

Supplementary Information

Fucoidan decreases the severity of influenza A infection in a mouse model

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Table S1. Bodyweight in treatment model.

Bodyweights (g) (%)		weight (g)								% start weight							
		0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
Untreated	1	19	18.8	18.3	16.9	15.5	14.4	13.5	12.8	100	98.9	96.3	88.9	81.6	75.8	71.1	67.4
Untreated	2	19.3	19.6	19.4	18.4	17.2	15.6	14.8	14.1	100	101.6	100.5	95.3	89.1	80.8	76.7	73.1
Untreated	3	19.6	20.3	19.9	18.6	17.4	16.5	15.7	14.8	100	103.6	101.5	94.9	88.8	84.2	80.1	75.5
Untreated	4	18.2	18.1	17.5	16.1	14.9	13.8	13.1	12.3	100	99.5	96.2	88.5	81.9	75.8	72.0	67.6
Untreated	5	19.9	20.3	20.1	19.7	18.3	17	16.6	15.3	100	102.0	101.0	99.0	92.0	85.4	83.4	76.9
Untreated	6	19.6	19.7	19.7	18.7	16.8	16	15.3	14.3	100	100.5	100.5	95.4	85.7	81.6	78.1	73.0
Untreated	7	19.2	19.6	19.2	17.6	16.8	16	15	14.2	100	102.1	100.0	91.7	87.5	83.3	78.1	74.0
Untreated	8	18.4	19.1	18.6	17.3	16.3	15.9	15.2	14.4	100	103.8	101.1	94.0	88.6	86.4	82.6	78.3
Untreated	9	17.9	18.3	17.5	16.8	15.8	14.6	14	13.3	100	102.2	97.8	93.9	88.3	81.6	78.2	74.3
Untreated	10	16.3	16.8	16.9	15.6	14.2	13.3	12.7	12	100	103.1	103.7	95.7	87.1	81.6	77.9	73.6
UPF 3.52 mg/day	21	18.5	18.9	18.2	16.7	15.7	14.7	14.2	13.5	100	102.2	98.4	90.3	84.9	79.5	76.8	73.0
UPF 3.52 mg/day	22	20.4	20.6	19.9	18.5	16.8	15.4	14.5	13.8	100	101.0	97.5	90.7	82.4	75.5	71.1	67.6
UPF 3.52 mg/day	23	19	19	18.6	17.5	15.8	14.9	14.1	13.4	100	100.0	97.9	92.1	83.2	78.4	74.2	70.5
UPF 3.52 mg/day	24	17.5	17.2	16.6	15.7	14.6	13.7	13	12.4	100	98.3	96.5	94.6	93.0	93.8	94.9	95.4
UPF 3.52 mg/day	25	16.9	16.9	16.3	15.1	13.8	13	12.5	11.7	100	100.0	96.4	89.3	81.7	76.9	74.0	69.2
UPF 3.52 mg/day	26	18.7	19.2	18.5	17.9	16.4	15.3	14.3	14	100	102.7	98.9	95.7	87.7	81.8	76.5	74.9
UPF 3.52 mg/day	27	17.7	17.1	16.9	16.1	14.9	13.9	13.5	12.9	100	96.6	95.5	91.0	84.2	78.5	76.3	72.9
UPF 3.52 mg/day	28	20	19.9	19.5	18.4	17.4	16.3	16	15.1	100	99.5	97.5	92.0	87.0	81.5	80.0	75.5
UPF 3.52 mg/day	29	20.5	20.1	19.1	18.7	17.3	16.2	15.6	14.9	100	98.0	93.2	91.2	84.4	79.0	76.1	72.7
UPF 3.52 mg/day	30	18.3	18.1	17.2	16.4	15.4	14.4	14	13.4	100	98.9	94.0	89.6	84.2	78.7	76.5	73.2

Red cells bodyweights <90%, yellow cells bodyweight <80%.

Table S2. Clinical observations in treatment model.

Day		0	1	2	3	4	5	6	7
Untreated	1	0	0	0.5	0.5	2.5	3	3	3
Untreated	2	0	0	0	0	0.5	1	3	3
Untreated	3	0	0	0	0.5	2	3	3	3.5
Untreated	4	0	0	0	1.5	2	3	3.5	3.5
Untreated	5	0	0	0	0.5	1.5	2	2	3.5
Untreated	6	0	0	0	0.5	1	2	3	2.5
Untreated	7	0	0	0	0.5	1.5	1.5	2	2.5
Untreated	8	0	0	0	0.5	2	2	2.5	3.5
Untreated	9	0	0	0	1	1	2.5	3	3
Untreated	10	0	0	0	1.5	1.5	1.5	3	3
UPF 3.52 mg/day	21	0	0	0	0.5	2.5	2	2.5	3
UPF 3.52 mg/day	22	0	0	0	1	2.5	3	3	4
UPF 3.52 mg/day	23	0	0	0.5	1	1	3	3	3.5
UPF 3.52 mg/day	24	0	0	0.5	1	3	2.5	3.5	4
UPF 3.52 mg/day	25	0	0	0	1	2	3	2.5	4
UPF 3.52 mg/day	26	0	0	0	1.5	1.5	2	3.5	3.5
UPF 3.52 mg/day	27	0	0	0.5	0.5	1.5	2.5	2.5	3
UPF 3.52 mg/day	28	0	0	0	0.5	1.5	2	3.5	3
UPF 3.52 mg/day	29	0	0	0	1.5	1	2	3	3
UPF 3.52 mg/day	30	0	0	0.5	0.5	2.5	1.5	2.5	3.5

Scoring system 0-5 based on incidence of piloerection, hunched posture, abnormal breathing (to include rapid, irregular or slowed breathing), impaired mobility and ocular discharge. Each parameter is given a score of 0 = not present, 0.5 = partially and 1 = present. The scores are added together to give a maximum score of 5.

Table S3a. Lung pathology in treatment model.

		% lung pathology	Lung path (0-5)	Lung weight
Untreated	1	90	4.5	0.36
Untreated	2	60	3	0.316
Untreated	3	80	4	0.336
Untreated	4	80	4	0.354
Untreated	5	80	4	0.346
Untreated	6	90	4.5	0.328
Untreated	7	60	3	0.294
Untreated	8	60	3	0.278
Untreated	9	70	3.5	0.278
Untreated	10	90	4.5	0.288
UPF 3.52 mg/day	21	30	1.5	0.384
UPF 3.52 mg/day	22	60	3	0.408
UPF 3.52 mg/day	23	80	4	0.256
UPF 3.52 mg/day	24	60	3	0.346
UPF 3.52 mg/day	25	70	3.5	0.298
UPF 3.52 mg/day	26	40	2	0.316
UPF 3.52 mg/day	27	50	2.5	0.33
UPF 3.52 mg/day	28	60	3	0.308
UPF 3.52 mg/day	29	70	3.5	0.308
UPF 3.52 mg/day	30	80	4	0.31

Table S3b. Lung histopathology in treatment model.

Slide ID number [animal number]	Bronchitis	Interstit	Alveolitis	Pleuritis	Haemorrhage	PV Lymphoid	Total Pathology	%Area
E0161-14 [1.1]	2	1	1	0	0	0	4	50
E0162-14 [1.2]	2	2	1	0	1	1	7	75
E0163-14 [1.3]	3	2	1	0	3	0	9	75
E0164-14 [1.4]	1	2	1	1	0	1	6	50
E0165-14 [1.5]	1	2	1	0	0	1	5	50
E0166-14 [1.6]	2	2	1	0	0	1	6	50
E0167-14 [1.7]	2	2	1	1	1	1	8	80
E0168-14 [1.8]	2	3	1	0	1	1	8	100
E0169-14 [1.9]	2	2	1	1	1	1	8	50
E0170-14 [1.10]	2	2	1	0	0	0	5	75
E0181-14 [3.21]	3	2	1	0	1	1	8	50
E0182-14 [3.22]	2	2	1	0	0	0	5	90
E0183-14 [3.23]	2	2	1	0	0	0	5	90
E0184-14 [3.24]	2	3	1	1	0	0	7	50
E0185-14 [3.25]	2	2	1	0	1	0	6	80
E0186-14 [3.26]	2	2	1	0	0	1	6	75
E0187-14 [3.27]	2	2	1	0	0	0	5	50
E0188-14 [3.28]	2	2	1	1	0	0	6	75
E0189-14 [3.29]	2	2	1	0	1	0	6	90
E0190-14 [3.30]	2	2	1	0	0	0	5	60

Table S4. Bodyweight in prevention model

	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	
1. Untreated	1.1	20.1	20.1	20.6	20.3	19.1	19.1	18.1	16.5	100.0	100.0	102.5	101.0	95.0	95.0	90.0	82.1
1. Untreated	1.2	17.1	17.6	18.1	16.9	15.2	13.6	13.0	12.4	100.0	102.9	105.8	98.8	88.9	79.5	76.0	72.5
1. Untreated	1.3	17.8	17.9	18.0	17.4	15.9	14.8	14.0	13.5	100.0	100.6	101.1	97.8	89.3	83.1	78.7	75.8
1. Untreated	1.4	17.1	17.5	18.1	17.5	16.4	14.9	14.1	13.2	100.0	102.3	105.8	102.3	95.9	87.1	82.5	77.2
1. Untreated	1.5	16.8	17.0	17.2	16.5	15.4	15.0	14.3	13.2	100.0	101.2	102.4	98.2	91.7	89.3	85.1	78.6
1. Untreated	1.6	16.4	17.0	17.7	16.6	15.3	14.5	13.4	12.5	100.0	103.7	107.9	101.2	93.3	88.4	81.7	76.2
1. Untreated	1.7	17.8	17.9	18.3	16.9	15.8	15.0	13.8	13.3	100.0	100.6	102.8	94.9	88.8	84.3	77.5	74.7
1. Untreated	1.8	16.3	17.1	17.4	16.0	14.6	13.2	12.5	12.0	100.0	104.9	106.7	98.2	89.6	81.0	76.7	73.6
1. Untreated	1.9	19.1	19.1	20.1	19.4	17.8	16.7	15.8	14.4	100.0	100.0	105.2	101.6	93.2	87.4	82.7	75.4
1. Untreated	1.10	18.0	17.8	18.7	17.5	16.6	15.5	15.0	13.7	100.0	98.9	103.9	97.2	92.2	86.1	83.3	76.1
1. Untreated satellite	1.11	17.0	16.7	17.6	16.3					100.0	98.2	103.5	95.9				
1. Untreated satellite	1.12	17.8	17.7	18.0	16.7					100.0	99.4	101.1	93.8				
1. Untreated satellite	1.13	19.7	19.6	19.9	19.1					100.0	99.5	101.0	97.0				
1. Untreated satellite	1.14	17.5	17.8	18.4	16.6					100.0	101.7	105.1	94.9				
1. Untreated satellite	1.15	17.3	17.6	17.7	17.0					100.0	101.7	102.3	98.3				
2. Undaria Fucoidan 3.52mg/day	2.16	18.2	18.2	18.7	18.3	16.8	15.6	14.5	13.6	100.0	100.0	102.7	100.5	92.3	85.7	79.7	74.7
2. Undaria Fucoidan 3.52mg/day	2.17	18.8	18.5	18.8	18.3	17.1	15.8	15.3	14.2	100.0	98.4	100.0	97.3	91.0	84.0	81.4	75.5
2. Undaria Fucoidan 3.52mg/day	2.18	20.3	20.7	20.7	20.0	18.2	16.2	15.4	14.4	100.0	102.0	102.0	98.5	89.7	79.8	75.9	70.9
2. Undaria Fucoidan 3.52mg/day	2.19	17.4	17.8	18.7	17.5	16.5	14.8	13.7	12.8	100.0	102.3	107.5	100.6	94.8	85.1	78.7	73.6
2. Undaria Fucoidan 3.52mg/day	2.20	19.1	19.1	19.5	18.4	17.4	15.9	15.4	14.1	100.0	100.0	102.1	96.3	91.1	83.2	80.6	73.8
2. Undaria Fucoidan 3.52mg/day	2.21	18.8	19.0	19.0	17.8	16.5	15.0	14.0	12.8	100.0	101.1	101.1	94.7	87.8	79.8	74.5	68.1
2. Undaria Fucoidan 3.52mg/day	2.22	19.9	20.0	20.2	19.4	18.5	17.3	16.0	14.7	100.0	100.5	101.5	97.5	93.0	86.9	80.4	73.9
2. Undaria Fucoidan 3.52mg/day	2.23	16.7	17.1	17.0	16.4	15.4	14.0	13.4	12.8	100.0	102.4	101.8	98.2	92.2	83.8	80.2	76.6
2. Undaria Fucoidan 3.52mg/day	2.24	16.2	16.8	17.1	15.8	14.6	13.1	12.2	11.8	100.0	103.7	105.6	97.5	90.1	80.9	75.3	72.8
2. Undaria Fucoidan 3.52mg/day	2.25	19.6	19.4	20.5	19.1	17.6	15.8	14.8	13.8	100.0	99.0	104.6	97.4	89.8	80.6	75.5	70.4
2. Undaria Fucoidan 3.52mg/day satellite	2.26	17.9	18.4	18.6	17.9					100.0	102.8	103.9	100.0				
2. Undaria Fucoidan 3.52mg/day satellite	2.27	19.4	19.4	19.4	18.3					100.0	100.0	100.0	94.3				
2. Undaria Fucoidan 3.52mg/day satellite	2.28	18.3	18.5	18.6	18.1					100.0	101.1	101.6	98.9				
2. Undaria Fucoidan 3.52mg/day satellite	2.29	17.8	17.8	18.0	16.7					100.0	100.0	101.1	93.8				
2. Undaria Fucoidan 3.52mg/day satellite	2.30	18.1	17.7	18.3	17.1					100.0	97.8	101.1	94.5				
3. Undaria Fucoidan 7.04mg/day	3.31	19.5	19.5	19.3	18.1	16.8	15.5	14.6	13.8	100.0	100.0	99.0	92.8	86.2	79.5	74.9	70.8
3. Undaria Fucoidan 7.04mg/day	3.32	19.7	19.8	20.1	18.8	17.0	15.7	14.8	13.6	100.0	100.5	102.0	95.4	86.3	79.7	75.1	69.0
3. Undaria Fucoidan 7.04mg/day	3.33	19.1	18.8	18.8	17.3	16.1	14.8	14.4	13.7	100.0	98.4	98.4	90.6	84.3	77.5	75.4	71.7
3. Undaria Fucoidan 7.04mg/day	3.34	18.9	19.6	19.6	18.3	17.3	16.1	15.2	14.1	100.0	103.7	103.7	96.8	91.5	85.2	80.4	74.6
3. Undaria Fucoidan 7.04mg/day	3.35	18.8	19.2	19.3	18.4	17.0	15.1	14.3	13.3	100.0	102.1	102.7	97.9	90.4	80.3	76.1	70.7
3. Undaria Fucoidan 7.04mg/day	3.36	18.6	18.5	19.0	17.9	16.8	15.3	14.3	13.5	100.0	99.5	102.2	96.2	90.3	82.3	76.9	72.6
3. Undaria Fucoidan 7.04mg/day	3.37	19.9	20.0	20.8	20.1	19.1	17.7	16.4	15.0	100.0	100.5	104.5	101.0	96.0	88.9	82.4	75.4
3. Undaria Fucoidan 7.04mg/day	3.38	19.7	20.2	20.6	20.0	19.2	17.9	16.7	15.4	100.0	102.5	104.6	101.5	97.5	90.9	84.8	78.2
3. Undaria Fucoidan 7.04mg/day	3.39	18.7	18.9	18.9	18.1	17.2	15.4	14.5	13.4	100.0	101.1	101.1	96.8	92.0	82.4	77.5	71.7
3. Undaria Fucoidan 7.04mg/day	3.40	18.2	18.0	18.3	18.0	16.9	15.5	14.5	13.6	100.0	98.9	100.5	98.9	92.9	85.2	79.7	74.7
3. Undaria Fucoidan 7.04mg/day satellite	3.41	16.9	17.0	17.4	16.5					100.0	100.6	103.0	97.6				
3. Undaria Fucoidan 7.04mg/day satellite	3.42	18.7	19.1	19.8	18.0					100.0	102.1	105.9	96.3				
3. Undaria Fucoidan 7.04mg/day satellite	3.43	18.0	18.2	19.1	18.3					100.0	101.1	106.1	101.7				
3. Undaria Fucoidan 7.04mg/day satellite	3.44	17.7	17.9	18.9	17.9					100.0	101.1	106.8	101.1				
3. Undaria Fucoidan 7.04mg/day satellite	3.45	17.1	17.3	17.6	16.1					100.0	101.2	102.9	94.2				

Table S5. Clinical observations in prevention model

		0	1	2	3	4	5	6	7
1. Untreated	1.1	0.0	0.0	0.0	0.5	0.5	1.0	2.5	3.5
1. Untreated	1.2	0.0	0.0	0.5	1.0	2.0	2.5	3.0	4.0
1. Untreated	1.3	0.0	0.0	0.0	0.5	0.5	2.5	2.5	3.5
1. Untreated	1.4	0.0	0.0	0.0	1.5	1.5	2.5	3.0	4.0
1. Untreated	1.5	0.0	0.0	0.0	0.5	0.5	1.5	1.5	3.5
1. Untreated	1.6	0.0	0.0	0.0	1.0	1.0	2.0	2.0	3.0
1. Untreated	1.7	0.0	0.0	0.5	1.0	1.5	2.0	3.0	3.5
1. Untreated	1.8	0.0	0.0	0.0	0.0	1.5	2.5	3.0	3.5
1. Untreated	1.9	0.0	0.0	0.0	0.0	0.0	2.0	1.5	4.0
1. Untreated	1.10	0.0	0.5	0.5	0.5	1.5	2.0	3.0	4.0
1. Untreated satellite	1.11	0.0	0.0	0.0	1.0				
1. Untreated satellite	1.12	0.0	0.0	0.0	0.5				
1. Untreated satellite	1.13	0.0	0.0	0.0	0.5				
1. Untreated satellite	1.14	0.0	0.0	0.0	1.5				
1. Untreated satellite	1.15	0.0	0.5	0.5	1.0				
2. Undaria Fucoidan 3.52mg/day	2.16	0.0	0.0	0.0	1.0	1.5	2.0	2.5	4.0
2. Undaria Fucoidan 3.52mg/day	2.17	0.0	0.5	0.0	0.5	0.5	1.5	2.5	3.5
2. Undaria Fucoidan 3.52mg/day	2.18	0.0	0.0	0.0	0.5	1.5	2.0	2.5	4.0
2. Undaria Fucoidan 3.52mg/day	2.19	0.0	0.0	0.0	0.0	1.0	2.0	3.0	4.0
2. Undaria Fucoidan 3.52mg/day	2.20	0.0	0.5	0.5	1.0	1.5	2.0	3.0	3.5
2. Undaria Fucoidan 3.52mg/day	2.21	0.0	0.0	0.0	0.5	1.5	2.0	3.5	3.0
2. Undaria Fucoidan 3.52mg/day	2.22	0.0	0.5	0.0	0.0	1.0	1.0	2.5	4.0
2. Undaria Fucoidan 3.52mg/day	2.23	0.0	0.0	0.5	1.0	2.0	2.0	3.0	4.0
2. Undaria Fucoidan 3.52mg/day	2.24	0.0	0.0	0.0	1.0	1.0	2.0	3.5	4.0
2. Undaria Fucoidan 3.52mg/day	2.25	0.0	0.0	0.0	1.0	2.0	1.5	2.5	3.5
2. Undaria Fucoidan 3.52mg/day satellite	2.26	0.0	0.0	0.0	0.5				
2. Undaria Fucoidan 3.52mg/day satellite	2.27	0.0	0.0	0.0	0.5				
2. Undaria Fucoidan 3.52mg/day satellite	2.28	0.0	0.0	0.0	0.5				
2. Undaria Fucoidan 3.52mg/day satellite	2.29	0.0	0.0	0.0	1.5				
2. Undaria Fucoidan 3.52mg/day satellite	2.30	0.0	0.5	0.0	0.5				
3. Undaria Fucoidan 7.04mg/day	3.31	0.0	0.0	0.0	1.0	0.5	2.0	2.5	4.0
3. Undaria Fucoidan 7.04mg/day	3.32	0.0	0.0	0.0	1.5	0.5	1.5	2.5	3.0
3. Undaria Fucoidan 7.04mg/day	3.33	0.0	0.0	0.0	1.0	1.0	1.0	3.5	3.5
3. Undaria Fucoidan 7.04mg/day	3.34	0.0	0.0	0.0	0.5	1.0	1.5	2.5	3.0
3. Undaria Fucoidan 7.04mg/day	3.35	0.0	0.0	0.0	0.0	1.5	2.0	2.0	3.5
3. Undaria Fucoidan 7.04mg/day	3.36	0.0	0.0	0.0	0.5	0.0	0.5	2.0	1.5
3. Undaria Fucoidan 7.04mg/day	3.37	0.0	0.0	0.0	0.0	0.0	1.0	3.0	2.5
3. Undaria Fucoidan 7.04mg/day	3.38	0.0	0.0	0.0	1.0	1.0	1.5	2.0	3.0
3. Undaria Fucoidan 7.04mg/day	3.39	0.0	0.0	0.0	0.5	0.5	1.0	1.5	3.0
3. Undaria Fucoidan 7.04mg/day	3.40	0.0	0.0	0.0	1.0	0.5	1.0	1.5	2.0
3. Undaria Fucoidan 7.04mg/day satellite	3.41	0.0	0.0	0.0	1.0				
3. Undaria Fucoidan 7.04mg/day satellite	3.42	0.0	0.5	0.0	1.5				
3. Undaria Fucoidan 7.04mg/day satellite	3.43	0.0	0.0	0.5	0.5				
3. Undaria Fucoidan 7.04mg/day satellite	3.44	0.0	0.0	0.0	1.0				
3. Undaria Fucoidan 7.04mg/day satellite	3.45	0.0	0.0	0.5	1.5				

Scoring system 0-5 based on incidence of piloerection, hunched posture, abnormal breathing (to include rapid, irregular or slowed breathing), impaired mobility and ocular discharge. Each parameter is given a score of 0 = not present, 0.5 = partially and 1 = present. The scores are added together to give a maximum score of 5.

Table S6. Lung pathology in prevention model.

		Lung pathology	Lung weight
1. Untreated	1.1	85	0.340
1. Untreated	1.2	90	0.335
1. Untreated	1.3	75	0.295
1. Untreated	1.4	75	0.330
1. Untreated	1.5	90	0.290
1. Untreated	1.6	60	0.370
1. Untreated	1.7	80	0.295
1. Untreated	1.8	90	0.325
1. Untreated	1.9	95	0.355
1. Untreated	1.10	80	0.345
2. Undaria Fucoidan 3.52mg/day	2.16	90	0.330
2. Undaria Fucoidan 3.52mg/day	2.17	80	0.315
2. Undaria Fucoidan 3.52mg/day	2.18	75	0.425
2. Undaria Fucoidan 3.52mg/day	2.19	85	0.360
2. Undaria Fucoidan 3.52mg/day	2.20	95	0.400
2. Undaria Fucoidan 3.52mg/day	2.21	90	0.370
2. Undaria Fucoidan 3.52mg/day	2.22	75	0.350
2. Undaria Fucoidan 3.52mg/day	2.23	75	0.270
2. Undaria Fucoidan 3.52mg/day	2.24	90	0.335
2. Undaria Fucoidan 3.52mg/day	2.25	80	0.365
3. Undaria Fucoidan 7.04mg/day	3.31	30	0.380
3. Undaria Fucoidan 7.04mg/day	3.32	80	0.410
3. Undaria Fucoidan 7.04mg/day	3.33	70	0.295
3. Undaria Fucoidan 7.04mg/day	3.34	50	0.320
3. Undaria Fucoidan 7.04mg/day	3.35	60	0.340
3. Undaria Fucoidan 7.04mg/day	3.36	75	0.335
3. Undaria Fucoidan 7.04mg/day	3.37	60	0.335
3. Undaria Fucoidan 7.04mg/day	3.38	80	0.395
3. Undaria Fucoidan 7.04mg/day	3.39	90	0.395
3. Undaria Fucoidan 7.04mg/day	3.40	60	0.285

Table S7. TCID₅₀ scores.

1.11											
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID ₅₀ /25 µl	TCID ₅₀ /ml	
10 ¹	10 ⁻¹	3	0	14	0	14	100%	0.253	1 x 10 ⁵ .253	4 x 10 ⁶ .253 7162423.4	
10 ²	10 ⁻²	3	0	11	0	11	100%				
10 ³	10 ⁻³	3	0	8	0	8	100%				
10 ⁴	10 ⁻⁴	3	0	5	0	5	100%				
10 ⁵	10 ⁻⁵	2	1	2	1	3	67%				
10 ⁶	10 ⁻⁶	0	3	0	4	4	0%				
10 ⁷	10 ⁻⁷	0	3	0	7	7	0%				
10 ⁸	10 ⁻⁸	0	3	0	10	10	0%				
1.12											
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID ₅₀ /25 µl	TCID ₅₀ /ml	
10 ¹	10 ⁻¹	3	0	13	0	13	100%	0.746	1 x 10 ⁴ .746	4 x 10 ⁵ .746 2228742.99	
10 ²	10 ⁻²	3	0	10	0	10	100%				
10 ³	10 ⁻³	3	0	7	0	7	100%				
10 ⁴	10 ⁻⁴	3	0	4	0	4	100%				
10 ⁵	10 ⁻⁵	1	2	1	2	3	33%				
10 ⁶	10 ⁻⁶	0	3	0	5	5	0%				
10 ⁷	10 ⁻⁷	0	3	0	8	8	0%				
10 ⁸	10 ⁻⁸	0	3	0	11	11	0%				
1.13											
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID ₅₀ /25 µl	TCID ₅₀ /ml	
10 ¹	10 ⁻¹	3	0	14	0	14	100%	0.253	1 x 10 ⁵ .253	4 x 10 ⁶ .253 7162423.41	
10 ²	10 ⁻²	3	0	11	0	11	100%				
10 ³	10 ⁻³	3	0	8	0	8	100%				
10 ⁴	10 ⁻⁴	3	0	5	0	5	100%				
10 ⁵	10 ⁻⁵	2	1	2	1	3	67%				
10 ⁶	10 ⁻⁶	0	3	0	4	4	0%				
10 ⁷	10 ⁻⁷	0	3	0	7	7	0%				
10 ⁸	10 ⁻⁸	0	3	0	10	10	0%				
1.14											
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID ₅₀ /25 µl	TCID ₅₀ /ml	
10 ¹	10 ⁻¹	3	0	13	0	13	100%	0.746	1 x 10 ⁴ .746	4 x 10 ⁵ .746 2228742.99	
10 ²	10 ⁻²	3	0	10	0	10	100%				
10 ³	10 ⁻³	3	0	7	0	7	100%				
10 ⁴	10 ⁻⁴	3	0	4	0	4	100%				
10 ⁵	10 ⁻⁵	1	2	1	2	3	33%				
10 ⁶	10 ⁻⁶	0	3	0	5	5	0%				
10 ⁷	10 ⁻⁷	0	3	0	8	8	0%				
10 ⁸	10 ⁻⁸	0	3	0	11	11	0%				
1.15											
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID ₅₀ /25 µl	TCID ₅₀ /ml	
10 ¹	10 ⁻¹	3	0	15	0	15	100%	0.500	1 x 10 ⁵ .500	4 x 10 ⁶ .500 12649110.64	
10 ²	10 ⁻²	3	0	12	0	12	100%				
10 ³	10 ⁻³	3	0	9	0	9	100%				
10 ⁴	10 ⁻⁴	3	0	6	0	6	100%				
10 ⁵	10 ⁻⁵	3	0	3	0	3	100%				
10 ⁶	10 ⁻⁶	0	3	0	3	3	0%				
10 ⁷	10 ⁻⁷	0	3	0	6	6	0%				
10 ⁸	10 ⁻⁸	0	3	0	9	9	0%				

2.26										
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID50/25 μ l	TCID50/ml
10 ¹	10 ⁻¹	3	0	13	0	13	100%	0.746	1 x 10 ⁴ .746	4 x 10 ⁵ .746 2228742.996
10 ²	10 ⁻²	3	0	10	0	10	100%			
10 ³	10 ⁻³	3	0	7	0	7	100%			
10 ⁴	10 ⁻⁴	3	0	4	0	4	100%			
10 ⁵	10 ⁻⁵	1	2	1	2	3	33%			
10 ⁶	10 ⁻⁶	0	3	0	5	5	0%			
10 ⁷	10 ⁻⁷	0	3	0	8	8	0%			
10 ⁸	10 ⁻⁸	0	3	0	11	11	0%			
2.27										
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID50/25 μ l	TCID50/ml
10 ¹	10 ⁻¹	3	0	13	0	13	100%	0.746	1 x 10 ⁴ .746	4 x 10 ⁵ .746 2228742.996
10 ²	10 ⁻²	3	0	10	0	10	100%			
10 ³	10 ⁻³	3	0	7	0	7	100%			
10 ⁴	10 ⁻⁴	3	0	4	0	4	100%			
10 ⁵	10 ⁻⁵	1	2	1	2	3	33%			
10 ⁶	10 ⁻⁶	0	3	0	5	5	0%			
10 ⁷	10 ⁻⁷	0	3	0	8	8	0%			
10 ⁸	10 ⁻⁸	0	3	0	11	11	0%			
2.28										
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID50/25 μ l	TCID50/ml
10 ¹	10 ⁻¹	3	0	12	0	12	100%	0.500	1 x 10 ⁴ .500	4 x 10 ⁵ .500 1264911.06
10 ²	10 ⁻²	3	0	9	0	9	100%			
10 ³	10 ⁻³	3	0	6	0	6	100%			
10 ⁴	10 ⁻⁴	3	0	3	0	3	100%			
10 ⁵	10 ⁻⁵	0	3	0	3	3	0%			
10 ⁶	10 ⁻⁶	0	3	0	6	6	0%			
10 ⁷	10 ⁻⁷	0	3	0	9	9	0%			
10 ⁸	10 ⁻⁸	0	3	0	12	12	0%			
2.29										
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID50/25 μ l	TCID50/ml
10 ¹	10 ⁻¹	3	0	16	0	16	100%	0.000	1 x 10 ⁶ .00	4 x 10 ⁷ 40000000.00
10 ²	10 ⁻²	3	0	13	0	13	100%			
10 ³	10 ⁻³	3	0	10	0	10	100%			
10 ⁴	10 ⁻⁴	3	0	7	0	7	100%			
10 ⁵	10 ⁻⁵	2	1	4	1	5	80%			
10 ⁶	10 ⁻⁶	2	1	2	2	4	50%			
10 ⁷	10 ⁻⁷	0	3	0	5	5	0%			
10 ⁸	10 ⁻⁸	0	3	0	8	8	0%			
2.30										
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID50/25 μ l	TCID50/ml
10 ¹	10 ⁻¹	3	0	12	0	12	100%	0.500	1 x 10 ⁴ .500	4 x 10 ⁵ .500 1264911.06
10 ²	10 ⁻²	3	0	9	0	9	100%			
10 ³	10 ⁻³	3	0	6	0	6	100%			
10 ⁴	10 ⁻⁴	3	0	3	0	3	100%			
10 ⁵	10 ⁻⁵	0	3	0	3	3	0%			
10 ⁶	10 ⁻⁶	0	3	0	6	6	0%			
10 ⁷	10 ⁻⁷	0	3	0	9	9	0%			
10 ⁸	10 ⁻⁸	0	3	0	12	12	0%			

3.41										
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID50/25 μ l	TCID50/ml
10 ¹	10 ¹	3	0	12	0	12	100%	0.500	1 x 10 ⁴ .500	4 x 10 ⁵ .500 1264911.06
10 ²	10 ²	3	0	9	0	9	100%			
10 ³	10 ³	3	0	6	0	6	100%			
10 ⁴	10 ⁴	3	0	3	0	3	100%			
10 ⁵	10 ⁵	0	3	0	3	3	0%			
10 ⁶	10 ⁶	0	3	0	6	6	0%			
10 ⁷	10 ⁷	0	3	0	9	9	0%			
10 ⁸	10 ⁸	0	3	0	12	12	0%			
3.42										
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID50/25 μ l	TCID50/ml
10 ¹	10 ¹	3	0	14	0	14	100%	0.253	1 x 10 ⁵ .253	4 x 10 ⁶ .253 7162423.41
10 ²	10 ²	3	0	11	0	11	100%			
10 ³	10 ³	3	0	8	0	8	100%			
10 ⁴	10 ⁴	3	0	5	0	5	100%			
10 ⁵	10 ⁵	2	1	2	1	3	67%			
10 ⁶	10 ⁶	0	3	0	4	4	0%			
10 ⁷	10 ⁷	0	3	0	7	7	0%			
10 ⁸	10 ⁸	0	3	0	10	10	0%			
3.43										
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID50/25 μ l	TCID50/ml
10 ¹	10 ¹	3	0	13	0	13	100%	0.746	1 x 10 ⁴ .746	4 x 10 ⁵ .746 2228742.99
10 ²	10 ²	3	0	10	0	10	100%			
10 ³	10 ³	3	0	7	0	7	100%			
10 ⁴	10 ⁴	3	0	4	0	4	100%			
10 ⁵	10 ⁵	1	2	1	2	3	33%			
10 ⁶	10 ⁶	0	3	0	5	5	0%			
10 ⁷	10 ⁷	0	3	0	8	8	0%			
10 ⁸	10 ⁸	0	3	0	11	11	0%			
3.44										
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID50/25 μ l	TCID50/ml
10 ¹	10 ¹	3	0	13	0	13	100%	0.746	1 x 10 ⁴ .746	4 x 10 ⁵ .746 2228742.996
10 ²	10 ²	3	0	10	0	10	100%			
10 ³	10 ³	3	0	7	0	7	100%			
10 ⁴	10 ⁴	3	0	4	0	4	100%			
10 ⁵	10 ⁵	1	2	1	2	3	33%			
10 ⁶	10 ⁶	0	3	0	5	5	0%			
10 ⁷	10 ⁷	0	3	0	8	8	0%			
10 ⁸	10 ⁸	0	3	0	11	11	0%			
3.45										
Dilution	Dilution	No. pos	No. neg	Infected (A)	Uninfected (B)	A+B	% infected	Index	TCID50/25 μ l	TCID50/ml
10 ¹	10 ¹	3	0	15	0	15	100%	0.500	1 x 10 ⁵ .500	4 x 10 ⁶ .500 12649110.64
10 ²	10 ²	3	0	12	0	12	100%			
10 ³	10 ³	3	0	9	0	9	100%			
10 ⁴	10 ⁴	3	0	6	0	6	100%			
10 ⁵	10 ⁵	2	1	3	1	4	75%			
10 ⁶	10 ⁶	1	2	1	3	4	25%			
10 ⁷	10 ⁷	0	3	0	6	6	0%			
10 ⁸	10 ⁸	0	3	0	9	9	0%			

Table S8 MTT optical density in prevention model

1.11

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.456	0.431	0.430	0.439	0.009
0.01	0.406	0.441	0.488	0.445	0.024
0.001	0.402	0.489	0.568	0.486	0.048
0.0001	0.812	0.810	0.906	0.843	0.032
0.00001	1.688	1.001	1.097	1.262	0.215
0.000001	1.470	1.555	1.527	1.517	0.025
0.0000001	1.782	1.633	1.597	1.671	0.057
0.00000001	1.943	1.629	1.546	1.706	0.121

1.12

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.225	0.276	0.277	0.259	0.017
0.01	0.397	0.407	0.397	0.400	0.003
0.001	0.467	0.449	0.437	0.451	0.009
0.0001	0.742	0.633	0.690	0.688	0.031
0.00001	1.523	1.144	1.150	1.272	0.125
0.000001	1.564	1.262	1.305	1.377	0.094
0.0000001	1.636	1.670	1.522	1.609	0.045
0.00000001	1.760	1.676	1.635	1.690	0.037

1.13

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.207	0.237	0.318	0.254	0.033
0.01	0.386	0.411	0.432	0.410	0.013
0.001	0.415	0.501	0.397	0.438	0.032
0.0001	0.852	0.962	0.770	0.861	0.056
0.00001	1.500	1.110	1.491	1.367	0.129
0.000001	1.538	1.664	1.446	1.549	0.063
0.0000001	1.633	1.585	1.558	1.592	0.022
0.00000001	1.808	1.656	1.361	1.608	0.131

1.14

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.158	0.167	0.158	0.161	0.003
0.01	0.347	0.471	0.457	0.425	0.039
0.001	0.621	0.513	0.476	0.537	0.043
0.0001	0.728	0.638	0.726	0.697	0.030
0.00001	1.452	1.154	1.163	1.256	0.098
0.000001	1.143	1.815	1.372	1.443	0.197
0.0000001	1.587	1.902	1.171	1.553	0.212
0.00000001	1.651	1.866	1.517	1.678	0.102

1.15

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.112	0.124	0.112	0.116	0.004
0.01	0.405	0.155	0.348	0.303	0.076
0.001	0.400	0.508	0.347	0.418	0.047
0.0001	0.549	0.927	0.537	0.671	0.128
0.00001	1.472	1.098	1.060	1.210	0.131
0.000001	1.506	1.574	1.628	1.569	0.035
0.0000001	1.633	1.851	1.600	1.695	0.079
0.00000001	1.718	1.757	1.724	1.733	0.012

2.26

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.211	0.229	0.230	0.223	0.006
0.01	0.441	0.582	0.362	0.462	0.064
0.001	0.478	0.552	0.509	0.513	0.021
0.0001	0.604	0.988	0.612	0.735	0.127
0.00001	1.581	1.146	0.926	1.218	0.192
0.000001	1.662	1.600	1.035	1.432	0.199
0.0000001	1.512	1.417	1.540	1.490	0.037
0.00000001	1.694	1.779	1.711	1.728	0.026

2.27

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.183	0.192	0.238	0.204	0.017
0.01	0.514	0.556	0.524	0.531	0.013
0.001	0.550	0.441	0.595	0.529	0.046
0.0001	0.646	0.569	0.979	0.731	0.126
0.00001	1.166	1.167	1.645	1.326	0.160
0.000001	1.546	1.257	1.477	1.427	0.087
0.0000001	1.566	1.813	1.772	1.717	0.076
0.00000001	1.665	1.797	1.976	1.813	0.090

2.28

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.250	0.267	0.330	0.282	0.024
0.01	0.456	0.379	0.497	0.444	0.035
0.001	0.532	0.365	0.490	0.462	0.050
0.0001	0.730	0.844	0.681	0.752	0.048
0.00001	0.911	1.306	1.480	1.232	0.168
0.000001	1.633	1.449	1.394	1.492	0.072
0.0000001	1.605	1.640	1.774	1.673	0.052
0.00000001	1.597	1.615	1.883	1.698	0.092

2.29

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.193	0.220	0.252	0.222	0.017
0.01	0.400	0.353	0.534	0.429	0.054
0.001	0.515	0.439	0.512	0.489	0.025
0.0001	0.725	0.562	0.759	0.682	0.061
0.00001	1.088	0.631	1.249	0.989	0.185
0.000001	1.145	1.484	1.177	1.269	0.108
0.0000001	1.594	1.623	1.059	1.425	0.183
0.00000001	1.698	1.685	1.690	1.691	0.004

2.30

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.191	0.209	0.264	0.221	0.022
0.01	0.460	0.497	0.529	0.495	0.020
0.001	0.485	0.490	0.559	0.511	0.024
0.0001	0.819	0.898	1.151	0.956	0.100
0.00001	1.684	1.144	1.351	1.393	0.157
0.000001	1.669	1.573	1.623	1.622	0.028
0.0000001	1.691	1.313	1.845	1.616	0.158
0.00000001	1.755	1.739	1.373	1.622	0.125

3.41

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.180	0.300	0.278	0.253	0.037
0.01	0.412	0.477	0.455	0.448	0.019
0.001	0.427	0.443	0.478	0.449	0.015
0.0001	0.743	1.122	0.881	0.915	0.111
0.00001	1.250	1.526	1.789	1.522	0.156
0.000001	1.643	1.721	1.284	1.549	0.135
0.0000001	1.748	1.800	1.780	1.776	0.015
0.00000001	1.674	1.720	1.300	1.565	0.133

3.42

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.151	0.144	0.174	0.156	0.009
0.01	0.451	0.087	0.481	0.340	0.127
0.001	0.495	0.432	0.537	0.488	0.031
0.0001	0.568	0.596	0.650	0.605	0.024
0.00001	0.708	0.754	0.996	0.819	0.089
0.000001	1.577	1.685	1.295	1.519	0.116
0.0000001	1.756	1.269	1.020	1.348	0.216
0.00000001	1.257	1.717	1.716	1.563	0.153

3.43

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.291	0.258	0.292	0.280	0.011
0.01	0.444	0.475	0.517	0.479	0.021
0.001	0.492	0.505	0.533	0.510	0.012
0.0001	0.875	0.622	0.822	0.773	0.077
0.00001	1.410	1.643	1.186	1.413	0.132
0.000001	1.479	1.343	1.387	1.403	0.040
0.0000001	1.330	1.269	1.468	1.356	0.059
0.00000001	1.624	1.801	1.074	1.500	0.219

3.44

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.199	0.198	0.193	0.197	0.002
0.01	0.176	0.170	0.535	0.294	0.121
0.001	0.515	0.512	0.582	0.536	0.023
0.0001	0.739	0.559	0.723	0.674	0.058
0.00001	1.360	0.792	1.367	1.173	0.191
0.000001	1.115	1.564	1.110	1.263	0.151
0.0000001	1.560	1.776	1.148	1.495	0.184
0.00000001	1.597	1.618	1.403	1.539	0.068

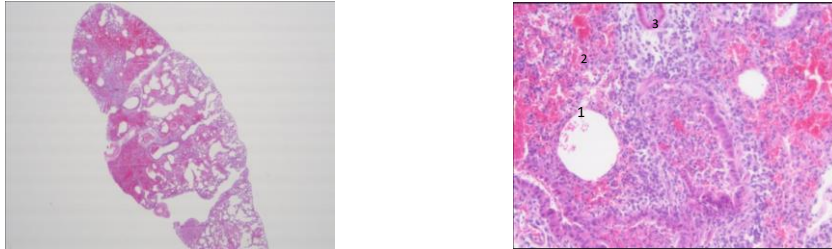
3.45

Dilution	Raw OD			Mean	SEM
	1	2	3		
0.1	0.167	0.202	0.193	0.187	0.010
0.01	0.428	0.344	0.446	0.406	0.031
0.001	0.445	0.424	0.584	0.484	0.050
0.0001	0.936	0.636	0.788	0.787	0.087
0.00001	1.046	1.348	1.339	1.244	0.099
0.000001	1.453	1.188	1.163	1.268	0.093
0.0000001	1.677	1.560	1.218	1.485	0.138
0.00000001	1.708	1.716	1.341	1.588	0.124

Figure S1. Representative images of lung histopathology scores and area affected at termination in treatment model.

Mouse 1.3 (x2.5 and x20). PR8 infection, control.

Severe bronchiolitis with lumen filled with inflammatory cells and debris (1), haemorrhage (2), interstitial and alveolar inflammation(3)



Mouse 2.11 (x2.5 and x20). PR8 infection, fucoidan at 3.52mg/day.

Focal bronchiolar epithelial disruption and inflammation(1); consolidation of alveolar tissue (2).

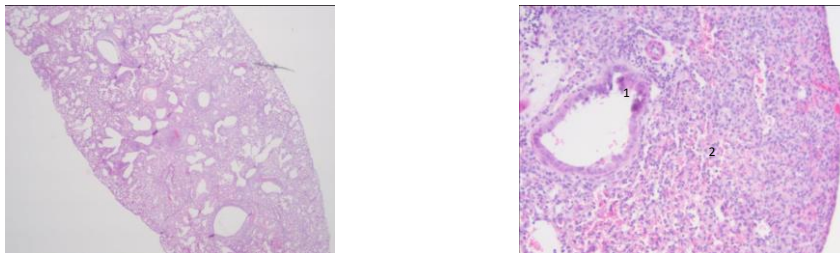


Figure S2. Mean TCID₅₀ values of lung homogenates. Data are presented as mean TCID₅₀ of group (n = 5) ± SEM.

