Abstract

Cystic Fibrosis (CF) is one of the most common hereditary diseases. This congenital condition, caused by CFTR gene mutation, affects gastrointestinal and respiratory system especially. The affection of respiratory system is considered the most serious life-threatening symptom. Patients suffer from recurent infections proceeding to the development of chronic inflammation and progressive pulmonary tissue destruction. A typical specific microorganism colonizing pulmonary tissue of those suffering from CF is recognized as *Pseudomonas aeruginosa*. Pulmonary infections caused by this microorganism are the most often cause of death in patients suffering from CF. Antibiotics are the first-line therapy of this condition currently. Nevertheless, the need to find alternatives occurs due to antibiotics resistance development. Passive immunization by specific hen-egg-yolk antibodies against *P. aeruginosa* is a possible alternative.

An observation of IgY influence on a bacterial adhesion to pulmonary epithelial cells required an appropriate model. In this context an appropriate adhesion testing method based on *P. aeruginosa* and pulmonary epithelial cells visualisation was searched. At first bacterial cells labelling was tested by CellTracker, resazurin, FITC and consequently PKH 26. *P. aeruginosa* fluorescent labelling by FITC (providing fluorescence in the green part of visible spektrum) and pulmonary epithelial cells fluorescent labelling by PKH 26 (providing fluorescence in the red part of visible spektrum) were used in adhesion testing.

**Key words**: Cystic fibrosis, Pulmonary epithelial cells, *Pseudomonas aeruginosa*, Fluorescent labelling, Adhesion testing, Chicken antibodies