

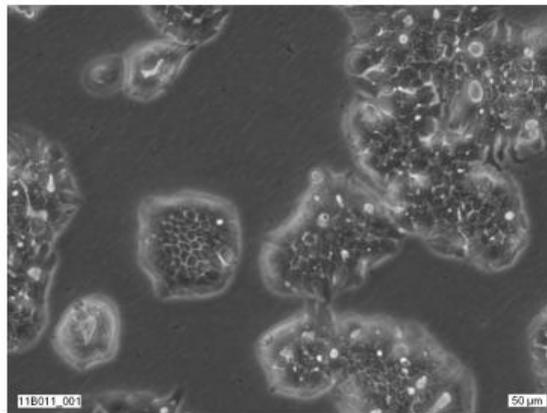


## Cell line profile

OE19 - ECACC catalogue no. [96071721](#)

### Cell line history

OE19, also known as JROECL19, was originally one of five permanent human oesophageal adenocarcinoma (EAC) cell lines established in 1993. It is from a stage III tumour of a 72 year old male patient<sup>1</sup> and deposited in ECACC by Drs J C Rockett/A Morris, Department of Biological Sciences, University of Warwick and Dr S J Darnton, Birmingham Heartlands Hospital. Boonstra *et al.* discovered that cell lines SEG-1, BIC-1, and SK-GT-5 are not EAC cell lines but large cell lung cancer cell line H460, colorectal adenocarcinoma cell line SW620, and gastric fundus carcinoma cell line SK-GT-2, respectively. However, they confirmed that cell lines FLO-1, KYAE-1, SK-GT-4, OE19, OE33, OACP4C, OACM5.1, ESO26, and ESO51 are derived from human EACs<sup>2</sup>. All nine of these verified EAC cell lines, together with their genotyping information, have been deposited with ECACC.



**OE19 cells don't tend to form a monolayer but instead grow in densely packed islands. The image was captured 8 days after resuscitation showing typical growth in islands.**

### Key characteristics

The cell line OE19 has weak expression of HLA-A, -B and -C antigens (MHC class I) and treatment with interferon-gamma induces the expression of ICAM-1 (CD54). Expression of HLA-DR (MHC class II) on interferon-gamma addition was only measured in a sub-population of OE19. The cells also express epithelial cytokeratins, are sensitive to the inhibitory effects of TGF- $\beta$ 1 on proliferation and are tumourigenic in nude mice<sup>1</sup>.

### Applications

Primary applications of this cell line are in carcinogenesis and chemotherapeutic studies specifically for oesophageal adenocarcinomas<sup>3-8</sup>. These cells are known to be sensitive to the breast cancer drug lapatinib but can be cloned to achieve lapatinib resistance<sup>6</sup>. A combination of oleic acid and alpha linoleic acid down regulate proliferation of malignant OE19 cells – a finding that could be used

in the chemoprevention or management of oesophageal cancers<sup>7</sup>. Interestingly, these cells have recently been found to express sensitivity to increasing concentrations of the antidiabetic drug Metformin which has been associated with a reduced cancer incidence<sup>5</sup>. OE19 cells also show clear

nuclear translocation of p-STAT5 upon EGFR stimulation (promotes cellular proliferation)<sup>3</sup> and the down-regulation the protein Survivin (BIRC5) in OE19 cells results in increased apoptosis<sup>8</sup> which can be used as a tool in targeted therapies.



### Culture tips

OE19 cells should be cultured using standard subculture methods in RPMI 1640 + 2mM Glutamine + 10% Foetal Bovine Serum (FBS). These cells are slow growers and may take up to 7 days to reach 70% confluency post resuscitation. We recommend a split ratio of 1:8 i.e. seeding density of  $2-4 \times 10^4$  cells/cm<sup>2</sup>. Once past the first subculture these cells take 4-5 days to reach approximately 60% confluency when set up at  $2 \times 10^4$  cells/cm<sup>2</sup>.

### Key references

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5. Fujihara, S., Kato, K., Morishita, A., Iwama, H., Nishioka, T., et al. Antidiabetic drug metformin inhibits esophageal adenocarcinoma cell proliferation *in vitro* and *in vivo*. *International Journal of Oncology*. **46**: 2172-2180 (2015)
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7. Moon, H-S., Batirel, S. & Mantzoros, C.S. Alpha linolenic acid and oleic acid additively down-regulate malignant potential and positively cross-regulate AMPK/S6 axis in OE19 and OE33 esophageal cancer cells. *Metabolism Clinical and Experimental*. **63**: 1447-1454 (2014)
8. Malhotra, U., Zaidi, A.H., Kosovec, J.E., Kasi, P.M., Komatsu, Y., et al. Prognostic Value and Targeted Inhibition of Survivin Expression in Esophageal Adenocarcinoma and Cancer-Adjacent Squamous Epithelium. *PLOS ONE*. **8**(11): e78343 (2013)



Related cell lines		
Name	Catalogue Number	Description
<b>ESO26</b>	<a href="#">11012009</a>	Adenocarcinoma of the gastroesophageal junction
<b>ESO51</b>	<a href="#">11012010</a>	Distal oesophageal adenocarcinoma
<b>FLO-1</b>	<a href="#">11012001</a>	Distal oesophageal adenocarcinoma
<b>KYAE-1</b>	<a href="#">11012002</a>	Distal oesophageal adenocarcinoma
<b>KYSE-270</b>	<a href="#">94072021</a>	Human oesophageal squamous cell carcinoma
<b>KYSE-30</b>	<a href="#">94072011</a>	Human Asian squamous cell carcinoma
<b>KYSE-410</b>	<a href="#">94072023</a>	Human oesophageal squamous cell carcinoma
<b>KYSE-70</b>	<a href="#">94072012</a>	Human oesophageal squamous cell carcinoma
<b>OACM5.1 C</b>	<a href="#">11012006</a>	Barretts adenocarcinoma, adenocarcinoma of distal oesophagus
<b>OE21</b>	<a href="#">96062201</a>	Human Caucasian oesophageal squamous cell carcinoma
<b>OE33</b>	<a href="#">96070808</a>	Human Caucasian oesophageal carcinoma
<b>SK-GT-2</b>	<a href="#">11012008</a>	Adenocarcinoma of the Gastric fundus, poorly differentiated
<b>SK-GT-4</b>	<a href="#">11012007</a>	Oesophagus adenocarcinoma, well-differentiated
<b>OACP4 C</b>	<a href="#">11012005</a>	Gastric cardia adenocarcinoma