

Establishing patient-derived ovarian cancer organoids as preclinical model of ovarian cancer

Insights from the Cabrini Ovarian Cancer Organoid Program (OCOP)

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INTRODUCTION, AIMS and OCOP WORKFLOW

FROM PATIENTS TO DISCOVERY

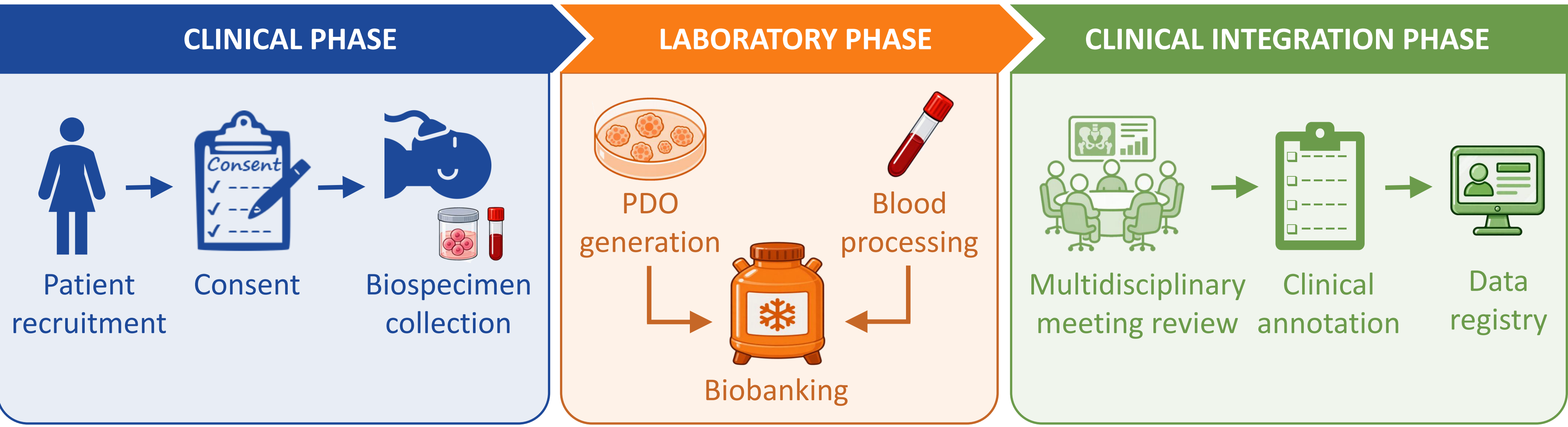
Introduction

- Ovarian cancer remains the most lethal gynaecological malignancy.
- Improved preclinical models are required.
- OCOP was established to develop a clinically annotated ovarian cancer bioresource.

Aims

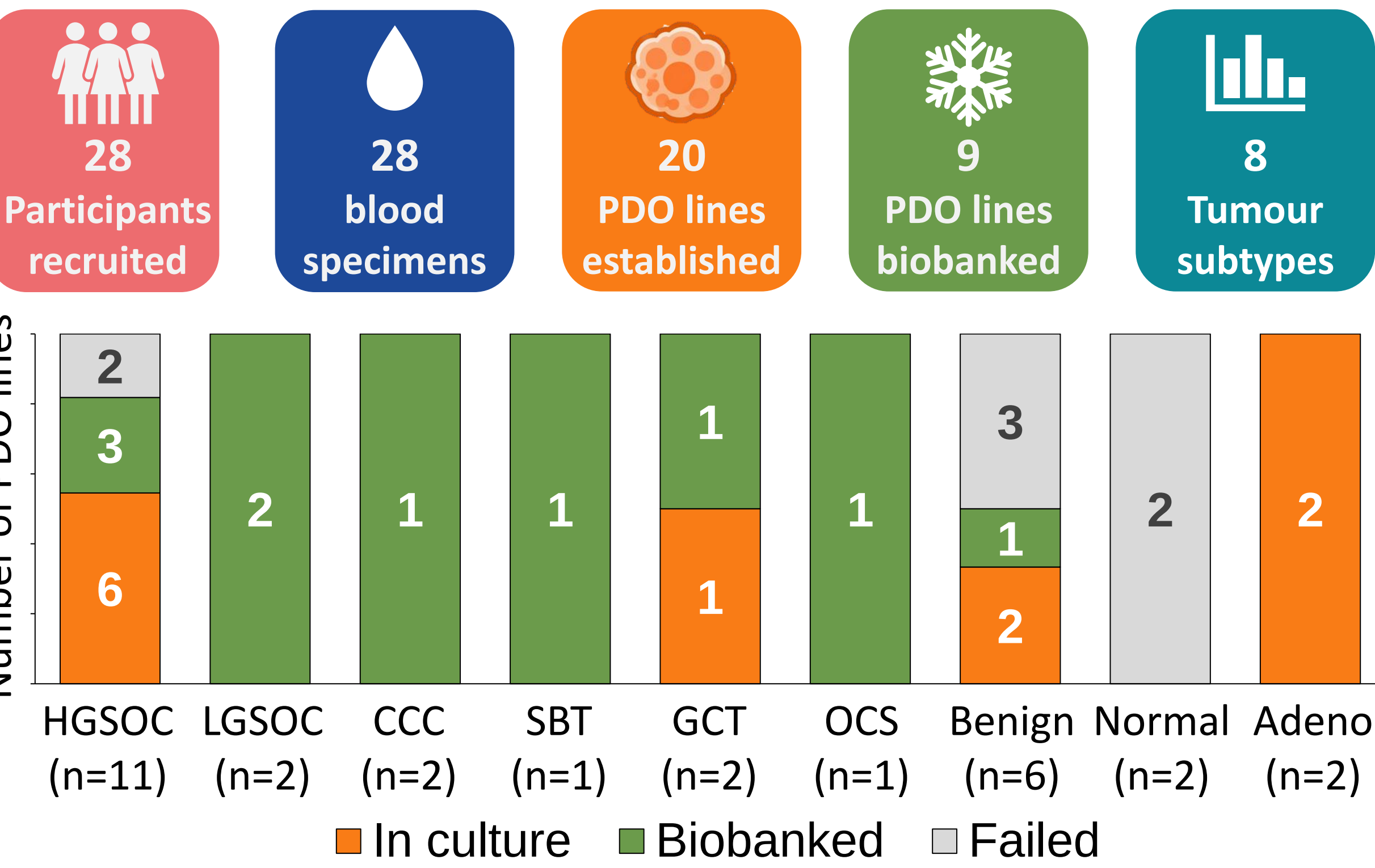
- Establish patient-derived organoids (PDO).
- Characterise tumour and organoid models.
- Investigate culture-condition effects on PDO.

OCOP (Ovarian Cancer Organoid Program) workflow



CURRENT OCOP BIORESOURCE

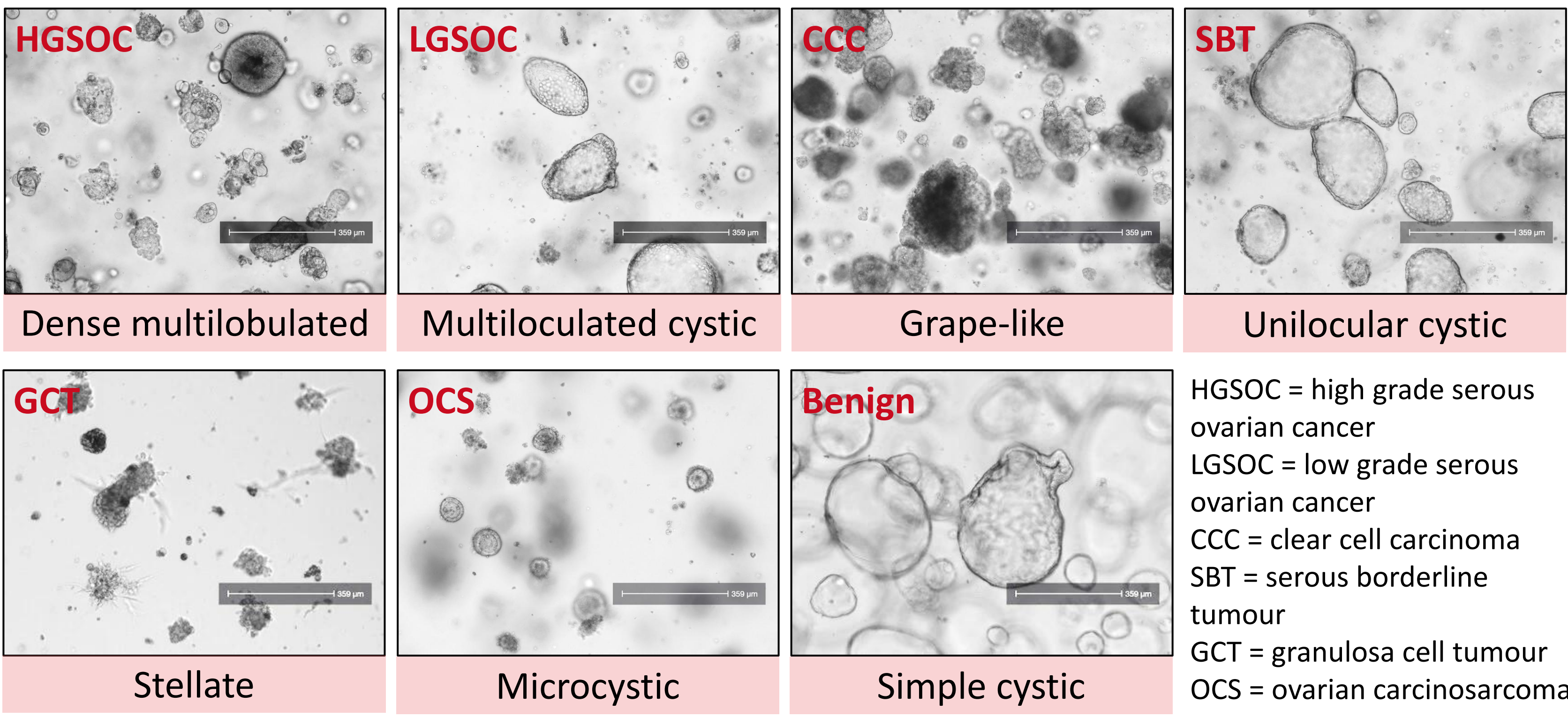
A GROWING BIORESOURCE



Diverse ovarian cancer subtypes represented in the bioresource.

MORPHOLOGICAL DIVERSITY OF PDO

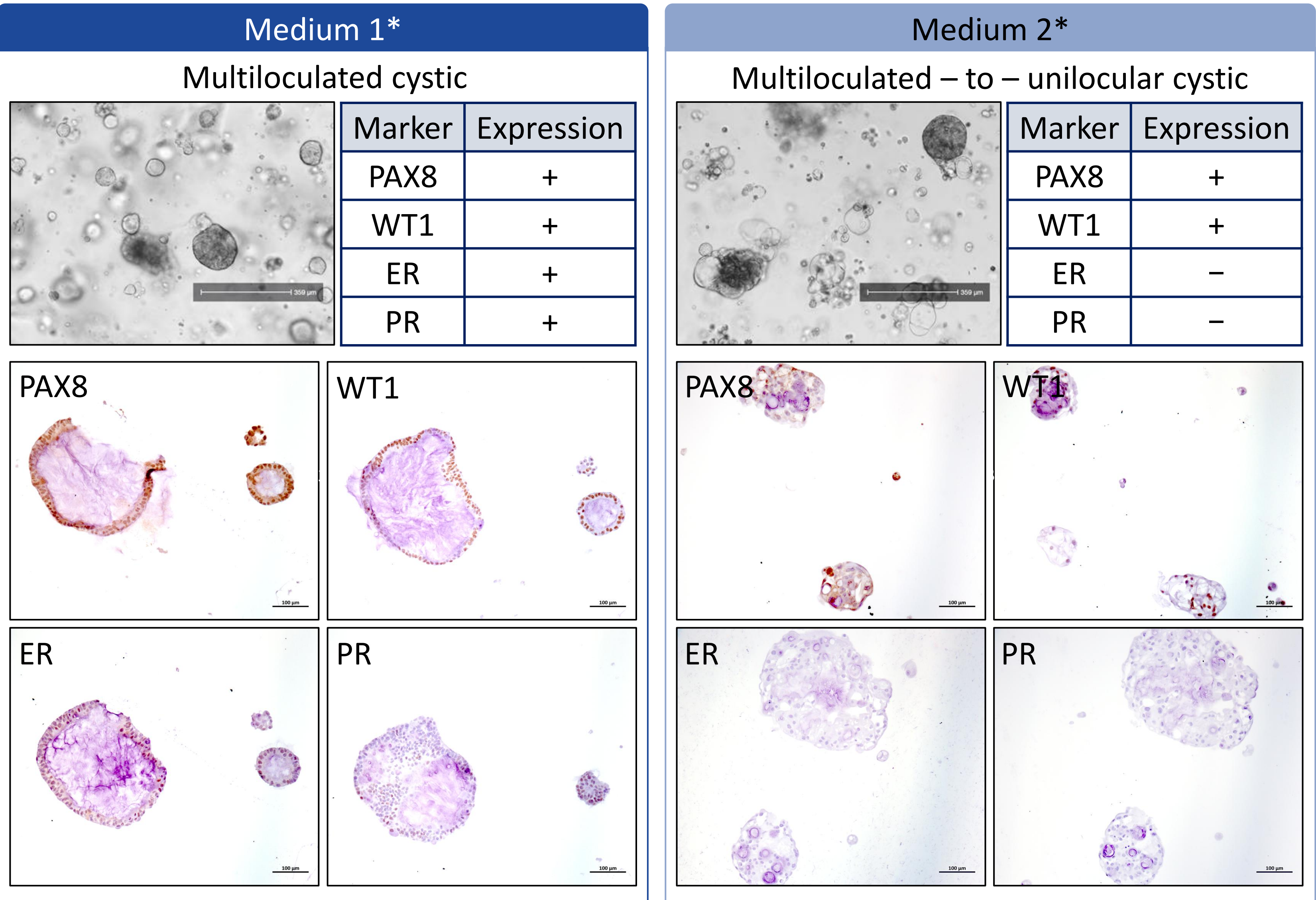
DIFFERENT TUMOURS, DISTINCT MORPHOLOGIES



Morphological heterogeneity exists across ovarian cancer PDOs.

CULTURE CONDITIONS INFLUENCE PHENOTYPE

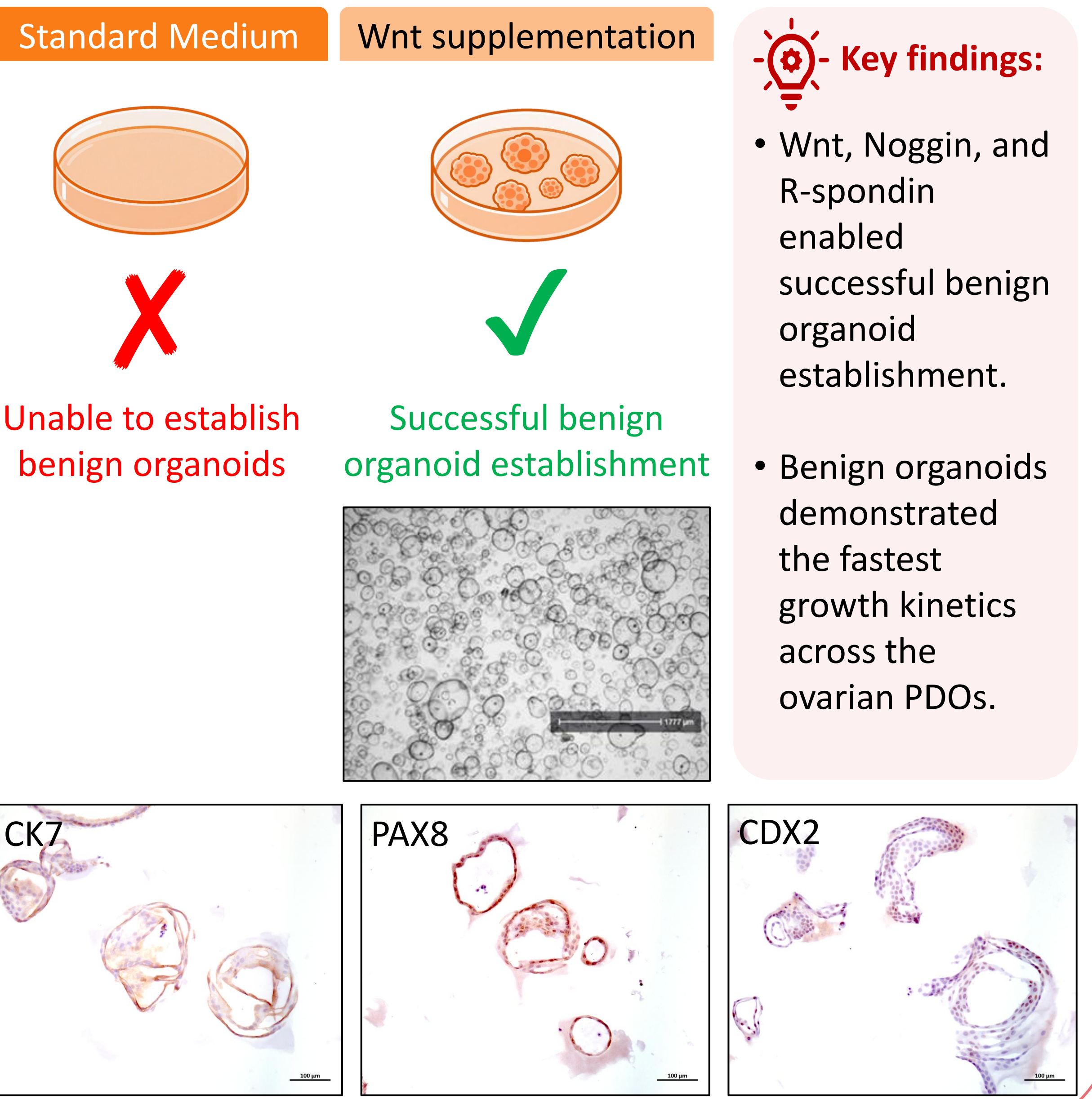
SAME PDO, DIFFERENT OUTCOMES



PDO morphology and molecular features vary according to culture condition.

* Senkowski et al., Developmental Cell (2023)

CULTURE CONDITIONS INFLUENCE ESTABLISHMENT



CONCLUSIONS

KEY INSIGHTS AND TAKEAWAYS

- ✓ The OCOP biobank represents a growing and diverse ovarian cancer bioresource.
- ✓ PDOs recapitulate key histopathological features of the original tumour.
- ✓ Significant morphological heterogeneity exists within and across tumour subtypes.
- ✓ Culture conditions influence organoid morphology and marker expression.
- ✓ Wnt pathway activation enables benign organoid establishment.

FUTURE APPLICATIONS

FROM ORGANOIDS TO OPPORTUNITIES

