

Supplementary Table S2: A detailed list of cell lines used.

Cell line	Media (+10% FCS and 1% Pen/Strep)	Additives	% CO2	Gender	Cell line authentication	Source	Additional Information
hTERT-RPE1	DMEM	0.2mg/ml Hygromycin 1% NEAA*	10	Female	Yes	Cell Services STP Francis Crick Institute	
HFF	DMEM	-	10	Male	Yes	Cell Services STP Francis Crick Institute	
BJ	DMEM	-	10	Male	Yes	Yuneva Lab, Francis Crick Institute	
hTERT-BJ	DMEM	-	10	Male	Yes	Cell Services STP Francis Crick Institute	
A549	DMEM	-	10	Male	Yes	Cell Services STP Francis Crick Institute	
U2OS	DMEM	-	10	Female	Yes	Cell Services STP Francis Crick Institute	
NCI H460	RPMI	2mM Glutamine	5	Male	Yes	Cell Services STP Francis Crick Institute	
HCC-4006	RPMI	-	5	Male	Yes	Cell Services STP Francis Crick Institute	
NCI H647	RPMI	-	5	Male	Yes	Cell Services STP Francis Crick Institute	
NCI H2170	RPMI	-	5	Male	Yes	Cell Services STP Francis Crick Institute	
NCI H1975	RPMI	-	5	Female	Yes	Cell Services STP Francis Crick Institute	
NCI H522	RPMI	2mM Glutamine	5	Male	Yes	Cell Services STP Francis Crick Institute	
NCI H2228	RPMI	2mM Glutamine	5	Female	Yes	Cell Services STP Francis Crick Institute	
DLD-1	DMEM	-	10	Male	Yes	Cell Services STP Francis Crick Institute	
ES2	DMEM	-	10	Female	Yes	Cell Services STP Francis Crick Institute	
NCI-H727	RPMI	2mM Glutamine	5	Female	Yes	Cell Services STP Francis Crick Institute	
NCI H520	RPMI	1mM Sodium Pyruvate	5	Male	Yes	Cell Services STP Francis Crick Institute	
NCI H1703	RPMI	-	5	Male	Yes	Cell Services STP Francis Crick Institute	
NCI H1792	RPMI	-	5	Male	Yes	Cell Services STP Francis Crick Institute	
HEK293	DMEM	-	5	Female	Yes	Cell Services STP Francis Crick Institute	
HEK293T	DMEM	-	5	Female	Yes	Cell Services STP Francis Crick Institute	
NCI H1299	RPMI	-	5	Male	Yes	Cell Services STP Francis Crick Institute	
HeLa	DMEM	-	10	Female	Yes	Cell Services STP Francis Crick Institute	
SAOS2	DMEM	-	10	Female	Yes	Cell Services STP Francis Crick Institute	
GM847	DMEM	-	10	Male	Yes	Cell Services STP Francis Crick Institute	
Patient fibroblasts NSE2 mutated (p.Ser116Leufs*18/ p.Ala234Gluufs*4)	DMEM, 15%FBS	-	5	Female	No	Seiple Lab, University of Cambridge Metabolic Research Laboratories	Reference (30)
Control fibroblasts	DMEM, 15%FBS	-	5	Female	No	Seiple Lab, University of Cambridge Metabolic Research Laboratories	Reference (30)
Organoid cell line	Media	Additives	% CO2	Gender	Cell line authentication	Source	Additional Information
ORGANOID p53 WT	DMEM/F12, 1% HEPES, 1% Glutamax,	1.25 mM N-acetylcysteine, 10 mM nicotinamide, 500 nM A83-01, 10 mM SB202190, 50 ng/ml EGF, 10 mM PGE2, 10 nM Gastrin, 1x B27	5	Male	No	Cicarelli Lab, The Francis Crick Institute	
ORGANOID p53 MUTANT T18 (R273H)	1% Pen/Strep, 20% R-spondin1 conditioned media, 10% Noggin conditioned media		5	Male	No	Cicarelli Lab, The Francis Crick Institute	Reported as pathogenic mutation in the DNA binding domain. Most frequently found in large intestine (https://cancer.sanger.ac.uk/cosmic/mutation/overview?id=96026314)
ORGANOID p53 MUTANT T29 (T55fs)			5	Female	No	Cicarelli Lab, The Francis Crick Institute	

*NEAA: non-essential amino acids