Supporting Information

Globally Visualizing the Microtubule-Dependent Transport Behaviors of Influenza Virus in Live Cells

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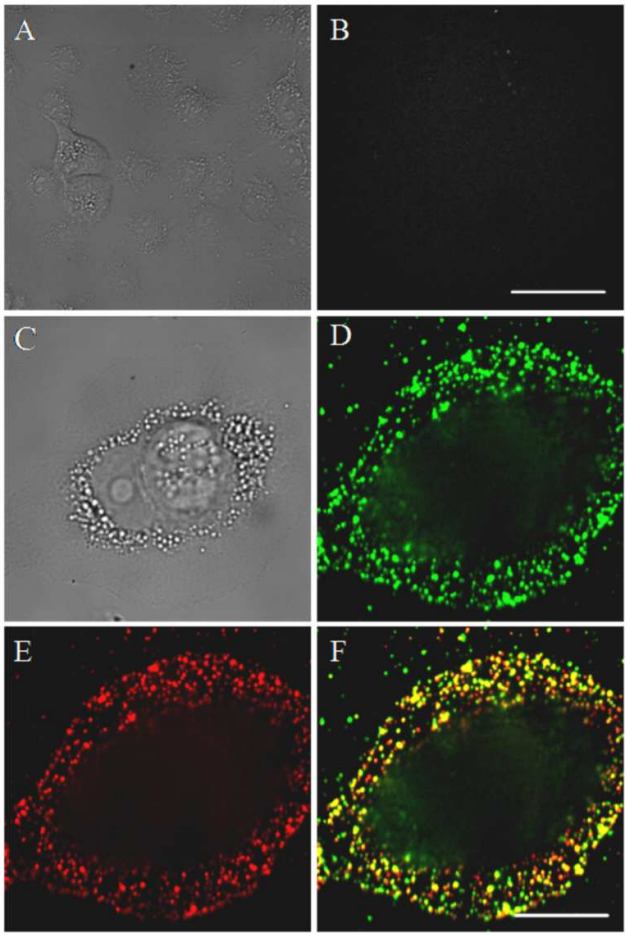

Fig. S1 Specificity and efficiency of QDs as fluorescence tags to label viruses. (A and B) Differential interference contrast (DIC) and fluorescence images of the cells incubated with streptavidin-modified QDs (SA-QDs) alone (Scale bar, 40 μm). (C and D) DIC and fluorescence images of the cell incubated with QD-labeled virus (green). (E) Fluorescence image of Dylight 649-labeled hemagglutinin (HA) (red) on the cell surface (C). (F) The merge image of panels D and E (Scale bar: 20 μm).

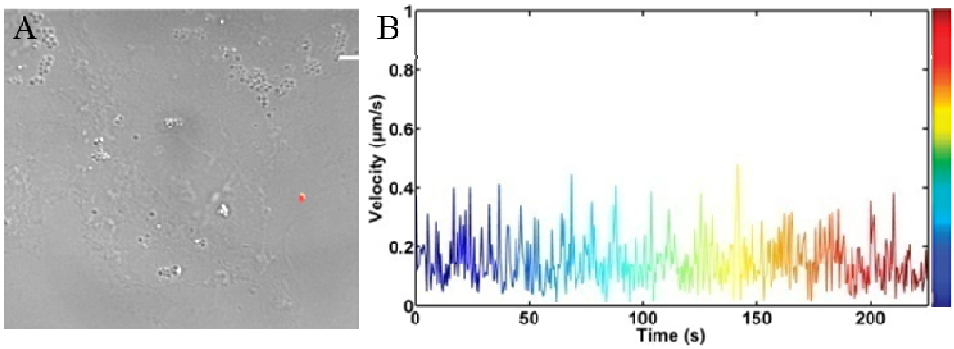

Fig. S2 Analyzing the transport of individual influenza viruses in live cells. (A) Typical trajectory of a virus moving in a nocodazole-treated cell (Scale bar: 20 μm). (B) Time trajectory of the speed of the virus shown in (A). The colors of the trajectory with the colored bar indicate a time axis from 0 s (blue) to 400 s (red).

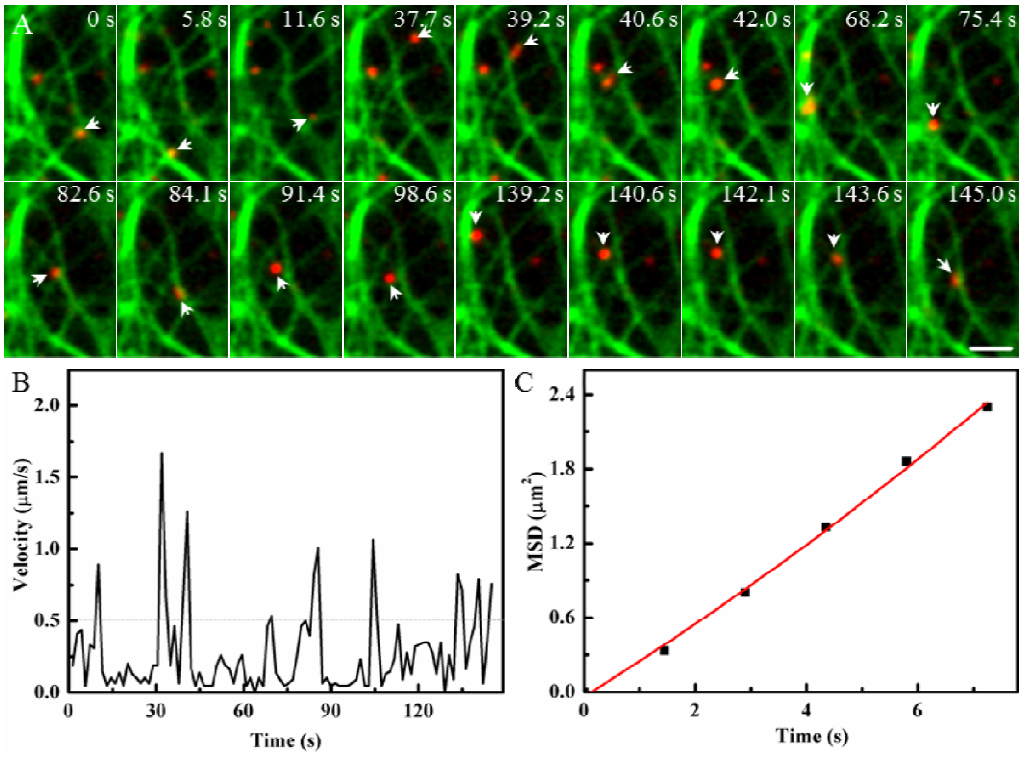

Fig. S3 Complexity of the microtubule-dependent movement of influenza virus in live cells. (A) Snapshots of a virus moving along the intertwined microtubules (Scale bar: 2 μm). (B) Time trajectory of the speed of the virus shown in (A). The dotted line indicates the velocity of 0.5 μm/s. (C) The MSD *vs.* time plot of the movement shown in (A). The red line is a fit to MSD = $4D\tau + (V\tau)^2$+constant.

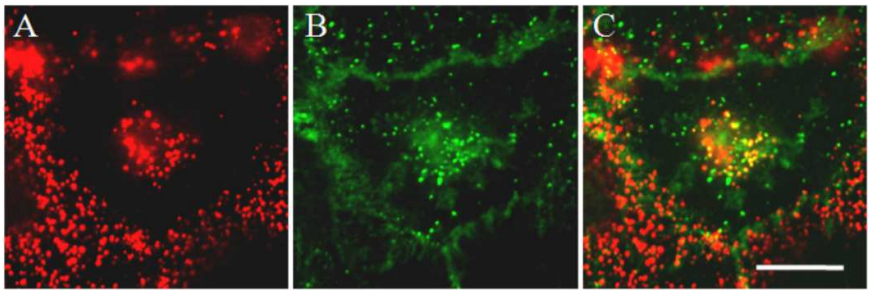

Fig. S4 Analyzing the relationship between viruses and endosomes. (A-C) Fluorescence images of QD-labeled viruses (red), DiO-labeled membrane (green), and the overlapped image of panels A and B, respectively (Scale bar: 20 μm).

Movie S1 Three-dimensional imaging of the viruses accumulated to the MTOC of the cell.

Movie S2 Tracking the virus moving along microtubules in a directed motion mode for 5.2 s.

Movie S3 Tracking the virus moving along the microtubule rapidly, followed by a sudden return to the opposite direction along the same microtubule for 15.0 s.

Movie S4 Tracking the virus reaching the intersection of microtubules with a slowdown and then moving forward in the same direction along the same microtubule for 5.2 s.

Movie S5 Tracking the virus reaching the intersection and then moving along another microtubule for 30.0 s.

Movie S6 Tracking the virus being confined within a grid formed with several microtubules for 168.0 s.

Movie S7 Tracking the virus being confined at the intersection of several microtubules for 90.0 s.

Movie S8 Tracking the virus moving with the various motion behaviors for 145.0 s.

Movie S9 Tracking the viruses moving in the upper part of the cell for 31.2 s.