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Winner 2015
Thomas Wollert,
Germany

Thomas Wollert Eppendorf Young Investigator 2015

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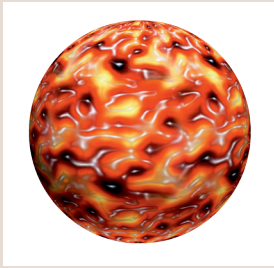
How Do Cells Keep Their Balance?

Reconstituting cellular recycling in the test tube
The simple-sounding answer to this question is *by recycling*. A major recycling system that operates in the cytoplasm of all eukaryotic cells is called autophagy ("self-digestion"). Central to this pathway is the generation of cellular membranes which capture and sequester cytoplasmic material. These cellular "waste bags" deliver their cargo to lysosomes for degradation. Any perturbation of autophagy leads to an accumulation of harmful material, thereby contributing to the development of neurodegenerative diseases, cancer, and metabolic disorders.



The major mission of my laboratory is to reveal the molecular mechanism of autophagy. We produce components of the autophagic recycling machinery and assemble them at model membranes to reveal their function. Our goal is to recapitulate autophagy in the test tube to understand how autophagy operates and what goes wrong in neurodegenerative diseases and cancer.

»This prestigious Award honors the hard work of my laboratory and represents a major acknowledgement of our efforts aiming to decipher how cells maintain their homeostasis by autophagy. I am particularly grateful that our unusual bottom-up approach, which is based on biophysics in combination with biochemistry and cell biology, is being recognized by this Award.«

Thomas Wollert, Winner 2015 of the Eppendorf Award
for Young European Investigators