

## **Description of Additional Supplementary Files**

File Name: Supplementary Movie 1

Description: Representative 3D motion capture of a mouse during pursuit behavior (following).

File Name: Supplementary Movie 2

Description: Representative 3D motion capture of a mouse that is not following the target (same mouse as in Supplementary Movie 1).

File Name: Supplementary Movie 3

Description: Representative calcium imaging signals using the UCLA Miniscope.