Supplement 1. Morphology-based interpretation of the alveolar fluorescent cells observed with pCLE.

In order to assess the nature of the fluorescent cells observed during pCLE, we performed, using a Cellvizio® system at 488 nm wavelength excitation, microconfocal observations of (1) a culture of *human lymphocytes* suspended in PBS (i.e in liquid phase), (2) a *fresh bronchoalveolar lavage fluid* from an ILD patient without amiodarone treatment, which demonstrated a mixed macrophage / lymphocyte alveolitis. These *ex-vivo* observations were performed before and after adjunction of acriflavine to the cellular suspension.

(1) : Before acriflavine addition, microconfocal observations of the lymphocytes did not display any fluorescent signal. By contrast, after addition of acriflavine, the lymphocytes appeared as bright fluroescent objects with a diameter of 10-15 µm.

(2) : Along the same line, there was no fluorescent signal from the BAL fluid, while few faintly fluorescent cells could be observed in one alveolar area. The addition of acriflavine to the BAL fluid, displayed the two cellular populations (lymphocytes and macrophages) that differed by their diameters. The optical microscopy examination of the BAL fluid confirmed the lymphocyte alveolitis (44%).

Finally, the *in vivo* pCLE observations in the ILD patients, detailed in Table 4, show that the fluorescent cells <20 µm could only be observed in patients presenting a lymphocyte or polynuclear cell population in BAL.

Altogether, these data indicate that the fluorescent cells > 20 µm in diameter observed *in-vivo* in this series probably represent activated alveolar macrophages. However, it cannot be excluded that other alveolar cells such as type II pneumocytes, not harvested during BAL, could also produce a similar signal.

These data are illustrated in figure S1."