

TABLE 6-continued

Effects of Protein Kinase Inhibitors on mab 5C6-Activated NCC		
Treatment	Percentage of control (E:T ratio)	
	40% ^a	20%
IC + HA1004	161.2	221.6
Mab 5C6 + HA1004	191.3	379.9
Genistein ^d	38.9	35.5
IC + Genistein	37.4	32.6
Mab 5C6 + Genistein	40.3	32.9

^a4 × 10⁶ NCC/ml.^bAmmonium sulfate precipitated mabs 5C6 and TGE (1:50 dilution).^c60 μM concentration.^d0.5 μg/ml.

TABLE 7

Effects of Phosphatase Inhibitors on NCC Cytotoxic Activity				
Inhibitor	Concentration (mM)	Percentage of control ^a		
		100:1	50:1	25:1
Lithium chloride	5	97.2	88.9	98.4
	10	99.0	107.4	105.1
	20	103.8	118.9	190.1
Sodium fluoride	5	123.2	136.9	210.3
	10	153.7	183.9	333.3
	20	157.3	225.8	635.3
Sodium vanadate	2.5	148.6	155.3	494.4
	5	162.1	212.4	664.4
	10	159.1	225.8	897.1

Note: NCC were treated for 120 minutes with different concentrations of inhibitors. IM-9 target cells were added and the cytotoxicity assay was carried out for 4 hours.

^aCalculations based on values obtained for specific release (SR) in the presence of media. At (E:T) = 100:1, SR = 39.1%; at E:T = 50:1, SR = 21.7%; at E:T = 25:1, SR = 4.47%.

TABLE 8

Effects of Protein Phosphatase Inhibitors on NCC Lysis of IM-9 Target Cells				
Treatment	Concentration (mM)	Percent Specific Release (E:T Ratio)		
		10	50	25
Media	—	39	21	4
LiCl	5	38	19	4
	10	38	23	4
	20	40	25	8
NaF	5	48	29	9
	10	60	39	14
	20	61	49	28
Na ₃ VO ₄	2.5	58	33	22
	5	63	46	29
	10	62	49	40

TABLE 9

Effects of Phosphatase Inhibitors on NCC Activity from Stressed Fish			
Group	Treatment		Percent Specific Release*
	NaF (mM)	Na ₃ VO ₄ (mM)	
Control	—	—	0.9
I	5	—	1.4

TABLE 9-continued

Effects of Phosphatase Inhibitors on NCC Activity from Stressed Fish			
Group	Treatment		Percent Specific Release*
	NaF (mM)	Na ₃ VO ₄ (mM)	
I	10	—	4.4
	20	—	22.0
	—	2.5	7.3
II	—	5.0	9.9
	—	10.0	13.1
	5	2.5	14.0
III	10	2.5	22.5
	20	2.5	36.1
	5	5.0	16.4
IV	10	5.0	22.6
	20	5.0	27.4
	5	10.0	20.1
V	10	10.0	17.1
	20	10.0	20.1

*100:1 effector target cell ratio. Four-hour cytotoxicity assay.

TABLE 10

Effects of In Vivo Vanadate Treatment on the NCC Content of Anterior Kidney Tissue			
Hours Post-Treatment	Control (% NCC)	Treatment	
		50 μM (% NCC)	125 μM (% NCC)
3	60 (3.2) ¹	51 (3.1) ¹	53 (6.5) ¹
24	55 (2.6)	60 (2.8)	52 (3.2)
48	52 (2.1)	66 (3.5)	73 (2.7)
72	70 (2.3)	72 (3.1)	61 (1.9)
96	61 (3.6)	78 (1.6)	—

¹Total cells/ml × 10⁶

We claim:

1. A method for the therapeutic or prophylactic treatment of a teleost fish against infection caused by a microorganismic pathogen comprising the step of providing in soluble form into an aquatic environment administering a therapeutically or prophylactically effective concentration of an orthovanadate salt such that said infected fish is protected against the development or progression of an infection or disease associated with said pathogen.

2. The method according to claim 1 wherein said therapeutic or prophylactic treatment is the therapeutic treatment and said therapeutically or prophylactically effective concentration is a therapeutically effective concentration.

3. The method according to claim 1 wherein said therapeutic or prophylactic treatment is the prophylactic treatment and said therapeutically or prophylactically effective concentration is a prophylactically effective concentration.

4. The method according to claim 1 wherein said orthovanadate salt is sodium orthovanadate.

5. The method according to claim 1 wherein said teleost fish is a commercially produced fish.

6. The method according to claim 1 wherein said teleost fish is a catfish.

7. The method according to claim 1 wherein said teleost fish is a domestic fish.

8. The method according to claim 1 wherein said microorganismic pathogen is selected from the group consisting of a bacterium, a protozoan, a virus, a fungus and a parasite.

9. The method according to claim 1 wherein said microorganismic pathogen is a bacterium or a protozoan.