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### Title

"In vivo" tissue microscopy imaging: Autofluorescence and LAURDAN generalized polarization of rat aorta.

### Permalink

<https://escholarship.org/uc/item/8302m4c5>

### Journal

BIOPHYSICAL JOURNAL, 74(2)

### ISSN

0006-3495

### Authors

Parasassi, T  
Yu, WM  
Kuriashkina, LR  
[et al.](#)

### Publication Date

1998

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Peer reviewed

Tiziana Parasassi, Weiming Yu, Liana R Kuriashkina, and Enrico Gratton.

**"In vivo" tissue microscopy imaging: autofluorescence and LAURDAN generalized polarization of rat aorta.**

32nd Annual Meeting of the Biophysical Society, Kansas City, Missouri, 1998.

*Biophys J.* 1998; 74(2 Pt 2): A184, Tu-Pos222.

**Abstract**

A rat aorta portion has been longitudinally opened and used either for autofluorescence imaging, or labeled with 2-dimethylamino-6-lauronaphthalene (LAURDAN). During labeling and measurements, tissue viability was maintained by a continuous flow of EBSS medium, supplemented with glucose and sodium bicarbonate and bubbled with oxygen. The open aorta wall was imaged at various depths by two-photon fluorescence microscopy. From LAURDAN fluorescence intensity images, generalized polarization (GP) images have been calculated. The organization of aorta tissue layers was clearly shown in the various optical sections. From the lumen, the endothelium and the tunica media can be distinguished both for their typical morphology and for the different average GP values. The endothelium GP value was much higher than that of the tunica media. The tunica media GP images revealed elongated cell structures. The endothelium layer was also shown in the autofluorescence images, although with a relatively low signal. By imaging the interior of the aorta tissue, the autofluorescence sections revealed quite a different structure than that seen by LAURDAN GP, showing only a network of elastic fibrous structures. Partial support for TP, WMY & EG comes from the National Institutes of Health (RR03155).