

GÁBOR JUHÁSZ



Biological Research Centre
Institute of Genetics

Address: Temesvári krt 62., H-6726 Szeged, Hungary

RESEARCH AREA

Autophagy is a fundamental catabolic pathway in eukaryotic cells. During the main route, portions of cytosol and organelles are captured into double-membrane autophagosomes, which then fuse with lysosomes to deliver their cargo for degradation and reuse. Our group is studying the role and mechanisms of autophagy mainly using the popular animal model *Drosophila*. We are also working on related trafficking pathways including endocytosis and crinophagy (secretory granule degradation). In recent years, we have started experiments to understand the regulation of lysosomal function.

TECHNIQUES AVAILABLE IN THE LAB

Genetic manipulation of *Drosophila* and cultured human cells: gene knockouts, transgenic reporter constructs, mosaic analysis. Confocal microscopy, autophagic degradation and endocytic uptake and degradation assays. Transmission electron microscopy. Western blots, immunoprecipitations, proteomic analysis (done by the core facility). Cell culture facilities, yeast twohybrid, molecular cloning, RT-PCR and qPCR. Purification of recombinant proteins, biochemical binding and structural assays, antibody production.

SELECTED PUBLICATIONS

Lőrincz, P., Kenéz, L.A., Tóth, S., Kiss, V., Varga, Á., Csizmadia, T., Simon-Vecsei, Z., **Juhász, G.** (2019) Vps8 overexpression inhibits HOPS-dependent trafficking routes by out-competing Vps41/Lt. **Elife** **8**: e45631.

Csizmadia, T., Lőrincz, P., Hegedűs, K., Széplaki, S., Lőw, P., **Juhász, G.** (2018) Molecular mechanisms of developmentally programmed crinophagy in *Drosophila*. **J Cell Biol** **217**: 361-374.

Katheder, NS., Khezri, R., O'Farrell, F., Schultz, S.W., Jain, A., Rahman, M.M., Schink, K.O., Theodossiou, T.A., Johansen, T., **Juhász, G.**, Bilder, D., Brech, A., Stenmark, H., Rusten, T.E. (2017) Microenvironmental autophagy promotes tumour growth. **Nature** **541**: 417-420.

Lorincz, P., Lakatos, Z., Varga, A., Maruzs, T., Simon-Vecsei, Z., Darula, Z., Benko, P., Csordas, G., Lippai, M., Ando, I., Hegedus, K., Medzihradzsky, K., Takats, S., **Juhász, G.** (2016) MiniCORVET is a Vps8-containing hemocyte- and nephrocyte-specific early endosomal tether in *Drosophila*. **Elife** **5**: e14226.

Takats, S., Nagy, P., Varga, A., Piracs, K., Karpati, M., Varga, K., Kovacs, A.L., Hegedus, K., **Juhász, G.** (2013) Autophagosomal Syntaxin17-dependent lysosomal degradation maintains neuronal function in *Drosophila*. **J Cell Biol** **201**: 531-539.