

### Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: **Timelapse imaging of corticallylocated (Tg(myI7:LIFEACTGFP)+) CM protrusion into the injured area from ventricular sections at 10 dpci.** White line denotes apical wound surface and yellow arrowhead follows the end of a cortical CM protrusion. IA, injured area.

File Name: Supplementary Movie 2

Description: **Tracking of cortically-located CM protrusions from ventricular sections at 10 dpci using TrackMate.** Yellow text denotes the start and end of a CM protrusion moving in a net (+) direction, blue text denotes the start and end of a CM protrusion moving in a net (-) direction; IA, injured area.

File Name: Supplementary Movie 3

Description: **Timelapse imaging of trabecular (Tg(myI7:actn3b-EGFP)+) CM protrusion into the injured area from ventricular sections at 10 dpci.** Yellow arrowhead follows the end of a trabecular CM protrusion into the injured area

File Name: Supplementary Movie 4

Description: **Timelapse imaging of trabecular (Tg(myI7:actn3b-EGFP)+) CM protrusion into the injured area from ventricular sections at 3 dpci.**

File Name: Supplementary Movie 5

Description: **Timelapse imaging of CMs and macrophages in Tg(mpeg1:EGFP); Tg(myI7:mKATE-CAAX) ventricular sections at 10 dpci.**

File Name: Supplementary Movie 6

Description: **Timelapse imaging of border zone Tg(mpeg1:EGFP)+ cells from ventricular sections at 10 dpci.**

File Name: Supplementary Movie 7

Description: **Timelapse imaging of Tg(mpeg1:EGFP)+ cells in the injury from ventricular sections at 10 dpci.**