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Title: Study on human tracheal bronchial epithelial cells secreting cytokines in vitro by nontypeable haemophilus influenzae

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Body: Obstrucive To study the interaction of nontypeable haemophilus influenzae strain ATCC49247 with primary human bronchial epithelial cells (HBEC) and the NTHi-induced release and expression of proinflammoraty cytokine in the HBEC. Methods HBEC were isolated by using low temperature protease digestion and cultured in serum-free medium. Confluent epithelial cell cultures were incubated with NTHi, NTHi +erythromycin(0.1mg/L), NTHi + erythromycin(10mg/L), NTHi + gentamicin(100mg/L), NTHi+dexamethasone(100uM)and normal untreated control cells after 24h. Release of IL-8 and TNF-a into the supernatant was assayed by enzyme-linked immunosorbent assay; The expression of ICAM-1 was examined by immunohistochemistry staining. Results (1) Some HBECs were transformed and died after 24h. (2) HBEC: NTHi-induced cells released significantly greater amounts of IL-8 and TNF-a (2172.18 ± 131.83 , 7.22 ± 2.17 pg/ml, respectively) than normal untreated cells (1115.76 ± 57.63 , 2.84 ± 1.04 pg/ml)($p < 0.001$). NTHi also significantly increased the total number of of ICAM-1 positive cells from $10 \pm 5\%$ (in control untreated cultures) to $80 \pm 5\%$ ($p < 0.001$). Similarly, incubation of HBEC with 0.1mg/L erythromycin and gentamicin significantly induced release of IL-8, TNF-a and the expression of ICAM-1, which was blocked by 10mg/L erythromycin and 100uM dexamethasone. Conclusions HBEC can release IL-8 and TNF-a. NTHi may increase significantly release and expression of proinflammatory cytokine. Gentamicin have no anti-inflammatory effects. Erythromycin may have anti-inflammatory effects. Dexamethasone has distinct anti-inflammatory effects.