

Each IL activates multiple STATs [50 cytokines activate 7 stats]

Old Model

IL-2	STAT5 (S_5)
IL-15	STAT5 (S_5)
IL-12	STAT4 (S_4)
IL-18	NFKb (S_b)
IL-21	STAT3 (S_3)

IL-2	500 U/ml
IL-15	20 ng/ml
IL-12	10 ng/ml
IL-18	50 ng/ml
IL-21	25 ng/ml

New Model

IL-2	STAT5 (S_5), STAT3(S_3), STAT1(S_1), STAT4 (S_4), NFKb (S_b)
IL-15	STAT5 (S_5)
IL-12	STAT4 (S_4)
IL-18	NFKb (S_b), STAT3 (S_3)
IL-21	STAT3 (S_3), STAT1(S_1),

How to choose the right model ?

1	1	1	1
2	1	1	2
3	1	2	1
4	1	2	2
5	2	1	1
6	2	1	2
7	2	2	1
8	2	2	2
9	3	1	1
10	3	1	2
11	3	2	1
12	3	2	2
13	4	1	1
14	4	1	2
15	4	2	1
16	4	2	2
17	5	1	1
18	5	1	2
19	5	2	1
20	5	2	2
21	6	1	1
22	6	1	2
23	6	2	1
24	6	2	2
25	7	1	1
26	7	1	2
27	7	2	1
28	7	2	2
29	8	1	1
30	8	1	2
31	8	2	1
32	8	2	2
33	9	1	1
34	9	1	2
35	9	2	1
36	9	2	2
37	10	1	1
38	10	1	2
39	10	2	1
40	10	2	2
41	11	1	1
42	11	1	2
43	11	2	1
44	11	2	2
45	12	1	1
46	12	1	2
47	12	2	1
48	12	2	2
49	13	1	1
50	13	1	2
51	13	2	1
52	13	2	2
53	14	1	1
54	14	1	2
55	14	2	1
56	14	2	2
57	15	1	1
58	15	1	2
59	15	2	1
60	15	2	2
61	16	1	1
62	16	1	2
63	16	2	1
64	16	2	2

Index l=IL2 n=IL21 m=IL18

l=3

m=2

l=6,9,10

l=12,13,14

l=16

Assuing that IL2 can have 16 possibilities

1. S5
2. S5,S1
3. S5, S3
4. S5, S4
5. S5,Sb
6. S5,S3,S1
7. S5,S4,S1
8. S5,Sb,S1
9. S5,S4,S3
10. S5,S3,Sb
11. S5,S4,Sb
12. S5,S4,S3,S1
13. S5,S3,S1,Sb
14. S5,S4,S3,Sb
15. S5,S4,S1,Sb
16. S5,S4,S1,Sb,S3

64 possible Models to choose correct model

IL2 has 16 possibilities (l)

- 1. S5
- 2. S5,S1
- 3. S5, S3
- 4. S5, S4
- 5. S5,Sb
- 6. S5,S3,S1
- 7. S5,S4,S1
- 8. S5,Sb,S1
- 9. S5,S4,S3
- 10. S5,S3,Sb
- 11. S5,S4,Sb
- 12. S5,S4,S3,S1
- 13. S5,S3,S1,Sb
- 14. S5,S4,S3,Sb
- 15. S5,S4,S1,Sb
- 16. S5,S4,S1,Sb,S3

IL21 (possibilities) (n)

- 1. S3
- 2. S3,S1

IL15 (possibilities)

- 1. S5

IL-2 STAT5 (S₅), STAT3(S₃), STAT1(S₁), STAT4 (S₄), NFKb (S_b)

IL-15 STAT5 (S₅)

IL-12 STAT4 (S₄)

IL-18 NFKb (S_b), STAT3 (S₃)

IL-21 STAT3 (S₃), STAT1(S₁),

IL18 (possibilities) (m)

- 1. Sb
- 2. Sb,S3

IL12 (possibilities)

- 1. S4

16 X 2 X 2X 1 X 1=64 models