Uncovering the hidden threat: single-organoid analysis reveals clinically relevant treatment-resistant and invasive subclones in pancreatic cancer

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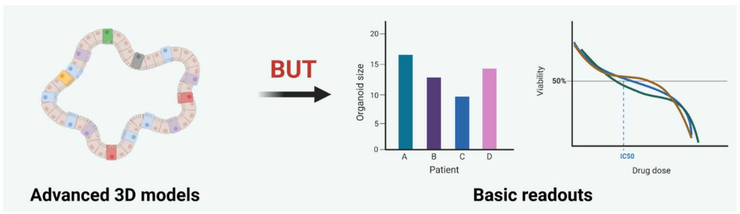
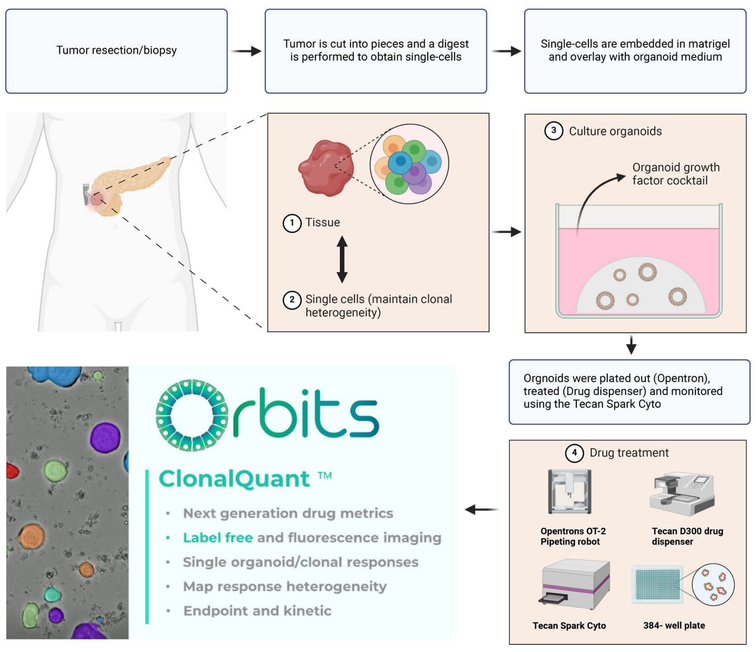
INTRODUCTION

Current hurdles:



- Complex models but **basic readouts**
- Current viability readouts (**Cell-Titer Glo**) are biased
- Basic drug metrics used (% viability)
- Difficulties in stratifying patients
- Response dynamics are not taken into account
- Growth rate differences are not taken into account

METHODS



CONCLUSION

- **Orbits**: a novel AI image analysis platform
- Our analysis is capable of stratifying patient responses
- Observable trend with clinical response
- More 3D readouts in our pipeline (under development)

Orbits www.orbits-oncology.com

Interested?

Deben, C.; De La Hoz, EC.; Le Compte, M.; Van Schil, P.; Hendriks, JM.; Lauwers, P.; Yogeswaran, SK.; Lardon, F.; Pauwels, P.; Bogaerts, A., et al. Orbits: A high-throughput, time-lapse, and label-free drug screening platform for patient-derived 3d organoids. bioRxiv 2021

RESULTS

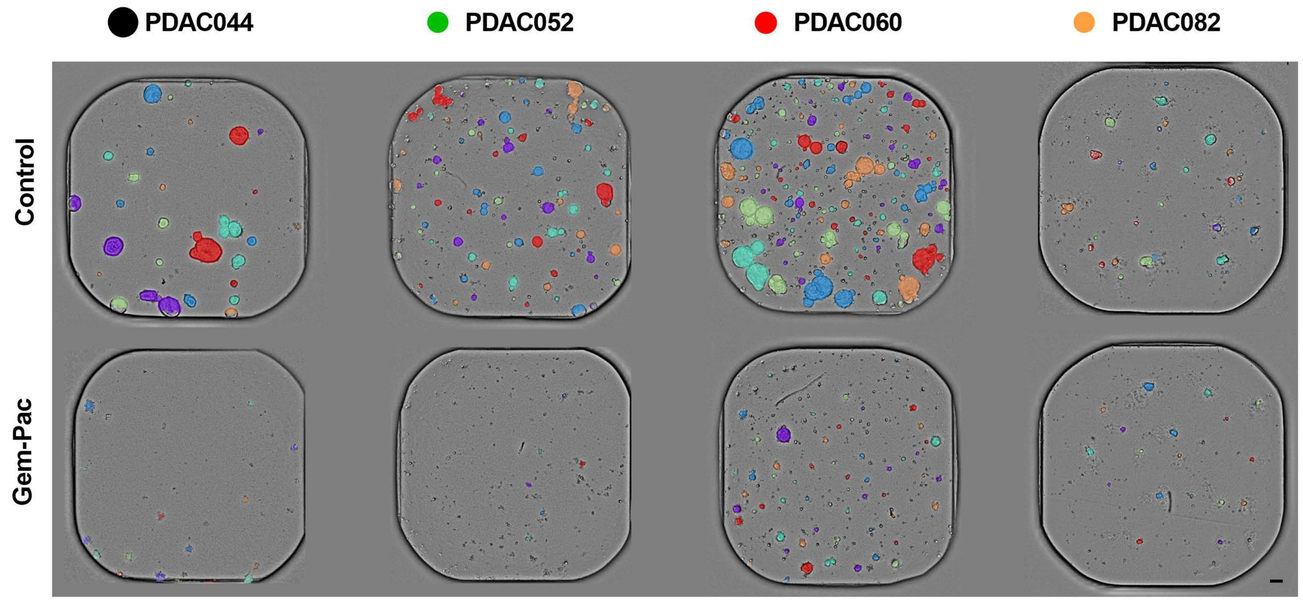


Figure 1. Representative masked images of patient-derived pancreatic cancer organoids, showing the heterogeneity in response upon treatment with 400nM gemcitabine- 80nM paclitaxel for 5 days.

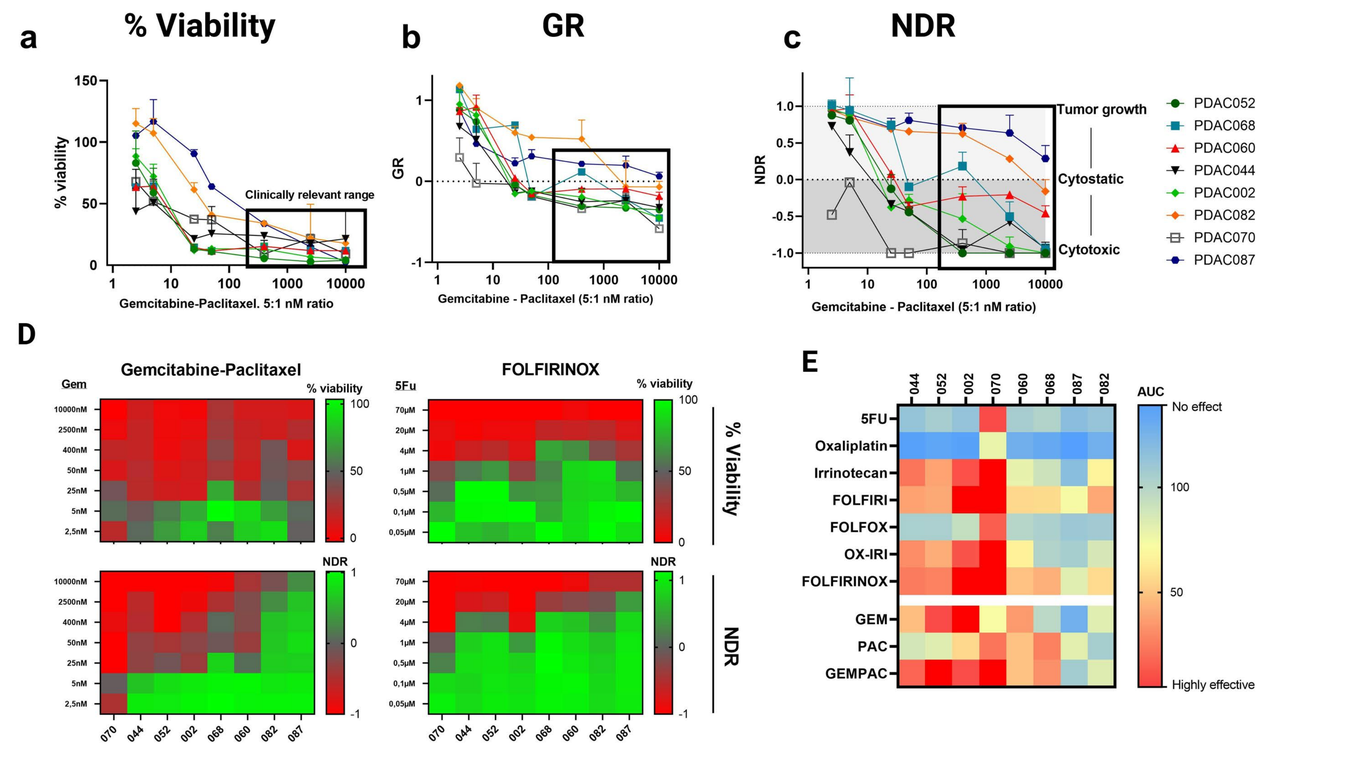


Figure 2. The implementation of a normalized drug response metric (NDR) improves patient stratification.

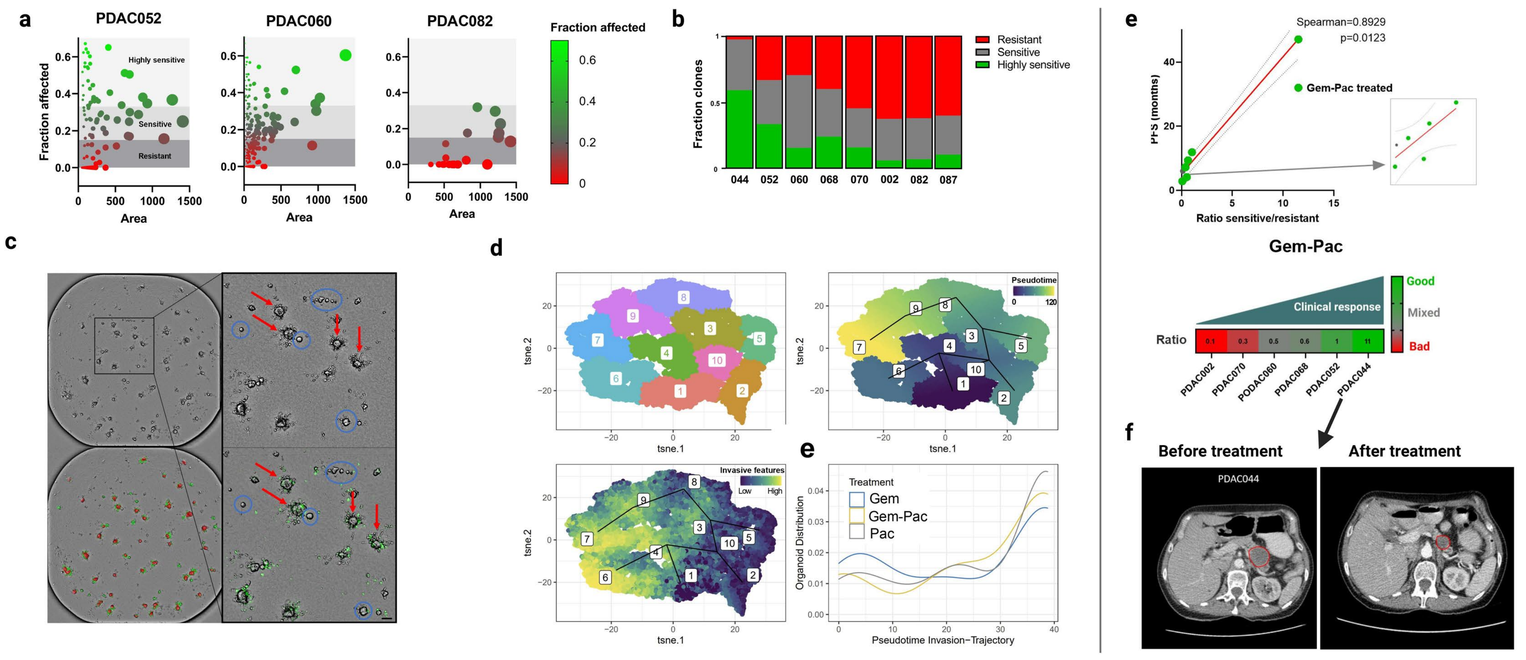


Figure 3. PDAC organoids/cells are driven in a certain 'direction' (Invasive, apoptosis, resistant). The single organoid analysis, which includes resistant and sensitive subclones, also highly correlates with the clinical outcome

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DrugVisionAI Visualizing the future of drug discovery