

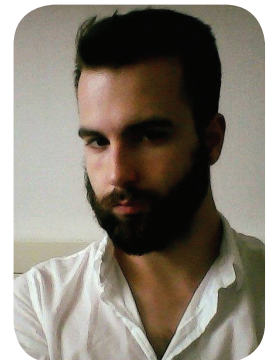
Therefore we compared PtdSer exposure and active caspase-3 expression in wild-type and Xkr8-deficient hippocampus of developing mouse (at postnatal day 15).

We used MFG-E8 as a surrogate marker of PtdSer exposure and subjected confocal images of immunohistochemically labelled brain slices to 3D image analysis. This analysis was performed in three levels – first, to measure MFG-E8 and act-casp-3 signal in the field of view of CA1 part of hippocampus, second, to measure individual signals of MFG-E8, act-casp-3 in the dendrites of hippocampal CA1 pyramidal neurons, third, to evaluate the colocalization between MFG-E8, act-casp-3 and dendrite. Our findings show, that Xkr8 may promote act-casp-3-dependent PtdSer exposure on the surface of neurons thus presenting an “eat-me” signal for microglia-mediated synaptic pruning.

Péter Benkő

“The Role of Rab39 in Lysosome Biogenesis”

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Introduction: Membrane fusion is conducted by a complex supramolecular machinery within eukaryotic cells. Small GTPases of the Rab family are part of this machinery and provide membranes with identity by binding specific tethering factors and motor proteins. This function ensures proper targeting and fusion of membranes within the intracellular membrane trafficking network. The subject of our study, Rab39 is a Golgi-associated Rab protein suspected to be involved in the endolysosomal-autophagosomal pathway, as it has been shown to bind Unc-104 which is a *Drosophila* ortholog of the mammalian

kinesin-3 KIF1A, as well as a PLEKHM family member that recruits kinesin-1 to lysosomes, and also Ema, a factor involved in endosomal fusions which binds HOPS, one of the Class C core endosomal tethering complexes.

Aim: The goal of our study is to characterize Rab39 function in *Drosophila* and provide an insight into its role in lysosomal biogenesis. Human Rab39B has been linked to Waisman syndrome, a neurodegenerative disease related to Parkinson's, therefore biomedical implications may be present.

Materials and methods: Fluorescent imaging was used to determine most phenotypes, images show results of immunocytochemistry, vital stainings and fluorescent reporter expressions. *Drosophila melanogaster* larval fat bodies and garland nephrocytes were used as model systems. Additional biochemical methods such as Western blot were employed.

Results: We have determined that Unc-104 indeed functions as a kinesin in *Drosophila*, as its depletion leads to perinuclear accumulation of lysosomes. Rab39 depletion seems to cause a decrease in lysosome size in larval fat cells, and leads to perinuclear accumulation of lysosomes in garland nephrocytes, coupled with an enlarged late endosomal compartment at the cell periphery.

Conclusion: These results suggest an important role for Rab39 in lysosomal fusions and positioning, functions that are set to be in our focus in upcoming experiments.