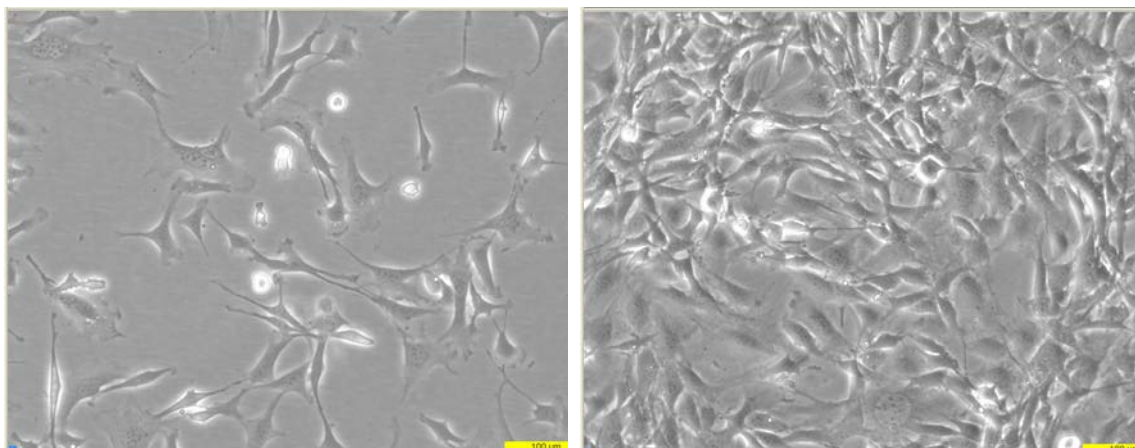


## Cell line profile

### Ulk cell lines for autophagy research (ECACC 14050802 – 14050810)

#### Cell line history

A group of mouse embryonic fibroblast cell lines have been deposited by Ximbio and are available from the Culture Collections Public Health England. These display different capabilities for uncoordinated (Unc)-51-like kinase 1 and 2 (UlkK1 and Ulk2) activity, which are known to play a critical role during the activation of autophagy,



ULK1/2 WT (SV40) - early log phase 24 hours      ULK1/2 WT (SV40) – late log phase 72 hours

#### Key characteristics

Mouse embryonic fibroblast were derived from Ulk1 +/- and Ulk2 +/- knockout mice. These include single knockout cell lines for Ulk1 or Ulk2 or double knockout cell lines for both Ulk1 and Ulk2. The cell lines were immortalised either using a standard serial passaging protocol or the SV40 large T-antigen. There are also a pair of cell lines representing wild type phenotype for Ulk 1 and 2 which can be used as controls with the knockout Ulk cell lines.

#### Applications

Unc)-51-like kinase 1 and 2 (ULK1 and ULK2) activity are known to play a critical role during the activation of autophagy. Autophagy is the mechanism by which a cell degrades unnecessary or dysfunctional cellular components and has been implicated in several medical scenarios such as cancer, neurodegeneration and immunity related disorders.

#### Culture tips

The Ulk cell lines should be cultured in DMEM + 10% Foetal Calf Serum +2mM Glutamine. Trypsinize the cells with 0.05% Trypsin/EDTA and inoculate new cultures at  $2 \times 10^4$  per  $\text{cm}^2$ . Cultures must be incubated in a humidified 5%  $\text{CO}_2$ /95% air incubator at 37°C.

Cell line name	ECACC catalogue no.	Description
MEF Ulk1 -/- Ulk2 -/- (DKO) (SV40)	<a href="#">14050802</a>	Mouse embryonic fibroblast, autophagy, Ulk1 -/- Ulk2 -/- double knockout SV40 immortalised
MEF Ulk1 -/- Ulk2 -/- (DKO) (SIM)	<a href="#">14050803</a>	Mouse embryonic fibroblast, autophagy, Ulk1 -/- Ulk2 -/- double knockout spontaneously immortalised
Ulk1/2 WT MEF (SV40)	<a href="#">14050804</a>	Mouse embryonic fibroblast, autophagy, Unc51-like kinase SV40 immortalised
Ulk2 KO MEF (SV40)	<a href="#">14050805</a>	Mouse embryonic fibroblast, autophagy, Ulk2 -/- knockout SV40 immortalised
Ulk1 KO MEF (SIM)	<a href="#">14050806</a>	Mouse embryonic fibroblast, autophagy, Ulk1 -/-knockout spontaneously immortalised
Ulk1 KO MEF (SV40)	<a href="#">14050807</a>	Mouse embryonic fibroblast, autophagy, Ulk1 -/- knockout SV40 immortalised
Ulk1/2 WT MEF (SIM)	<a href="#">14050808</a>	Mouse embryonic fibroblast, autophagy, Unc51-like kinase spontaneously immortalised
Ulk2 KO MEF (SIM)	<a href="#">14050810</a>	Mouse embryonic fibroblast, autophagy, Ulk2 -/- knockout spontaneously immortalised

### Key references

1. McAlpine F, Williamson LE, Tooze SA, Chan EY. Regulation of nutrient-sensitive autophagy by uncoordinated 51-like kinases 1 and 2. *Autophagy* 2013 Mar 9(3):361-73 [PMID:23291478](#)
2. Chan EY, Longatti A, McKnight NC, Tooze SA. Kinase-inactivated ULK proteins inhibit autophagy via their onerved C-terminal domains using an Atg13-independent mechanism. *Mol Cell Biol.* 2009 Jan;29(1):157-71. Epub 2008 Oct 20. PubMed [PMID: 18936157](#); PubMed Central PMCID: PMC2612494.
3. Chan EY, Kir S, Tooze SA. siRNA screening of the kinome identifies ULK1 as a multidomain modulator of autophagy. *J Biol Chem.* 2007 Aug 31;282(35):25464-74. Epub 2007 Jun 26. PubMed [PMID: 17595159](#).
4. Young AR, Chan EY, Hu XW, Köchl R, Crawshaw SG, High S, Hailey DW, Lippincott-Schwartz J, Tooze SA. Starvation and ULK1-dependent cycling of mammalian Atg9 between the TGN and endosomes. *J Cell Sci.* 2006 Sep 15;119(Pt 18):3888-900. Epub 2006 Aug 29. PubMed [PMID: 16940348](#).