

Dancing with lysosomes: Degradation and Maintenance

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My laboratory investigates how apoptotic cells are properly removed during programmed cell death and how lysosome homeostasis is maintained using *C. elegans* as a model system. Employing combinatory approaches of genetics, cell biology and biochemistry, we identify new genes and dissect regulatory mechanisms controlling various aspects of apoptotic cell removal including recognition, internalization and degradation of cell corpses. More recently, we discovered that lysosomes undergo a variety of dynamic changes in *C. elegans*, which appears to associate with larval development, adult aging and stress conditions. By developing and employing *C. elegans* as a multicellular genetic model for a systematic investigation of lysosome homeostasis, we aim to identify signals/cellular processes that trigger/involve such lysosomal changes, dissect underlying regulatory mechanisms and reveal the physiological significance. We performed genetic screens and have identified 16 genes so far that are involved in regulating lysosome morphology, dynamics, activity and membrane integrity. In this talk, I will present our recent work on the role of lysosome in development and aging.

1. Liu J, Li M, Li L, Chen S, Wang X * *J Cell Biol.* (2018) 217(1):347-360.
2. Yin J, Wang X * et al. *J Cell Biol.* (2017) 216(6):1775-1794.
3. Wang X* et al. *Nature Cell Biology*, (2010) 12(7):655-664.
4. Wang X, et al. *Science*, (2003) 302:1563-1566.
5. Wang X et al. *Science*, (2002) 298:1587-1592. and many others

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