**Goal:** Drusen, a hallmark of age-related macular degeneration (AMD), are known to show autofluorescence (AF) which is different from that of lipofuscin\(^1,2\) (fig. 1). Here, for the first time, we combine spectral and lifetime data of drusen AF in vivo.

**Methods:** 12 patients with non-exudative AMD and no geographic atrophy were included. Fundus AF in a 30° retinal field was investigated with the Heidelberg Engineering Spectralis® fluorescence lifetime imaging ophthalmoscope (FLIO), detecting the temporal decay of the fluorescence in a short (498-560 nm; Ch1) and a long (560-720; Ch2) wavelength channel upon excitation with <100 ps laser pulses at 473 nm. The amplitude weighted mean fluorescence lifetime \(\tau_m\) was calculated from a three-exponential approximation of the decay. The spectral ratio \(sr\) of fluorescence emission in ch1 and ch2 was calculated. Drusen were identified from color fundus photographs and segmented in the AF images within an inner (IR) and outer (OR) ring centered at the macula according to the ETDRS-grid.

**Results:** The lifetimes of drusen were significantly longer than that of RPE (Ch1: 345 vs. 273ps, \(p=0.002\) (IR) and 334 vs. 291ps, \(p=0.026\) (OR), Ch 2: 382 vs. 324 ps, \(p=0.002\) (IR) and 371 vs. 335 ps, \(p=0.014\) (OR), example: fig. 2, statistics: fig. 3). Furthermore, drusen fluorescence was green-shifted compared to that of RPE (\(sr=0.64\) vs. 0.57, \(p=0.017\) (IR) and 0.60 vs. 0.53, \(p=0.003\) (OR)). Overall, there was a correlation between fluorescence lifetime and \(sr\) (Ch1: \(p=0.001\), Ch2: \(p=0.011\)) in drusen. In RPE we found a correlation only in Ch1 (\(p=0.002\)).

**Conclusions:** Drusen contain fluorophores different from that of RPE lipofuscin. As these can be investigated by FLIO in vivo, this might help to understand the nature of sub-RPE drusenoid deposits and might give additional diagnostic information on their role in AMD progression.


**Conflict of interests:** Hammer: none, Kreilkamp: none, Sauer: none, Augsten: none, Meller: none