Dr. Limor Broday, Ph.D.

Department of Cell and Developmental Biology
Sackler Faculty of Medicine

TEL AVIV UNIVERSITY
אוניברסיטת תל-אביב

Email: broday@post.tau.ac.il

Molecular Analysis of Ubiquitin and SUMO Pathways in the C. Elegans Model

Position

Senior Lecturer, Sackler Faculty of Medicine

Research

Protein modifications by ubiquitin and ubiquitin-like proteins are essential for many cellular regulatory mechanisms. De-regulation of such processes is a cause for many human diseases. The main objective of our research is to understand, at a mechanistic and molecular level, how these processes are regulated. We use the nematode *C. elegans* as a model system to analyze various elements of the ubiquitin and ubiquitin-like system

Current lab projects:

Regulation of morphogenetic processes by SUMO (small ubiquitin-like modifier)

The role of E3 ubiquitin ligases in normal development and under cellular stress conditions

Publications

Darom, A., Bening-Abu-Shach, U., **Broday L**. 2010. RNF-121 is an ER-membrane E3 ubiquitin ligase required for ER homeostasis and regulation of PAT-3/β-integrin levels. *Mol Biol Cell* 21:1788-1798.

Zaidel-Bar, R., Miller, S., Kaminsky, R., **Broday, L**. 2010. Regulation of integrin adhesion complexes' dynamics by RNF-5 E3-ligase during molting in *C. elegans*. *Biochem Biophys Res Commun*. 395:509-514.

Pichinuk E, **Broday L**, Wreschner DH. 2011. Endogenous RNA cleavages at the ribosomal SRL site likely reflect miRNA (miR) mediated translational suppression. *Biochem Biophys Res Commun*. 414:706-711.

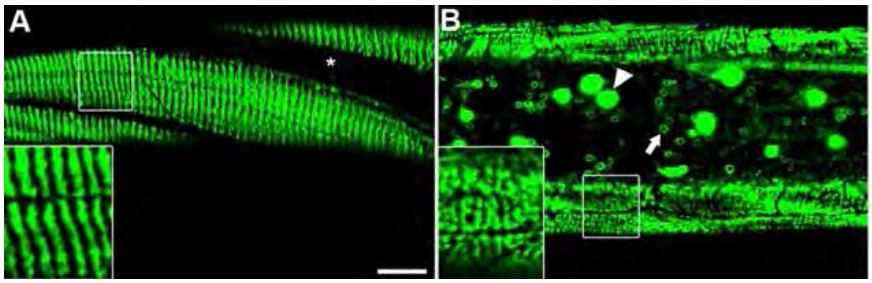
Linhart, E Halperin, Y. Darom, A. Kidron, S. **Broday, L**. and Shamir. R. 2012. A novel cis-regulatory motif pair in the promoters of germline and oogenesis genes in *C. elegans. Genome Res*. 22:76-83.

Kuang E, Okumura CY, Sheffy-Levin S, Varsano T, Shu VC, Qi J, Niesman IR, Yang HJ, López-Otín C, Yang WY, Reed JC, **Broday L**, Nizet V, Ronai ZA. 2012. Regulation of ATG4B stability by RNF5 limits basal levels of autophagy and influences susceptibility to bacterial infection. *PLoS Genet*. 8:e1003007.

Sapir, A., Tsur, A., Koorman, T., Ching, K., Mishra, P., Bardenheier, A., Podolsky, L., Bening-Abu-Shach, U., Boxem, M., Chou, TF., **Broday, L**., Sternberg, P.W. 2014. Controlled sumoylation of the mevalonate pathway enzyme HMGS-1 regulates metabolism during aging. *Proc Natl Acad Sci USA* 111:E3880-E3889.

Grants

2011 - 2015	The role of SUMO in the assembly of cytoskeletal intermediate filaments, The Israel Science Foundation (ISF).
2014 - 2015	Israel Cancer Research Fund (ICRF) Project Grant (co-PI Chen Luxenburg)
2014 - 2016	ICRF Project Grant



(A) Organization of the *C. elegans* epidermal intermediate filament protein IFB-1 in circumferential bands in wild-type animal.
(B) Abnormal filaments and formation of inclusions in *smo-1* deleted worms.