



# Organoid models from a PDX biobank of Muscle Invasive Bladder Cancer (MIBC)

## A 3D BLADDER CANCER MODEL

### Model

- Urosphere has a biobank of more than 30 Patient-derived-xenografts (PDX) from muscle invasive bladder cancer (MIBC) that has been extensively characterized. This biobank is representative of the human molecular classification of bladder cancers.
- Starting from this biological material, we have developed organoids and tested their viability with standard of care compounds (SoC).
- Organoids from patients' samples have also been developed (from healthy or cancer bladder tissues).

### Interest

- Organoids from bladder cancer keep the characteristics of the patient's tumour.
- They allow an in vitro rapid screening of substances before testing them in vivo with a PDX model.
- The presented example has been validated with Erlotinib (EGFR inhibitor), compared to SoC (gemcitabine and cisplatin, data not shown) as its PDX counterpart.

### Model Description

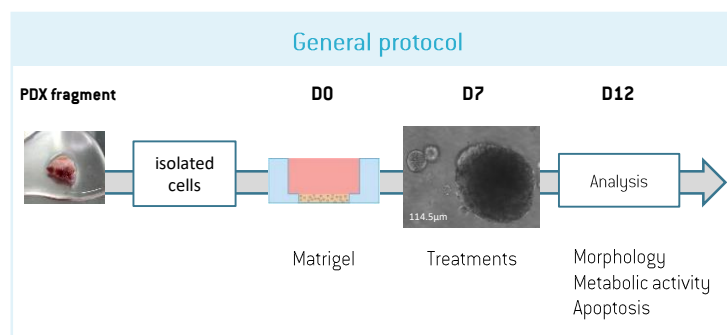
- Organoid culture, derived from bladder PDX, is grown in an extracellular matrix for 7 days allowing proliferation and differentiation.
- Organoid culture is treated with test and reference substances for 5 days.

### Parameters evaluated

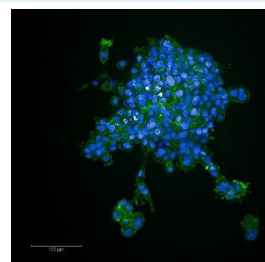
- Morphology: number of organoids per condition, mean of area ( $\mu\text{m}^2$ ), mean of length ( $\mu\text{m}$ ) and mean of volume ( $\mu\text{m}^3$ ).
- Metabolic activity: luminescence intensity reflected by intracellular [ATP] measured with CellTiterGlo3D® (luminescence).
- Apoptosis: % apoptotic cells by condition, reflected by the expression of activated caspase 3 by organoid with NucView® 488 Caspase-3 Assay Kit (fluorescence).

### Scientific publications

- Béraud *et al.*, AACR, Denver, 2019
- Kamoun *et al.*, European Urology, 2020, 77:420-433  
<https://doi.org/10.1016/j.eururo.2019.09.006>
- Patard *et al.*, EAU, Barcelona, 2019

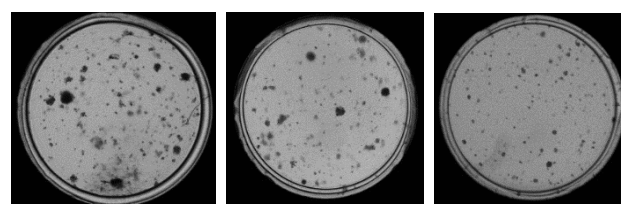


### Representative picture of one bladder organoid after 12 days of culture



Maximum Intensity Projection, Opera Phenix, Perkin Elmer, 20x water, N.A = 1.2

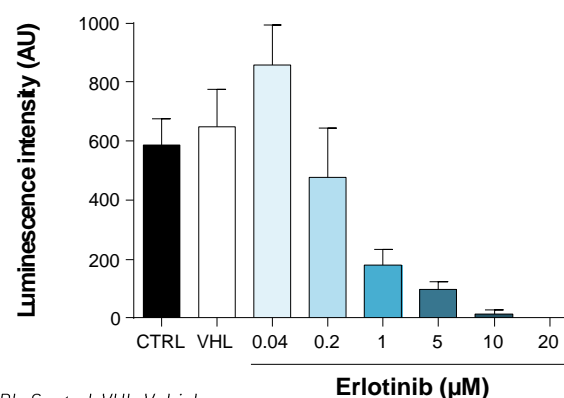
### Representative pictures of control condition and Erlotinib treatment, in brightfield, x2, EVOS system



Control

Erlotinib  
20nMErlotinib  
1µM

### Concentration response curve to Erlotinib on metabolic activity (luminescence intensity) in organoid culture derived from bladder PDX



CTRL: Control; VHL: Vehicle