

**THE EFFECT OF PHYTOCANNABINOIDS ON AIRWAY
HYPERRESPONSIVENESS, AIRWAY INFLAMMATION AND COUGH**

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Table A: Comparison of the effect of aerosolised cannabinoids or their vehicle (solutol) on the maximal increase in airway resistance of saline- and TNF- α - treated guinea-pigs in response to vagal nerve electrical stimulation or methacholine.

Treatment	Vagal EFS-evoked increase in airway resistance above baseline (cm.H ₂ O s.L ⁻¹) at maximal frequency (30Hz)		% increase in vagal-evoked contractions by TNF- α	MCh-evoked increase in airway resistance above baseline (cm.H ₂ O s.L ⁻¹¹) at maximal dose (32 μ g.kg ⁻¹)		% increase in MCh-evoked contractions by TNF- α
	Saline	+ TNF- α		Saline	+ TNF- α	
Solutol	365.7 \pm 15.7	654.2 \pm 16.70	78.8	869.5 \pm 93.2	871.6 \pm 27.3	0.2
Δ^9 -THC	363.1 \pm 15.9	443.9 \pm 24.7	22.2*	791.8 \pm 19.1	802.2 \pm 16.9	1.3
CBD	401.7 \pm 30.9	597.5 \pm 21.9	48.7	790.6 \pm 23.8	785.3 \pm 19.7	-0.6
Δ^9 -THC + CBD	357.1 \pm 20.2	455.2 \pm 14.7	27.4	821.2 \pm 16.4	797.3 \pm 16.9	-2.9
CBG	372.1 \pm 26.0	660.4 \pm 56.63	77.4	805.4 \pm 21.4	816.8 \pm 23.3	1.4
CBDA	379.2 \pm 19.3	690.7 \pm 30.7	82.1	729.6 \pm 20.8	753.0 \pm 15.4	3.2
CBC	415.0 \pm 25.5	701.2 \pm 34.2	68.9	795.1 \pm 16.1	842.1 \pm 42.3	5.9
THCV	436.8 \pm 24.5	748.4 \pm 56.0	71.3	786.0 \pm 17.1	787.3 \pm 15.7	0.1

Comparison of the effect of cannabinoids on the maximal increases in guinea-pig airway resistance above baseline in response to vagal electrical field stimulation (EFS) and methacholine 6 h after intra-tracheal instillation of either saline or 2 μ g human TNF- α . Each guinea-pig was exposed to an aerosolised solution of a cannabinoid (10 mg.mL⁻¹) for 20 min. Each point represents the mean \pm SEM ($n = 6$). * $P < 0.05$ indicates a significant ($P < 0.05$)

inhibition of TNF- α -induced enhancement of the increases in airway resistance in response to vagal EFS at 30 Hz by a cannabinoid treatment.

Table B: Comparison of the total number of inflammatory cells and neutrophils recovered from BAL fluid in guinea-pigs 4 h following aerosol exposure to LPS after systemic administration of a cannabinoid.

	Total cells (10^4 mL^{-1})				Neutrophils (10^4 mL^{-1})			
	Saline	Solutol	10 mg kg^{-1}	50 mg kg^{-1}	Saline	Solutol	10 mg kg^{-1}	50 mg kg^{-1}
Saline (14)	61.1 \pm 10				0.51 \pm 0.25			
LPS (29)		200.9 \pm 12.6				153.3 \pm 10.9		
Δ^9 -THC (4, 4)			252.3 \pm 94.7	129.7 \pm 14.8			163.9 \pm 82.8	100.8 \pm 20.0
CBD (6, 6)			159.3 \pm 22.0	173.3 \pm 13.0			124.6 \pm 19.4	137.3 \pm 10.2
CBG (6, 6)			184.5 \pm 22.3	184.3 \pm 22.1			137.3 \pm 17.4	135.6 \pm 16.3
CBDA (5, 5)			165.2 \pm 42.5	164.2 \pm 27.6			120.3 \pm 42.3	135.7 \pm 32.1
CBC (9, 8)			164.6 \pm 14.6	170.6 \pm 17.7			120.9 \pm 13.4	123.2 \pm 17.2
THCV (6, 6)			165.0 \pm 26.0	132.0 \pm 24.0†			128.4 \pm 22.8	89.9 \pm 15.7*

Comparison of the effect of cannabinoids on the increases in total count of leukocytes and neutrophils (cells $\times 10^4 \text{ mL}^{-1}$) in the lavage fluid from guinea-pig lungs 4 h after an aerosol challenge with either LPS ($100 \mu\text{g mL}^{-1}$) or saline for 20 min. Each guinea-pig injected with a cannabinoid (10 or 50 mg kg^{-1}) or its vehicle, solutol 1h prior to the LPS exposure. Each

value represents the mean \pm SEM and values in parenthesis indicate animal number per treatment group. * $P < 0.05$ cf LPS; † $P = 0.06$ cf LPS.

Figure A: Experimental recording of the changes in chamber pressure (upper panel) and sound (lower panel) during a cough (C) and sneeze (S) in response to aerosolised citric acid 0.3 M.

FIGURE A

