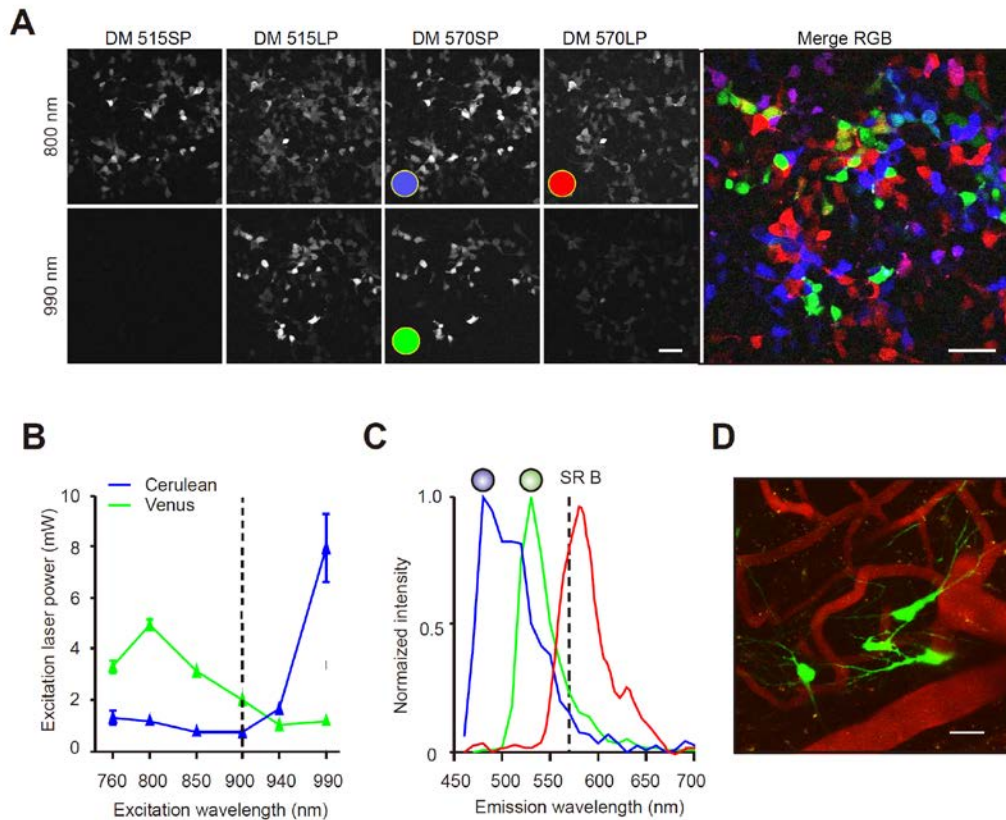


Supplementary Figure 1 Building up the oCPS



Supplementary Figure 1: Building up the oCPS.

(A) Two-photon images of HEK-293 cells transduced by mixed viral vectors encoding the three FPs. Acquisition settings: RGB marked cells were scanned with either 800 nm or 990 nm excitation light and the emission light was split by either dichroic mirror (DM) 515 or DM 570. The fluorescent signal from short pass (SP) channel (DM570) of 800 nm was collected as blue signal, the signal from long pass (LP) channel of 800 nm as red signal, and the signal from SP channel at 990 nm excitation light as green signal.

(B, C, D) Compatibility of blood vessel imaging with RGB marking. To track migration of cells, blood vessels were labeled by intraperitoneal injection of sulforhodamine B. According to the excitation spectra of the FPs **(B)**, 900 nm excites both Venus and Cerulean. Emission spectrum of sulforhodamine B **(C)**, red line) allows separation of its fluorescence from Venus or Cerulean under DM 570 (dashed line in **C**). **(D)** Maximal intensity projection image (MIP, 20-74 μm depth, step 1 μm) shows labeled cells (in green) and blood vessels (in red). Scale bar is 50 μm in **(A)**, and 20 μm in **(D)**.