

Ovarian endometriosis stromal cells and cellular senescence.

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BACKGROUND

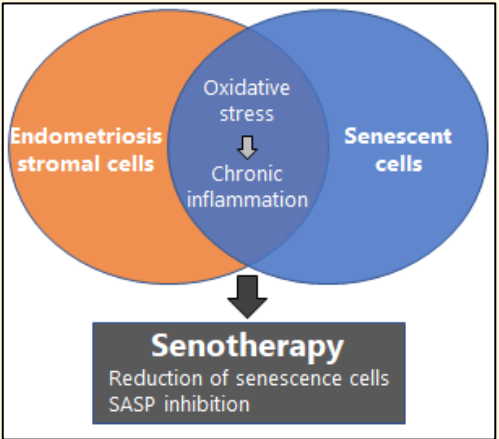
- ◆ Endometriosis is associated with oxidative stress and inflammatory cytokines¹.
- ◆ Oxidative stress induces cellular senescence characterized by a unique inflammatory phenotype called senescence associated secretory phenotype (SASP)².
- ◆ Ovarian endometriosis stromal cells are related to iron accumulation³ which is coupled with resistance to ferroptosis in senescent cells⁴.

PURPOSE

- ◆ To evaluate whether ovarian endometriosis stromal cells possess the characteristics of **senescent cells**.

DISCUSSION

- ◆ The effects of "**senotherapy**" have been reported in various diseases⁵.
 - Senolytics: removal of senescent cells
 - Senomorphics: inhibition of SASP
 - ◆ ecESCs may have a higher percentage of senescent cells than n-euESCs and e-euESCs.
- "Senotherapy"** may be a new treatment strategy for endometriosis.



METHODS

- ◆ Sample collection*
 Primary cells isolated from surgical specimens collected at Nagoya University Hospital.

n-euESCs: normal eutopic endometrial stromal cells
 e-euESCs: eutopic endometrial stromal cells of ovarian endometriosis
 ecESCs: ectopic (ovarian endometriosis) endometrial stromal cells

* With the approval of the Institutional Ethics Committee and written informed consent

- ◆ Comparison among the three cells of the following characteristics

I. Senescence biomarker**

Senescence associated beta-galactosidase (SA-β-Gal)

- X-gal staining
- SPiDER-gal

P16^{ink4a}, LaminB1, IL-6

- Immunofluorescence

**Cells with less than 5 passages were used.

II. Assessment of ferroptosis resistance

Glutathione peroxidase 4 (GPX4)

- Immunohistochemistry
- qPCR

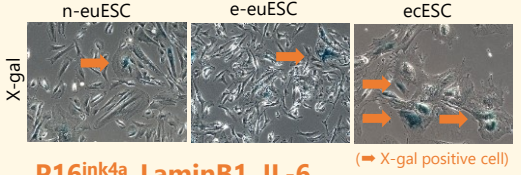
Ferroptosis induction by erastin

- Cell viability assay

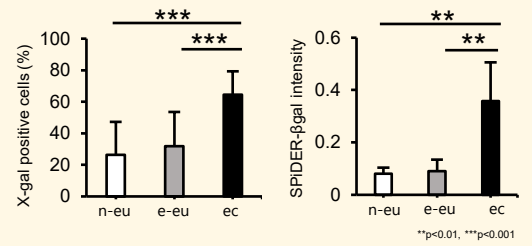
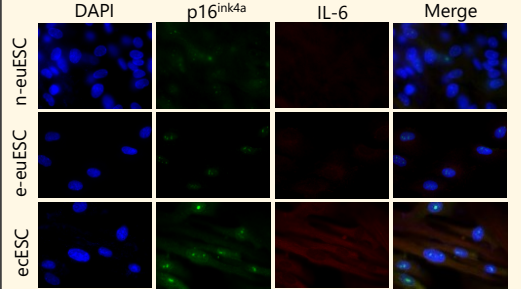
RESULTS

I. Senescence biomarker

SA-β-Gal

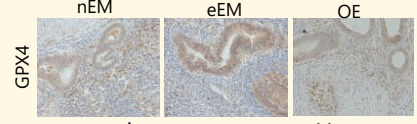


P16^{ink4a}, LaminB1, IL-6

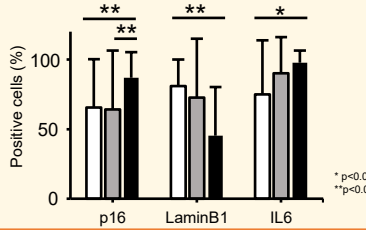
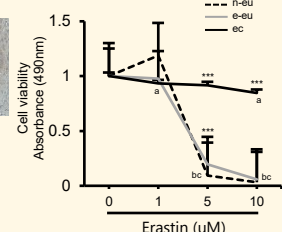


II. Assessment of ferroptosis resistance

GPX4



Ferroptosis induction



ecESCs significantly showed senescence markers.

Disclosure of Conflict of Interest
 Name of first author : Reina Sonehara
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I have no COI with regard to our presentation.

CONCLUSION

- ◆ Ovarian endometriosis stromal cells may possess characteristics of senescent cells.

REFERENCES

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