

**Morphological and cytokine profiles as key parameters to
distinguish between Gram-negative and Gram-positive bacterial
keratitis**

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Supplementary Information

Supplementary Table 1. Correlation analysis of Corneal Tissue Inflammation and Corneal Tissue Loss

Parameter	CTI		CTL	
	Spearman r	p-value	Spearman r	p-value
Presentation logMAR VA	0.610	<0.001	0.603	0.001
Presentation epithelial defect	0.553	<0.001	0.520	0.004
Presentation infiltrate diameter	0.693	<0.001	0.423	0.040
Presentation infiltrate thickness	0.662	<0.001	0.432	0.031
Presentation corneal thickness	NA		0.578	0.001
CTI	NA		0.547	0.002
Final corneal thickness	0.610	<0.001	NA	
Final logMAR VA	0.090	0.577	0.448	0.017
CTL	0.547	0.002	NA	

CTI: corneal tissue inflammation, CTL: corneal tissue loss, r: correlation coefficient, VA: visual acuity

Supplementary Table 2: Cytokines and chemokines concentration in the tears of BK patients compared to controls

Cytokine	BK (pg/ml)		Controls (pg/ml)		BK/Controls	p-value
	Mean [SD]	Median [IQR]	Mean [SD]	Median [IQR]		
IL-1 β	50.24 [90.04]		0.12 [0.19]		419	<0.001
	9.85 [60.64]		0.00 [0.30]		NP	
IFN- γ	111.24 [242.68]		1.35 [1.57]		82	0.001
	25.40 [12.78]		0.71 [3.00]		36	
GM-CSF	15.39 [26.31]		0.64 [0.52]		24	<0.001
	8.82 [12.78]		0.57 [0.82]		15	
IL-10	17.97 [39.79]		0.22 [0.30]		82	0.003
	4.70 [8.76]		0.02 [0.54]		235	
IL-12p70	17.10 [37.73]		0.98 [1.05]		17	0.10
	5.77 [12.06]		0.77 [1.54]		7	
IL-2	12.16 [14.75]		0.36 [0.27]		34	<0.001
	7.62 [15.24]		0.41 [0.82]		19	
IL-6	370.15 [431.83]		0.63 [0.20]		587	<0.001
	205.18 [609.04]		0.58 [1.16]		354	
IL-8	1129.03 [1518.37]		18.54 [17.98]		61	0.001
	358.77 [2197.64]		15.02 [32.74]		24	
TNF- α	33.25 [71.44]		0.84 [0.78]		40	0.007
	9.98 [18.98]		0.86 [1.72]		12	

BK: bacterial keratitis, IQR: interquartile range, NP: not possible

Supplementary Table 3. Concentrations cytokines and chemokines from presentation to days 3, 7 and 14 of treatment

Cytokine	Day 0	Day 3	Day 7	Day 14	
Cytokine concentration (pg/ml)					
	Mean [SD] Median [IQR] BK/controls	Mean [SD] Median [IQR] BK/controls	Mean [SD] Median [IQR] BK/controls	Mean [SD] Median [IQR] BK/controls	p-value
IL-1 β	35.47 [36.08] 15.83 [62.74] 295.6	1.60 [1.03] 1.89 [2.08] 13.3	1.69 [1.35] 1.69 [2.68] 14.1	1.35 [1.44] 0.55 [2.62] 11.3	0.034
IFN- γ	26.26 [18.51] 22.03 [30.94] 19.5	24.74 [13.42] 12.04 [23.84] 18.3	8.99 [9.89] 7.62 [12.08] 6.7	9.08 [7.09] 7.92 [10.36] 6.7	0.037
GM-CSF	7.37 [5.23] 8.82 [9.76] 11.5	2.35 [1.57] 1.97 [2.94] 3.7	2.39 [1.88] 1.70 [3.84] 3.7	2.08 [1.39] 1.74 [1.94] 3.3	0.068
IL-10	4.06 [3.16] 4.70 [4.94] 18.4	0.92 [1.21] 0.42 [2.64] 4.2	1.11 [1.56] 0.31 [1.96] 5.0	0.38 [0.43] 0.24 [0.56] 1.7	0.059
IL-12p70	6.62 [7.78] 5.77 [4.96] 6.8	1.60 [1.12] 1.14 [2.02] 1.6	1.29 [1.28] 0.85 [2.16] 1.3	1.44 [1.27] 1.13 [1.00] 1.5	0.068
IL-2	11.60 [13.98] 7.62 [9.14] 32.2	1.32 [0.98] 0.99 [1.90] 3.7	1.18 [1.06] 0.89 [0.70] 3.3	1.22 [0.84] 0.87 [0.88] 3.4	0.04
IL-6	407.94 [359.38] 244.94 [576.46] 647.5	18.81 [26.51] 8.55 [26.00] 29.9	5.31 [5.14] 3.05 [7.48] 8.4	2.68 [2.90] 1.62 [2.40] 4.3	<0.001
IL-8	1122.52 [1321.48] 363.46 [2770.90] 60.5	137.13 [77.84] 124.10 [84.76] 7.4	113.07 [141.77] 55.99 [175.50] 6.1	73.91 [77.84] 30.43 [138] 4.0	0.004
TNF- α	8.75 [6.71] 6.31 [7.48] 10.4	3.59 [3.04] 2.79 [6.44] 4.3	2.08 [2.12] 1.71 [2.30] 2.5	2.44 [1.70] 1.96 [2.20] 2.9	0.006

BK: bacterial keratitis, IQR: interquartile range