Supplementary text:

**Background of FOI.** For FOI with ICG as fluorescence marker, light of a defined wavelength is sent through the tissue to be examined. The fluorophor will be excited and gives off light of another wavelength. The resulting fluorescence can be visualized by capturing the emitted photons with a suitable device, usually a charge-coupled detector (CCD) of a high resolution camera. Travelling into the tissue and back out again, the light is getting scattered and absorbed in both directions. Least absorption occurs in an “optical window” in the dark red and near infrared (NIR) spectral range (700 – 1000nm), so penetration depth may reach several centimeters.

**Xiralite-system.** The FOI system Xiralite X4 (figure1) (mivenion GmbH, Berlin Germany) gained CE approval for the EU in April 2009. It uses high-power LED arrays to illuminate the field of view with dark red light with an excitation wavelength of around λ=740nm. Short pass filters at the LEDs eliminate light in the NIR spectrum (λ>760nm). The photons activate the available ICG with a resulting fluorescence with maximum at λ=832nm. Long pass filters at the camera eliminate light with a frequency below λ=800nm. Thus, only the fluorescence photons reach the electron multiplied CCD-camera of the Xiralite system, the images represent the distribution of the contrast dye.

**Fluorescence marker.** ICG is a hydrophilic anionic fluorescent dye, which bounds to 98% with plasma proteins (36). The absorption and emission maximum wavelengths of this NIR dye are 720nm and 830nm, respectively (37). ICG is approved in Europe for various indications.

**Safety.** In our series of 252 Xiralite examinations in subjects with arthritis and related conditions the procedure was well tolerated and appeared to be safe. The number is too small to allow definite answers regarding the safety and tolerability of the technology for the given application. Fluorescence optical imaging with ICG has been used extensively in ophthalmology for more than 30 years (39). Additionally ICG is routinely used for function tests in hepatology and cardiology. For these applications the dye has a well-documented safety profile. Complications associated with the procedure appear to be uncommon. Most of these were reports of patients developing anaphylactoid reactions such as hyperthermia, nausea, pruritus, urticaria, tachycardia, hypotension, dyspnea, and bronchospasm, with an incidence ranging from 0.02% to 0.3% (NICE, 2004 http://www.nice.org.uk/nicemedia), (38).

**Additional limitation.** FOI detects any kind of inflammation. Inflammation e.g. in the skin (psoriatic plaques, scratches, wounds) is shown as well as synovitis or tenosynovitis. Differentiation of the inflamed structure may be possible by localization and the temporal distribution of the increased signal intensities but this presumes an experienced observer. Thus, we believe, the interpretation of the FOI findings has to be evaluated in context with the clinical aspect.