Supporting Information

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SI Text

SI Methods. ***3D imaging.*** 3D SHG imaging was performed by using a precision PZT stage with a scan accuracy/resolution better than 0.1 μm (PI E-625.CR) to control the imaging depth. During imaging, the mouse cervical tissue section was mounted on the stage and moved relative to the endoscope. Z-stack images were acquired with a 0.5-μm interval through a 15-μm thick middle portion of the tissue. Five images were averaged at each interval. Each z-stack was cropped into a 75 μm × 75 μm square field of view and reconstructed into a 3D image with the "3D project" function of ImageJ.

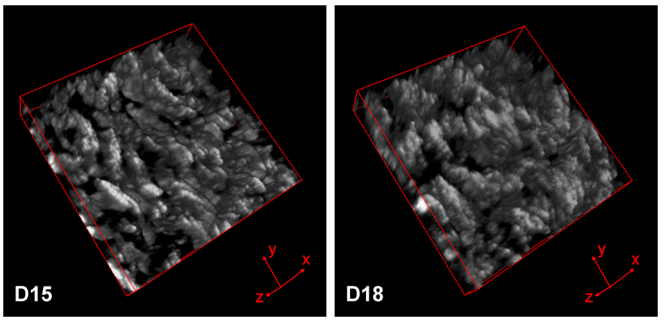

Fig. S1. Representative 3D projection images of mouse cervical tissue sections of gestation day 15 and day 18. Images were taken with a 0.5-μm interval and a total imaging depth of 15 μm. The lateral image size was cropped into 75 μm × 75 μm to better reveal the cross-sectional structure.

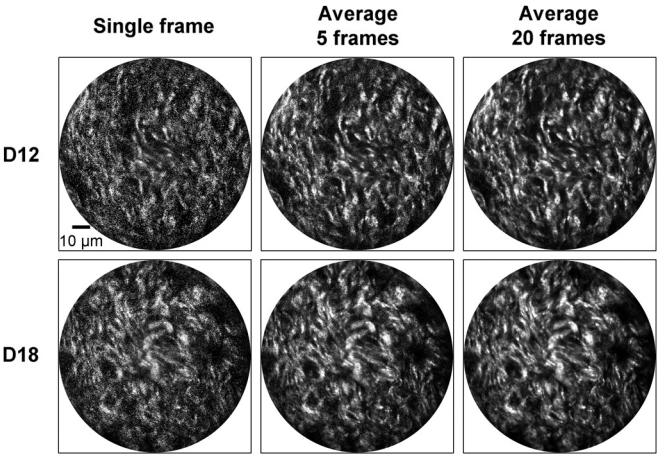

Fig. S2. Comparison of SHG images averaged over different numbers of frames from mouse cervical tissue sections of gestation day 12 and day 18. Columns from *Left* to *Right* show images with no averaging, averaged with 5 frames and averaged with 20 frames. The good quality of the image acquired, even with no averaging, shows that the signal to noise ratio and speed of the endomicroscope system is potentially adequate for clinical application.