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New method for rapid and dynamic quantification of elastase activity on sputum neutrophils from patients with cystic fibrosis using flow cytometry

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Small molecule FRET flow cytometry is a new method that enables rapid and sensitive quantification of surface-bound elastase activity on sputum neutrophils from patients with cystic fibrosis and potentially other neutrophilic airway diseases http://bit.ly/2IegeSB

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Increased activity of the serine protease neutrophil elastase (NE), secreted by activated neutrophils in the airways, is a key risk factor for the onset and progression of structural lung damage and lung function decline in patients with cystic fibrosis (CF) and non-CF bronchiectasis [1–6]. In addition to progressive structural lung damage, increased NE activity has been implicated in mucus hypersecretion [7–9], perpetuation of airway inflammation [10], and impaired host defence against *Pseudomonas aeruginosa* infection [6, 11–13]. These studies suggest increased NE activity in sputum or bronchoalveolar lavage fluid (BALF) as a promising biomarker of airway inflammation in CF and potentially other neutrophilic airway diseases [2–4, 6].