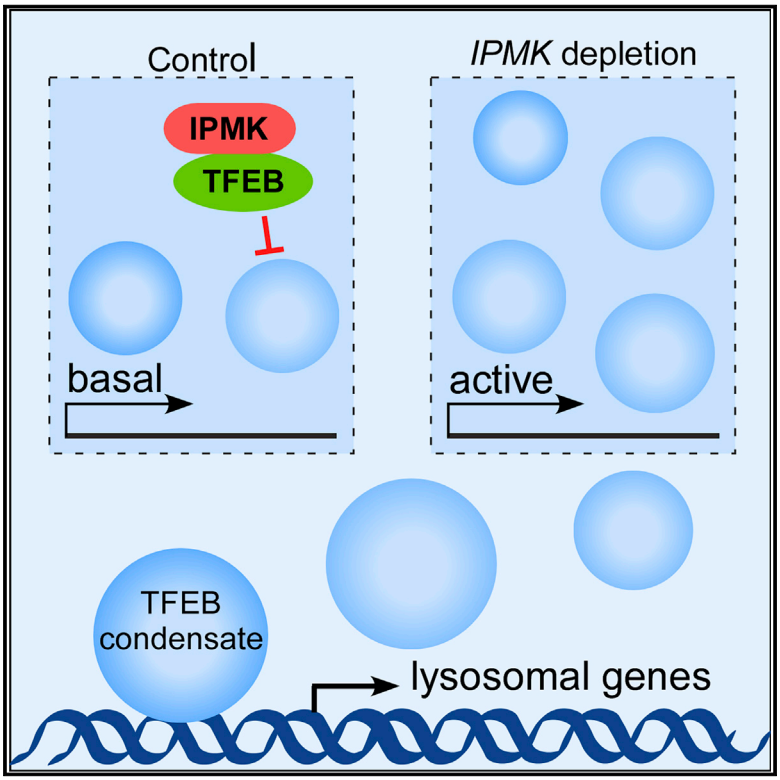
Article

Developmental Cell

Inositol Polyphosphate Multikinase Inhibits Liquid-Liquid Phase Separation of TFEB to Negatively Regulate Autophagy Activity

Graphical Abstract



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In Brief

Chen et al. show that depletion of inositol polyphosphate multikinase (IPMK) promotes autophagy and lysosomal function and biogenesis in a manner dependent on the transcription factor TFEB. Nuclear-localized IPMK directly interacts with and inhibits liquid-liquid phase separation of TFEB to negatively control its transcriptional activity.

Highlights

- Depletion of *IPMK* promotes autophagy and lysosomal biogenesis by activating TFEB
- Cytoplasmic-nuclear trafficking of TFEB is not altered by *IPMK* depletion
- TFEB undergoes LLPS
- *IPMK* acts as a chaperone to inhibit LLPS of TFEB

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