

Transcriptional analysis of the *ecp* operon in atypical enteropathogenic *Escherichia coli*

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Atypical enteropathogenic *Escherichia coli* (aEPEC) are one of the most frequent pathotypes that causes diarrhea in infants. Unlike typical EPEC, aEPEC does not produce Bundle Forming Pilus (BFP). The absence of BFP strongly suggests that other fimbrial and non-fimbrial adhesins must be involved in aEPEC adhesion to the host cell, which could explain the different interaction patterns they present on adherence assays with HeLa cells. *E. coli* common pilus (ECP) is found in most pathogenic and non-pathogenic *E. coli* and probably has an important role in bacterial adhesion. The objective of this study was to evaluate the presence and expression of ECP in aEPEC strains isolated from diarrhea cases with different genetic pili profiles. For that purpose, the following strains were selected: BA2103, BA3378, BA4132 and BA4147. The presence of ECP operon, composed by five genes (*ecpA*, *ecpB*, *ecpC*, *ecpD* and *ecpE*) and its regulatory gene (*ecpR*), was assessed by PCR. The transcription of this operon was evaluated by RT-PCR using cDNA obtained from RNA extraction of bacterial strains grown in Luria Bertani broth (LB), DMEM and preconditioned DMEM (presence of cell signaling components from HeLa cell culture). It was observed that the genes comprising ECP operon are present in all strains tested, but transcription of these five genes by all strains only occurred when they were grown in preconditioned DMEM. All strains fully transcribed the operon regulator gene only in the presence of cell signaling components by growth in preconditioned DMEM. There was differential transcription of this gene when strains were grown in LB or DMEM, since there was no amplification product observed after PCR by two of the tested strains. These results suggest that cellular signaling may interfere with the transcription of the regulatory gene of ECP operon and, probably, with the production of this fimbrial adhesin.

Keywords: *Escherichia coli*; atypical EPEC; diarrhea; ECP.

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