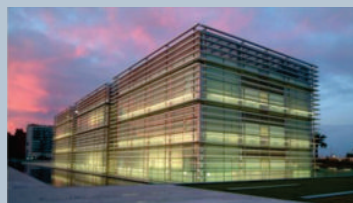




an official partner site of **eu.openscreen**



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THE PROJECTS

Towards the Design of Personalised Polymer-based Combination Nanomedicines for Advanced Stage Breast Cancer Patients (MyNano)

The main objective of this project is to develop a nanomedicine-based combination therapy in a personalized manner, not only to treat the primary tumor, but also to prevent metastasis (by inhibiting tumor-associated exosome release). This study will be carried out in clinically-relevant breast cancer (BC) patient-derived models.

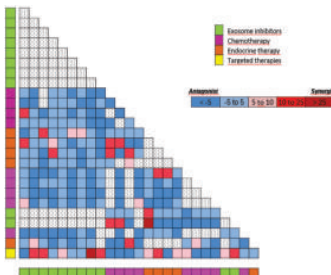
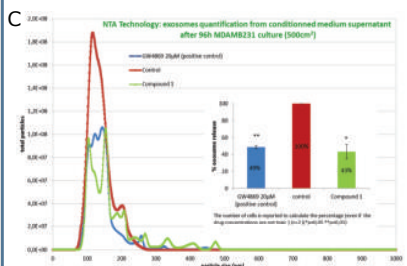
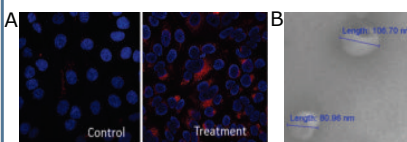


Fig 2. Cell viability diagram showing the screening of drug combinations in triple negative BC cells, MTS assay.

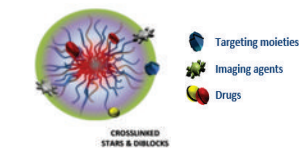


Fig 3. Schematic representation of a polymer-based combination nanoconjugate design.

Others

In many neurodegenerative disorders or aggressive pathological processes such as cancer, pharmacological high throughput screening (HTS) approaches are required to identify novel, effective and safe therapeutics. Our screening service, using complementary advanced technologies including label-free, alpha-screen, and imaging tools among others, can rapidly and reliably identify novel hits. The CIPF is a specialized center offering a diversity of cell-based assays, from commercially available cell lines to patient derived 3D models. Assays on organotypic cultures are also available for screens.

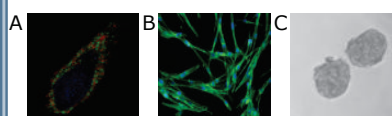


Fig 4. A. Confocal Image of Bcl2 transmembrane domain protein-protein interactions by Bimolecular Fluorescence complementation (BiFC). B. InCell Image of Human melanoma cell line. Nuclear staining with DAPI (blue) and an antibody against actin filaments (green). C. Brightfield of Confocal Image of lung tumorspheres.

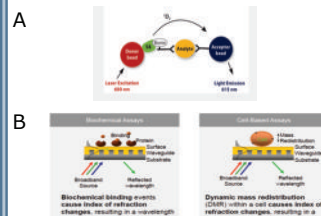


Fig 5. Some examples of the advanced technologies available on our platform. A. AlphaScreen/AlphaLisa technology (Figure courtesy of BMG LABTECH). B. Label-free technology (Figure courtesy of Perkin Elmer).

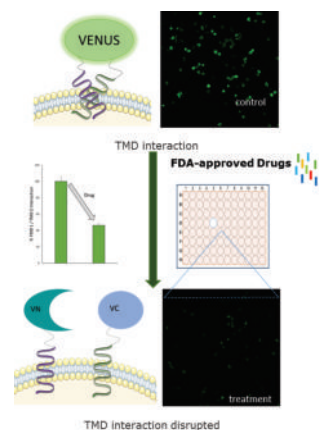


Fig 6. Screening of Bcl transmembrane domains (TMD). Inhibition of oligomerization of the Bcl transmembrane domains by one compound from the commercial library (FDA-approved).

THE HARDWARE

- ClarioStar BMG LABTECH
- Enight Label-free PerkinElmer
- Leica SP8 HyVolution2
- TECAN Li-Ha MCA96
- IN Cell Analyzer 2200
- IN Cell Analyzer 6000
- Magpix (Luminex Technology)
- NanoSight-NTA NS300
- CytoFLEX S Beckman-Coulter
- Myriad and Prestwick Libraries

THE SOFTWARE

- Mars
- Spotfire
- Workout Plus MMD
- Kaleido
- Image J / LAS X
- Metamorph
- EVOware Standard
- InCell Image Analysis Developer Software

THE OUTPUT

- Duro-Castano A. 2017. *Adv Mat.*; 2015 *Mol Pharm.*
- Azarin S.M. 2015 *Nature Communications.*
- Kowal J. 2016. *PNAS.*
- Lehar J. 2009. *Nature Biotechnology.*
- M.J. Vicent, A. Duro-Castaño, V.J. Nebot, *WO2017025298A1.*

Collaborations



Networks



THE FUTURE

To reinforce our capacity towards analysis in 3D patient-derived cell models and in vivo models.

To develop personalized medicine to assist clinical trials.