Persister cell formation in clinical isolates of *P. aeruginosa*

Hiral Patel, Kranti Bhamnote, **Devarshi Gajjar***
Department of Microbiology and Biotechnology Centre, Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat. India. 390002
patelhiral1317@gmaiil.com, devarshimistry@yahoo.com*

INTRODUCTION

Persister cells (PC) are non-growing and metabolically inactive cells, which lack transcription, translation and proton motive force and are tolerant to antibiotic treatment[1]. PCs are responsible for chronic and relapse of biofilm infections as well as bacterial infection [2,3]. Most of the studies on PCs has been done with regards to *Escherichia coli and P. aeruginosa* typed strain.

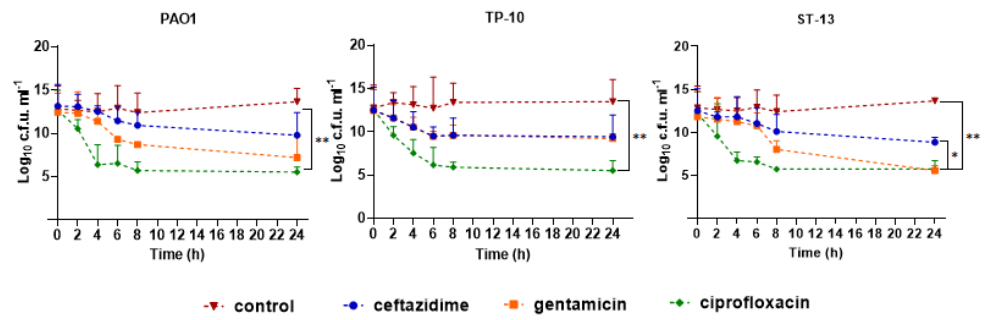
This study highlights the effect of antibiotic treatment on PC formation in clinical strains of *P. aeruginosa*. The PCs formation was studied against ceftazidime, gentamicin and ciprofloxacin antibiotics.

RESULTS

1) Minimum Inhibitory concentrations:

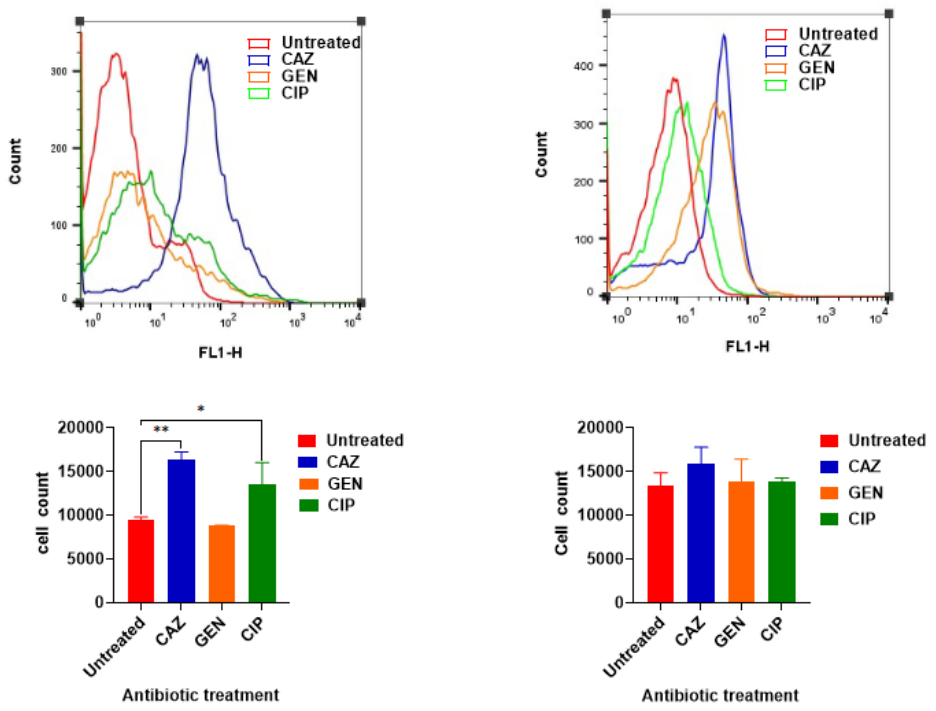
Sample	MIC (mg/L)		
	CAZ	GEN	CIP
PAO1	1	0.5	8
TP-10	0.5	0.5	0.0625
ST-13	2	1	8

2) Time kill curve assay:



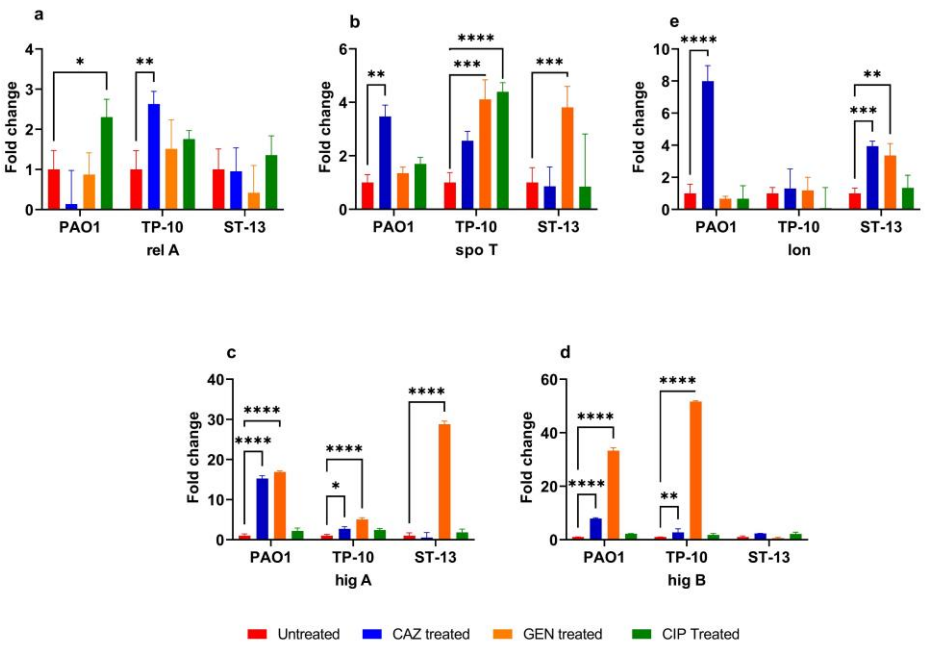
High number of log cfu/ml survival fraction was observed for ceftazidime treatment followed by gentamicin and ciprofloxacin in compared to untreated control

3) Quantification of persister cell formation:



High redox activity was observed for ceftazidime treated followed by ciprofloxacin and gentamicin in TP-10 isolate

4) Gene expression studies of stringent response as well as toxin-antitoxin genes:



The stringent response as well as toxin-antitoxin genes were upregulated on ceftazidime and gentamicin compared to untreated control in PAO1 and TP-10 isolate.

CONCLUSION

From above results in the planktonic stage the persister cell formation is observed in ceftazidime treatment as well as gentamicin treatment in PAO1 and TP-10 isolate.

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