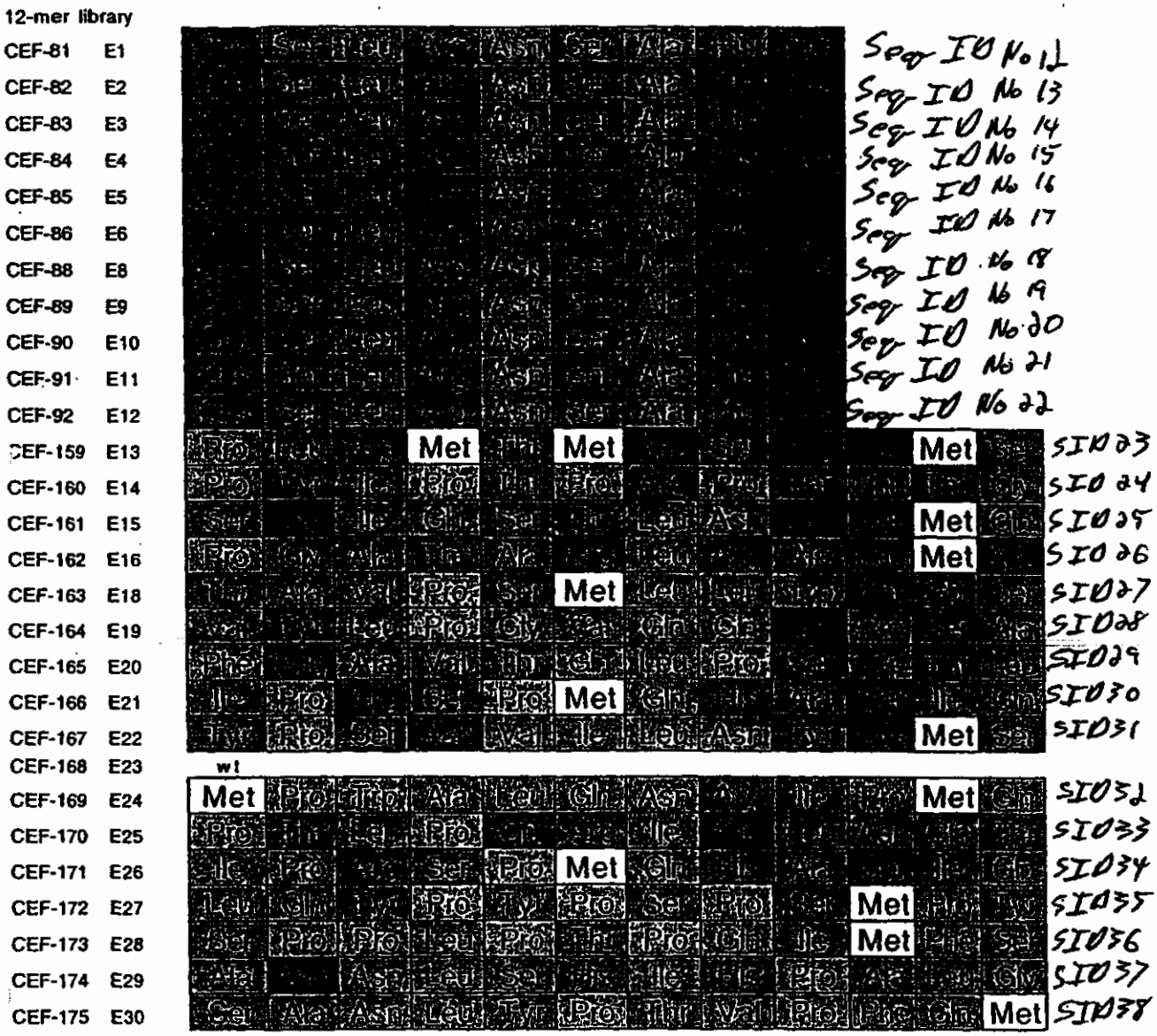


Fig 4

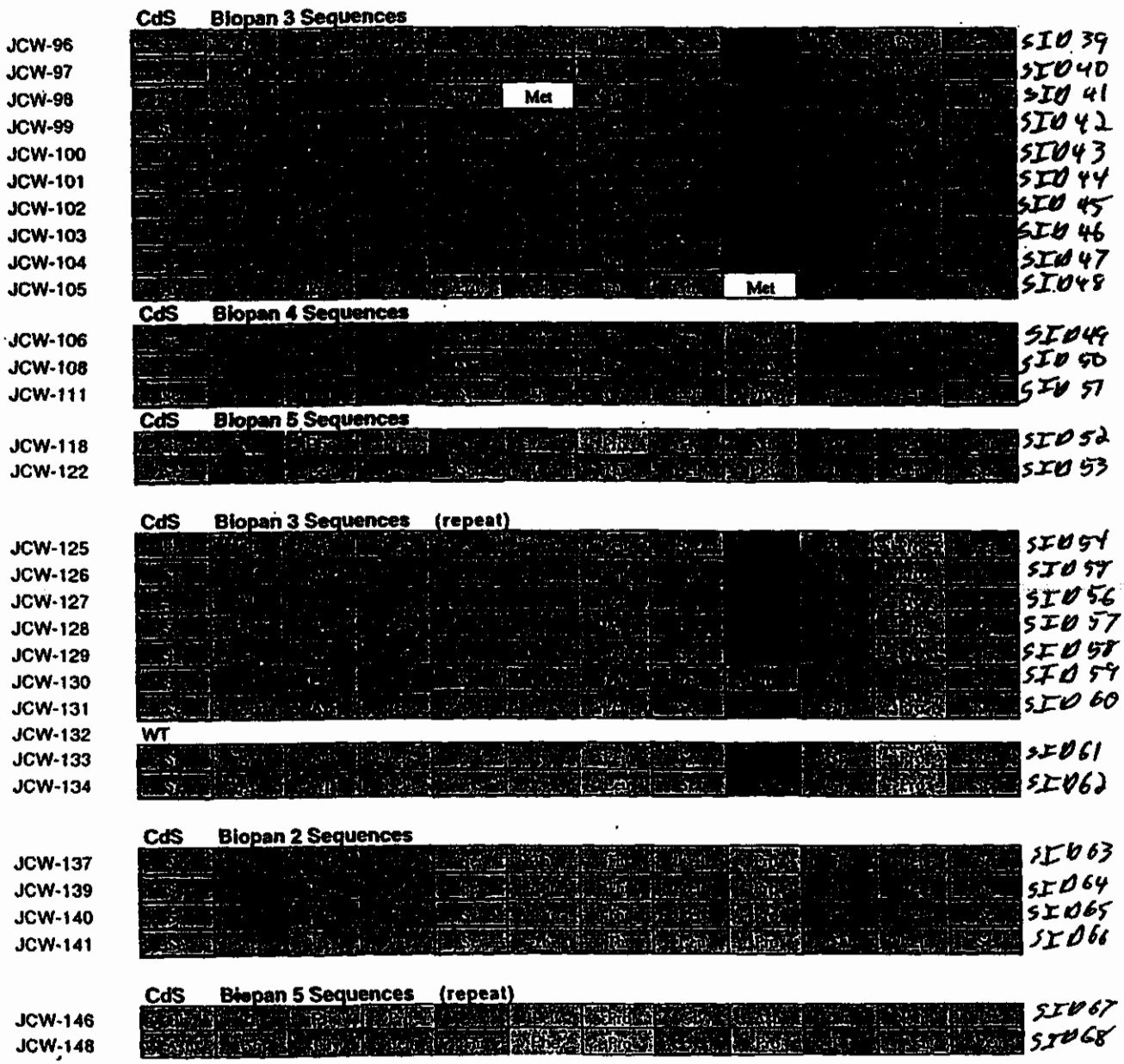
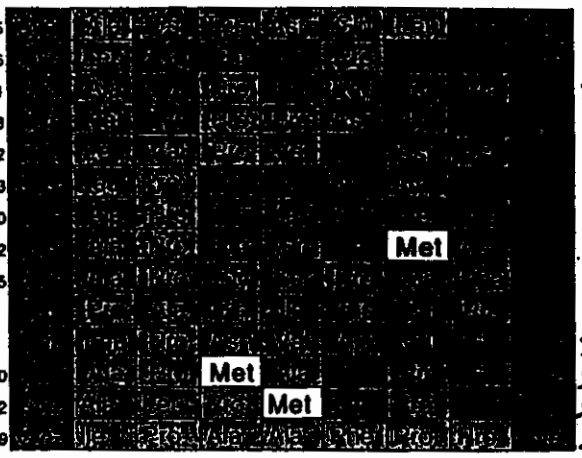

CdS Biopan 3 Sequences
JCW-96
JCW-97
JCW-98
JCW-99
JCW-100
JCW-101
JCW-102
JCW-103
JCW-104
JCW-105
Met
Met
SEQ ID NO: 39
SEQ ID NO: 40
SEQ ID NO: 41
SEQ ID NO: 42
SEQ ID NO: 43
SEQ ID NO: 44
SEQ ID NO: 45
SEQ ID NO: 46
SEQ ID NO: 47
SEQ ID NO: 48
CdS Biopan 4 Sequences
JCW-106
JCW-108
JCW-111
SEQ ID NO: 49
SEQ ID NO: 50
SEQ ID NO: 51
CdS Biopan 5 Sequences
JCW-118
JCW-122
SEQ ID NO: 52
SEQ ID NO: 53
CdS Biopan 3 Sequences (repeat)
JCW-125
JCW-126
JCW-127
JCW-128
JCW-129
JCW-130
JCW-131
SEQ ID NO: 54
SEQ ID NO: 55
SEQ ID NO: 56
SEQ ID NO: 57
SEQ ID NO: 58
SEQ ID NO: 59
SEQ ID NO: 60
WT
JCW-132
JCW-133
JCW-134
SEQ ID NO: 61
SEQ ID NO: 62
CdS Biopan 2 Sequences
JCW-137
JCW-139
JCW-140
JCW-141
SEQ ID NO: 63
SEQ ID NO: 64
SEQ ID NO: 65
SEQ ID NO: 66
CdS Biopan 5 Sequences (repeat)
JCW-146
JCW-148
SEQ ID NO: 67
SEQ ID NO: 68

Fig 5

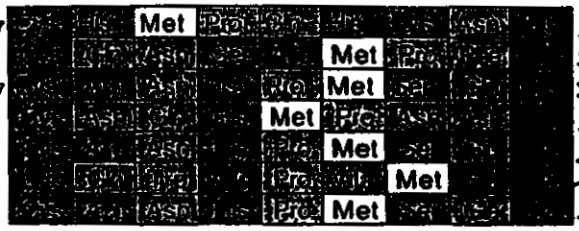
some other arrangemnets

4	B71	CEF-215	SIO 69
4	G	CEF-156	SIO 70
31	H13	CEF-131	SIO 71
31	H15	CEF-133	SIO 72
31	H14	CEF-132	SIO 73
3	B49	CEF-203	SIO 74
31	H2	CEF-120	SIO 75
3	G4	CEF-102	SIO 76
31	H17	CEF-135	SIO 77
4		B20	SIO 78
5	CEF-27	B29	SIO 79
3	G2	CEF-100	SIO 80
3	B48	CEF-202	SIO 81
3a	B92	CEF-229	SIO 82



net-pro sequences from Aldrich ZnS screenings

3a	B63	CEF-207	SIO 83
4		B18	SIO 84
4a	B73	CEF-217	SIO 85
5		B7	SIO 86
5	CEF-28	B30	SIO 87
5	CEF-34	B36	SIO 88
5	CEF-35	B37	SIO 89



	JCW-67	503	SIO 90
	JCW-87	503	SIO 91
5	JCW-65	5H7	SIO 92
4	JCW-57	4H9	SIO 93
4	JCW-30	437-10	SIO 94
4	JCW-28	437-8	SIO 95
4	JCW-21	437-1	SIO 96
4	JCW-22	437-2	SIO 97
4	JCW-23	437-3	SIO 98
3	JCW-3	337-3	SIO 99
5	CEF-11	Z35	SIO 100
5	CEF-6	Z30	SIO 101
5	CEF-3	Z27	SIO 102
5		Z22	SIO 103
5		Z23	SIO 104
5		Z15	SIO 105
5		Z9	SIO 106
5		Z10	SIO 107
2		Z4	SIO 108
		C16	SIO 109
		C10	SIO 110

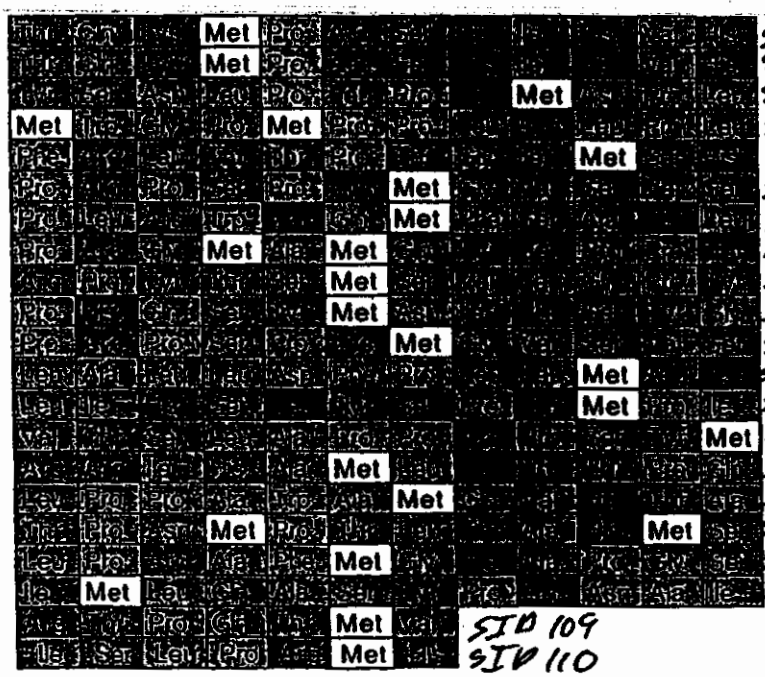


Fig 6

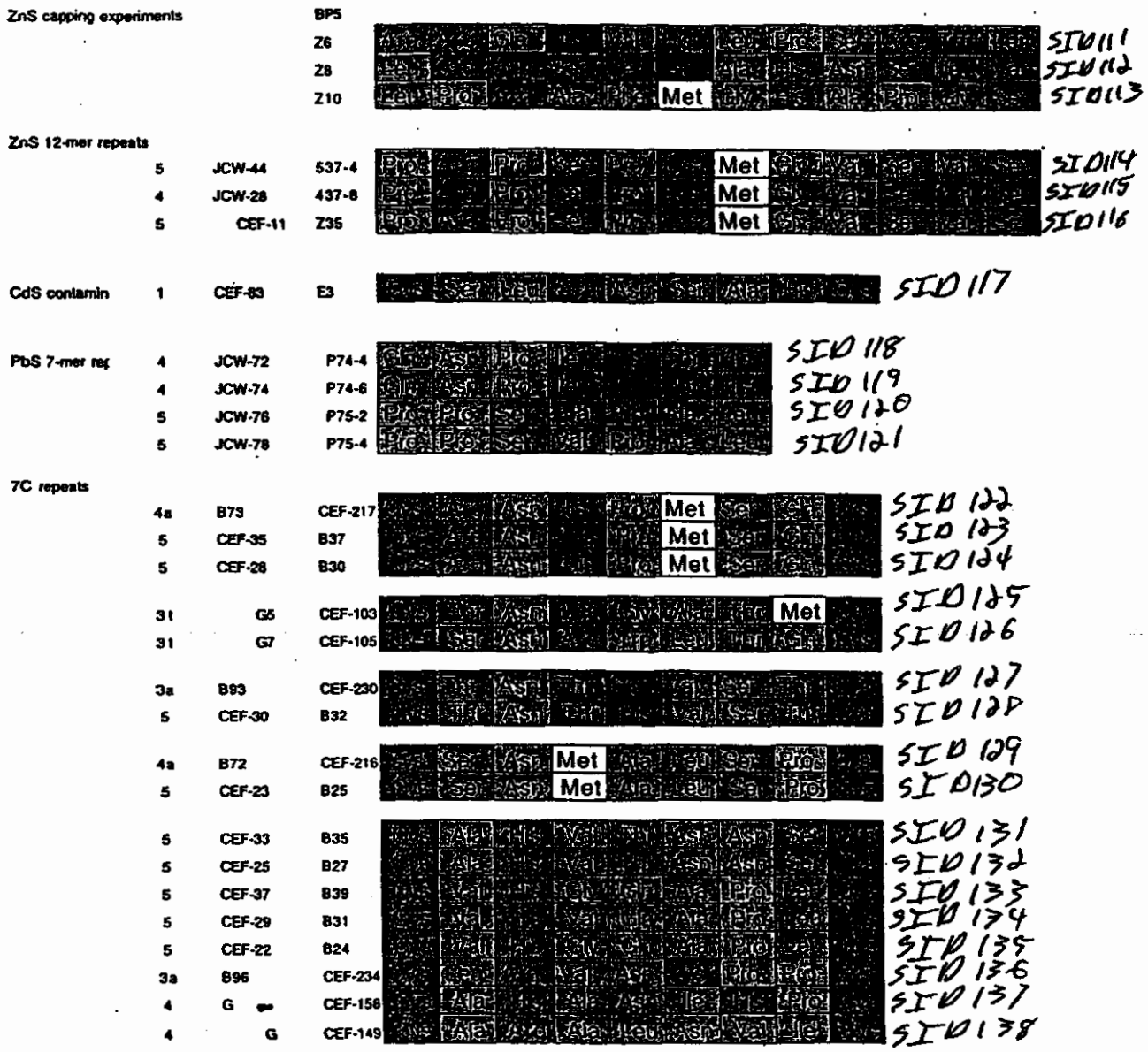

ZnS capping experiments
BP5
Z6
Z8
Z10
Met
SID111
SID112
SID113
ZnS 12-mer repeats
5 JCW-44 537-4
4 JCW-28 437-8
5 CEF-11 Z35
Met
SID114
SID115
SID116
CdS contamin
1 CEF-83 E3
SID117
PbS 7-mer rep
4 JCW-72 P74-4
4 JCW-74 P74-6
5 JCW-76 P75-2
5 JCW-78 P75-4
SID118
SID119
SID120
SID121
7C repeats
4a B73 CEF-217
5 CEF-35 B37
5 CEF-28 B30
Met
SID122
SID123
SID124
3t G5 CEF-103
3t G7 CEF-105
Met
SID125
SID126
3a B93 CEF-230
5 CEF-30 B32
SID127
SID128
4a B72 CEF-216
5 CEF-23 B25
Met
SID129
SID130
5 CEF-33 B35
5 CEF-25 B27
5 CEF-37 B39
5 CEF-29 B31
5 CEF-22 B24
3a B96 CEF-234
4 G CEF-158
4 G CEF-149
SID131
SID132
SID133
SID134
SID135
SID136
SID137
SID138

Fig 7

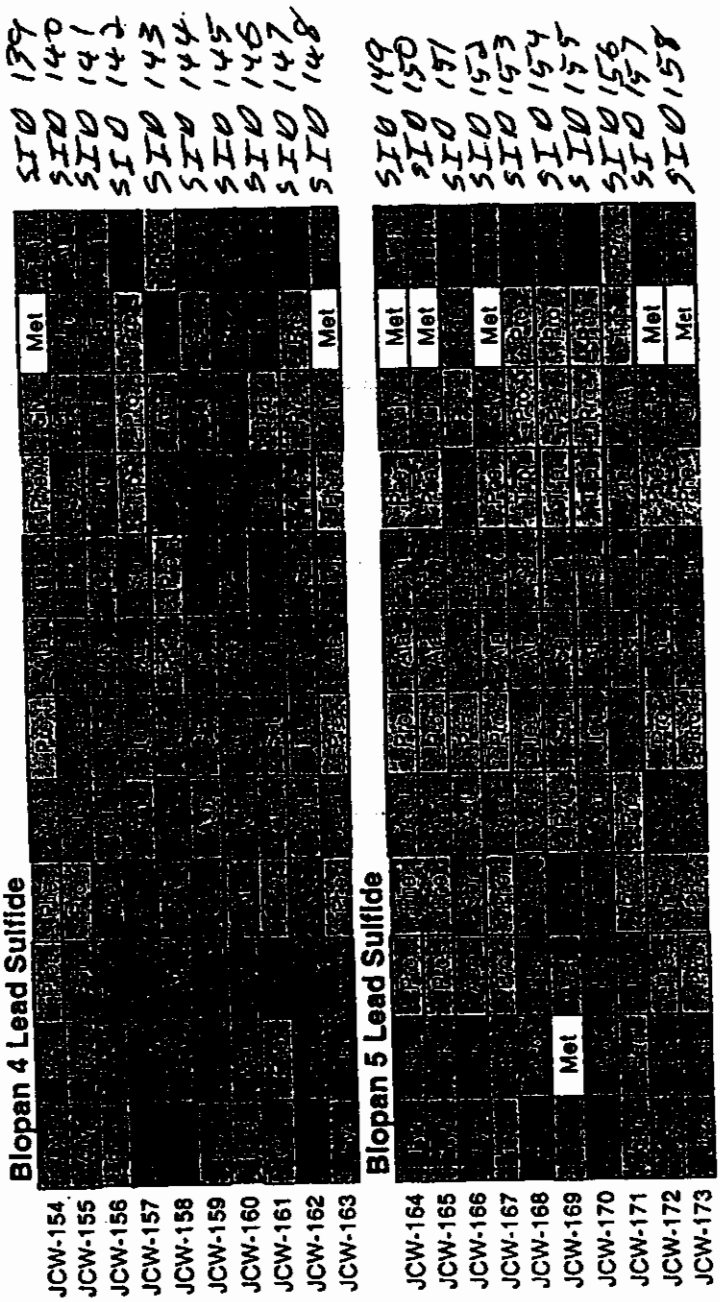

Biopan 4 Lead Sulfide
Met
JCW-154
JCW-155
JCW-156
JCW-157
JCW-158
JCW-159
JCW-160
JCW-161
JCW-162
JCW-163
SEQ ID NO: 139
SEQ ID NO: 140
SEQ ID NO: 141
SEQ ID NO: 142
SEQ ID NO: 143
SEQ ID NO: 144
SEQ ID NO: 145
SEQ ID NO: 146
SEQ ID NO: 147
SEQ ID NO: 148
Biopan 5 Lead Sulfide
Met
Met
Met
Met
Met
JCW-164
JCW-165
JCW-166
JCW-167
JCW-168
JCW-169
JCW-170
JCW-171
JCW-172
JCW-173
SEQ ID NO: 149
SEQ ID NO: 150
SEQ ID NO: 151
SEQ ID NO: 152
SEQ ID NO: 153
SEQ ID NO: 154
SEQ ID NO: 155
SEQ ID NO: 156
SEQ ID NO: 157
SEQ ID NO: 158

Fig 8

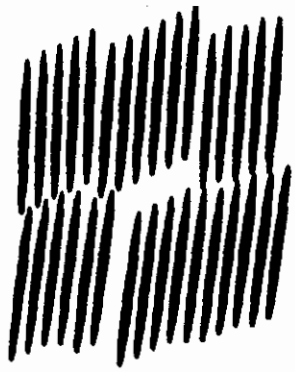


Fig. 9a

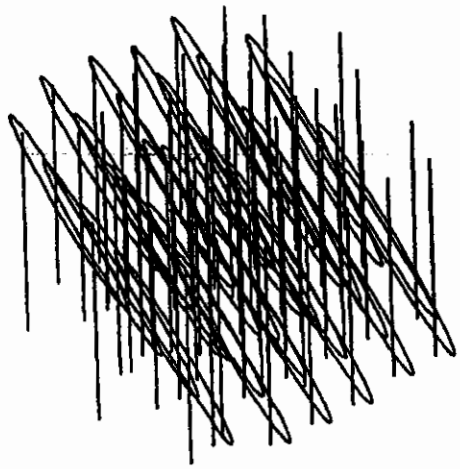


Fig. 9b

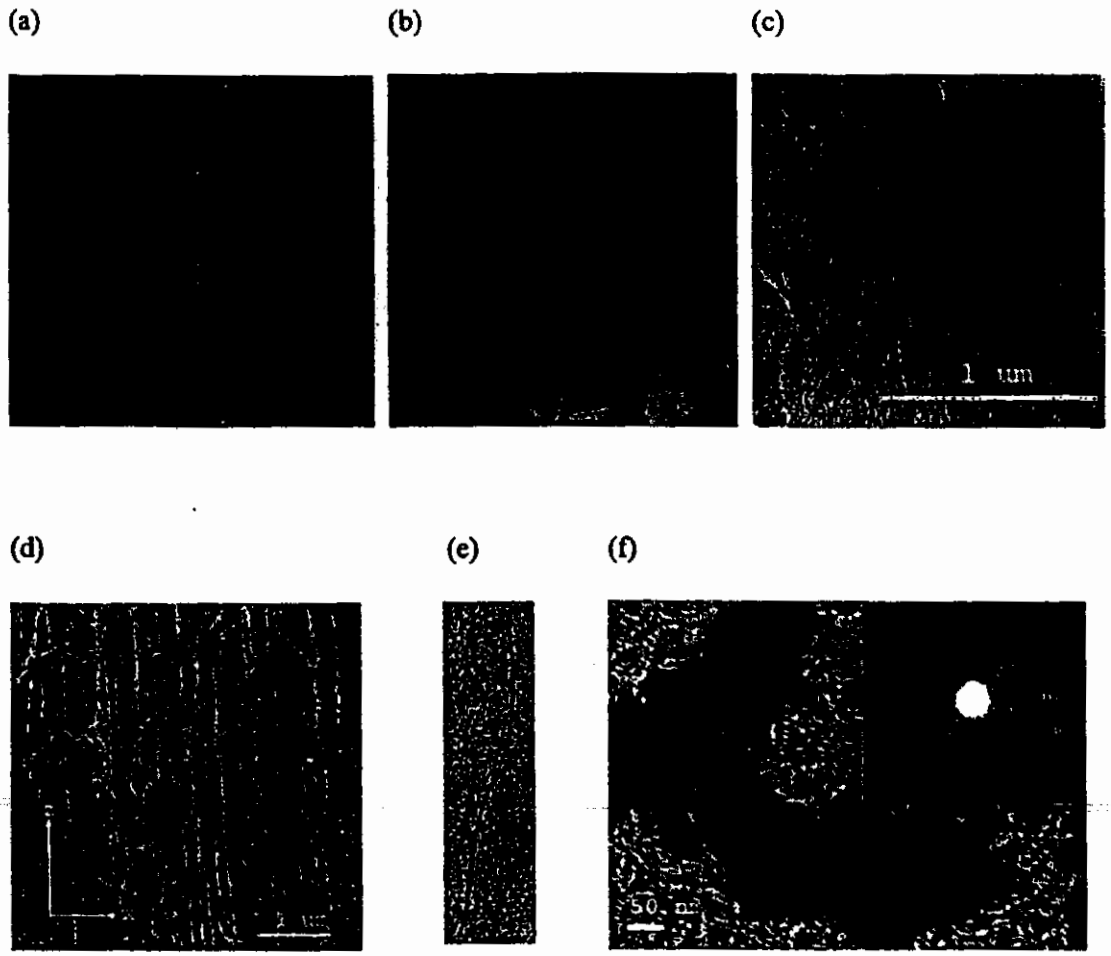


Fig. 10. (a) POM image of smectic suspension of A7-ZnS suspension(127mg/ml), (b) cholesteric phase of A7-znS suspension, (c) AFM image of 25% of smectic suspension cast film, (d) SEM image of (a) suspension, (e) TEM image of individual bacteriophage binding with nanoparticle and (f) TEM image of 0.1 % dilute A7-ZnS suspension stained by 2% uranyl acetate and electron diffraction of ZnS wurtzite (inset).

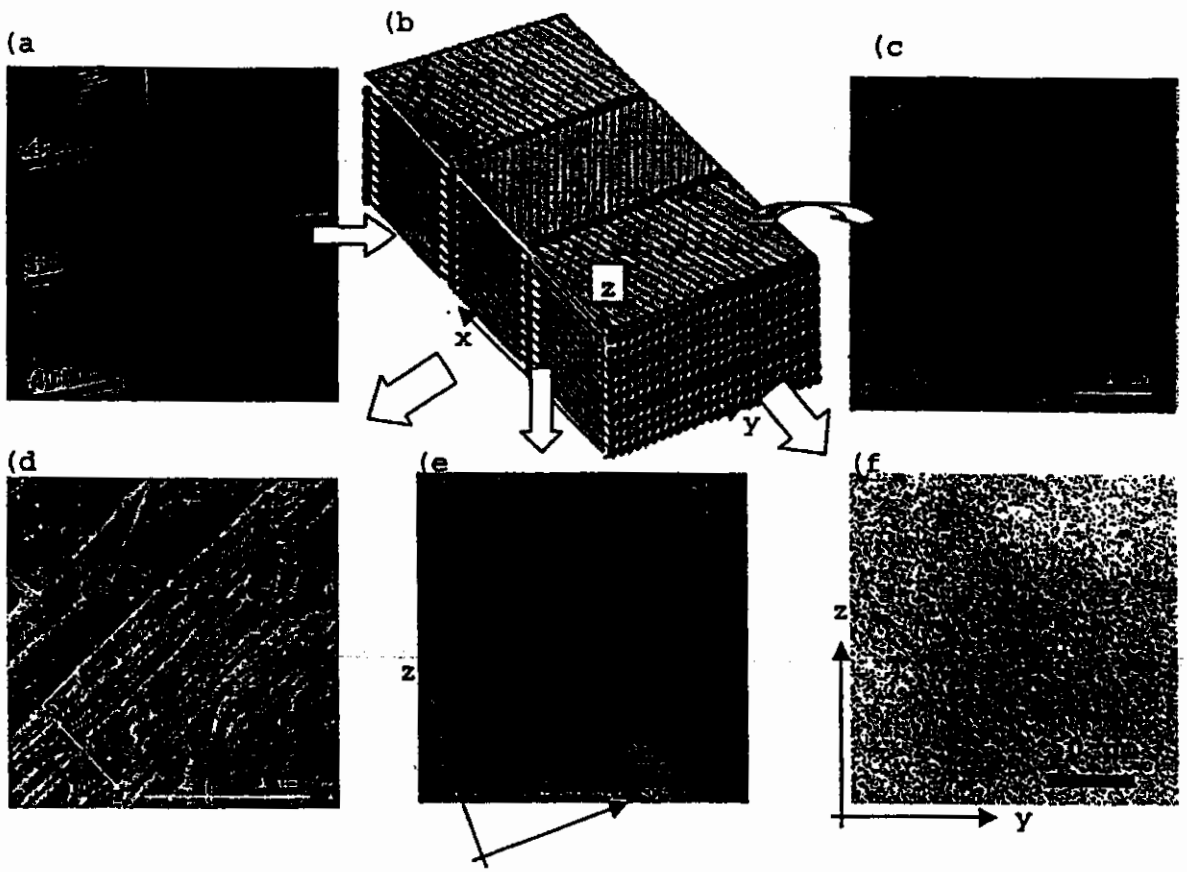


Fig 11. (a) A photograph of M13 bacteriophage-ZnS nanoparticle biofilm, (b) a schematic diagram of structure of the film, (c) AFM image of the free surface of the film, (d) SEM image of the film, and (e,f) TEM image of nanoparticle alignment shows x-z, and y-z planes respectively