SUPPLEMENTARY VIDEO LEGENDS.

Videos 1-4 relate to Figure 1 of the attached paper; videos 5-6 relate to Figure 2; and videos 7-8, to Figure 3.

Supplementary Video 1. Visualization of autophagosomes in the liver: normal-fed C57BL/6 mouse.

Serial sections imaged by high-resolution confocal microscopy were assembled to generate a 3-dimensional image (blended view) of the liver. F-actin is shown in red, which demarcates a venule, bile ductule, bile canaliculi, and sinusoids in this field of view. Nuclei are shown in blue. As expected, green (GFP) signal is not detected in the hepatocytes of wild-type (non-transgenic) animals. Scale increment of grid = 10 μm.

Supplementary Video 2. Visualization of autophagosomes in the liver: normal-fed GFP-LC3 transgenic mouse.

A representative 3-dimensional image (blended view) of serial sections is shown. F-actin and nuclei are shown in red and blue, respectively. Discrete GFP-LC3+ autophagosomes within hepatocytes are shown in green. Scale increment of grid = 10 μm.

Supplementary Video 3. Visualization of autophagosomes in the liver: 24 hr food-restricted GFP-LC3 transgenic mouse.

A representative 3-dimensional image (blended view) of serial sections is shown. F-actin, nuclei, and autophagosomes are shown in red, blue, and green, respectively. The induction of autophagy in hepatocytes following food restriction is demonstrated by the increased number of autophagosomes per cell (compared to normal-fed transgenic mice, video #2). Scale increment of grid = 10 μm.

Supplementary Video 4. Visualization of autophagosomes in the liver: 48 hr food-restricted GFP-LC3 transgenic mouse.

A representative 3-dimensional image (blended view) of serial sections is shown. F-actin, nuclei, and autophagosomes are shown in red, blue, and green, respectively. An increase in the number and size of autophagosomes in hepatocytes is visible following 48 hr of food restriction (compared to transgenic mice that were normal-fed or were food-restricted for 24 hours, videos #2 and #3 respectively). Scale increment of grid = 10 μm.

Supplementary Video 5. Visualization of autophagosomes in cortical neurons: normal-fed GFP-LC3 transgenic mouse.

A representative 3-dimensional image (maximum-intensity projection view) of serially sectioned neurons in the frontal cortex is shown; GFP-LC3 signal (green), and nuclei (blue). Small autophagosomes are visible within the neuronal cell bodies. A representative neuron within this section has been magnified (at 10 seconds) in order to better visualize autophagosomes. Scale increment of grid = 5 μm.

Supplementary Video 6. Visualization of autophagosomes in cortical neurons: 48 hr food-restricted GFP-LC3 transgenic mouse.

A representative 3-dimensional image (maximum-intensity projection view) of serially sectioned cortical neurons is shown; GFP-LC3 signal (green), and nuclei (blue). The number and size of autophagosomes within the cell bodies are increased following food restriction. The field of view is rotated and magnified (at 30 seconds) in order to better visualize autophagosomes. Scale increment of grid = 5 μm.

Supplementary Video 7. Visualization of autophagosomes in the cerebellum: normal-fed GFP-LC3 transgenic mouse.

A representative 3-dimensional image (maximum-intensity projection view) of serially sectioned Purkinje cells at the border of the molecular and granular layers of the cerebellum is shown; GFP-LC3 signal (green), and nuclei (blue). The region of densely-packed nuclei represents the granular layer. Notably, even in the absence of food restriction, discrete autophagosomes are visible within the cell bodies. The field of view is rotated and magnified (at 10 seconds) to better visualize autophagosomes as well as the reticular pattern of GFP-LC3 signal surrounding the nuclei. Scale increment of grid = 5 μm.

Supplementary Video 8. Visualization of autophagosomes in the cerebellum: 48 hr food-restricted GFP-LC3 transgenic mouse.

A representative 3-dimensional image (maximum-intensity projection view) of serially sectioned Purkinje cells at the border of the molecular and granular layers of the cerebellum is shown; GFP-LC3 signal (green), and nuclei (blue). The region of densely-packed nuclei represents the granular layer. Following 48 hrs of food restriction, there is a strong reticular GFP-LC3 signal within the cell bodies, and individual autophagosomes are difficult to distinguish. In addition, the intensity of the GFP-LC3 signal is enhanced in these cells (compared to Purkinje cells in normal-fed mice, video #7). Scale increment of grid = 5 μm.