

**A Method for accurate *in vivo* micro-Raman spectroscopic measurements under guidance of advanced microscopy imaging**

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Supplementary Video 1: Continuous-wave reflectance confocal microscopy (*cwRCM*) video of a blood vessel in a cherry angioma on a volunteer's upper arm skin, demonstrating the process of finalizing the region-of-interest (ROI) for the spectral measurement. The image field of view (FOV) started from 300  $\mu\text{m}$   $\times$  300  $\mu\text{m}$ ; at frame 75, the FOV was reduced to 100  $\mu\text{m}$   $\times$  100  $\mu\text{m}$ ; at frame 201, the FOV was further reduced to 80 $\mu\text{m}$   $\times$  80  $\mu\text{m}$ ; fine adjustment at the x-y plane was performed in order to make sure the image FOV covers only the blood vessel. Spectral measurement can be taken after the above-mentioned steps are completed.

Supplementary Video 2: *cwRCM* video of a blood vessel in a cherry angioma on a volunteer's upper arm skin, simultaneously acquired during the spectral measurement. The blood flow can be clearly recognized indicating that the spectrum was taken from the ROI without severe movement from the subject. Image FOV is 100  $\mu\text{m}$   $\times$  100  $\mu\text{m}$ .

Note that Video 1 and Video 2 are from different blood vessels.