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Supplemental Material to:

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In vivo dynamics of innate immune sentinels in the CNS

IntraVital 2012; 1(2)
http://dx.doi.org/10.4161/intv.22823

http://www.landesbioscience.com/journals/intravital/article/22823

http://www.landesbioscience.com/journals/intravital/2012INTRAVITAL019R-VidS1.mov

http://www.landesbioscience.com/journals/intravital/2012INTRAVITAL019R-VidS2.mov

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Movie Legends

Movie S1. Dynamics of CX3CR1-GFP$^{+/-}$ myeloid cells in the naïve brain. A representative time-lapse of a 3D reconstruction depicts the anatomy and dynamics of microglia / macrophages visible in naïve CX3CR1-GFP reporter mice. **Part 1.** An animation of a single *z*-stack from the series shows the change in the cellular morphology of GFP$^+$ cells (green) as the scan moves deeper into the brain. Blood vessels are red and skull bone is blue. **Part 2.** The dynamics of different myeloid cell populations are clearly visible in the time-lapse (left panel). Worm-like meningeal macrophages (upper right), amoeboid perivascular macrophages (middle right), and ramified microglia (lower right) are all highly dynamic in the resting brain. Individual examples of each cell type are depicted with white arrowheads.

Movie S2. Dynamics of LysM-GFP$^+$ myelomonocytic cells in the naïve brain. A representative time-lapse of a 3D reconstruction depicts the anatomy and dynamics of myelomonocytic cells (monocytes / macrophages / neutrophils) visible in naïve LysM-GFP reporter mice. **Part 1.** An animation of a single *z*-stack from the series shows that brain-resident LysM-GFP$^+$ cells localize to the meninges and perivascular spaces. Blood vessels are red and skull bone is blue. **Part 2.** The representative time-lapse shows that myelomonocytic cells continually scan the blood vessels, meninges, and perivascular spaces (left panel). Worm-like meningeal macrophages (1, upper right) and amoeboid perivascular macrophages (2, middle right) are highly dynamic. Neutrophils / monocytes (3, lower right) can also been seen slowing down and patrolling the luminal side of blood vessels.

Movie S3. Dynamics of CD11c-YFP$^+$ APCs in the naïve brain. A representative time-lapse of a 3D reconstruction depicts the anatomy and dynamics of APCs visible in naïve CD11c-YFP reporter mice. **Part 1.** An animation of a single *z*-stack from the series shows that brain-resident CD11c-YFP$^+$ cells localize to the meninges and perivascular spaces. Blood vessels are red and skull bone is blue. **Part 2.** The representative time-lapse shows that sparsely distributed CD11c-YFP$^+$ APCs continually scan the meninges and perivascular spaces. There are three different

cellular morphologies. Long stringy cells (1, upper right) are intertwined with the vasculature but not directly juxtaposed to it. Small spheroid cells (2, lower left) that resemble monocytes are visible adjacent to blood vessels. These cells are sometimes motile, moving along or between vessels. Lastly, perivascular amoeboid cells (3, lower right) can be found scanning adjacent blood vessels. All three cell populations are highly dynamic.