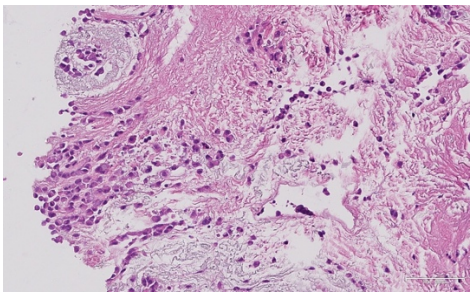
Case report: Sortina pharma use Iscaffpharma's patient derived scaffolds for cancer drug screening

Summary: Sortina Pharma has, based on the PDS technology, been able to accelerate their lead generation program for development of a small molecule as new medical treatment for patients with aggressive breast cancer.

Success rates in oncology development remains at a challenging low level compared with other diseases, with a likelihood of approval from phase 1 at only 5,1%. This indicates that the pre-clinical models need to be more accurate. In the research at Iscaffpharma, the human cancer micro environment has been proved to push the cancer cells to adapt and create features that are responsible for the aggressiveness of cancer. Today's models lack the influence of the tumor environment and therefore does not create an accurate understanding of these aggressive features. Iscaffpharma has developed a unique technology using patient derived scaffolds (PDS) with preserved micro environment for drug screening purposes. The drug fingerprint that is created has a strong link to the possible effects a cancer treatment would have in humans.

Patient derived scaffolds (PDS)

The human scaffolds are derived from fresh or biobanked tumors, with access to patient characteristics, tumor typing and morbidity/mortality.
Iscaffpharma has developed a methodology to carefully de-cellularize the human scaffold, conserving the matrix around the cells. The PDS is then repopulated with cancer reporter cells, thus, allowing studies of the effect of the surrounding environment.



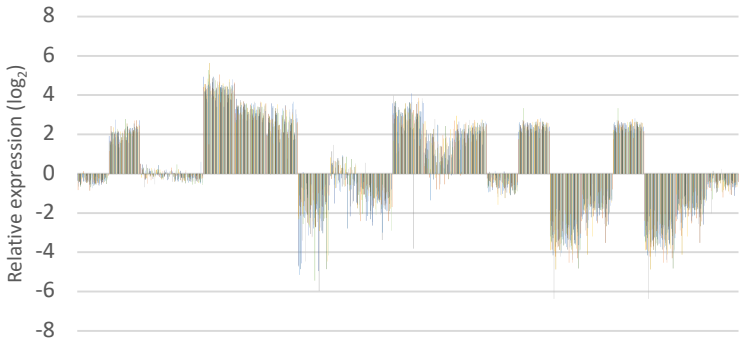
Cancer cells repopulating human tumor sample

This technology differs from existing 2D cultures, organoids and spheroids where the human micro environment is not present. In Iscaffpharma's scaffolds, the impact from the micro environment causes the cancer cells to adapt and start a divergent differentiation process relevant to the human cancer.

Analyzing

Iscaffpharma's technology allows precise discovery of new targets and drug screening. The result of a tested drug is a genetic drug fingerprint showing the effect on treatment of cancer cells in patient tumor samples. This gives an accurate understanding of possible effects in in vivo clinical trials. Examples of analyses in the scaffolds include:

- Drug resistance
- Proliferation
- Epithelial to mesenchymal transition (EMT)
- Differentiation
- Stem cell features



Drug fingerprint showing effect on gene expression for aggressive features (differentiation, stemness, EMT, proliferation) in breast cancer compared with 2D (log 0)

Iscaffpharma perform the analyses in PDS from a large selection of patients. This gives an understanding of the patient variation and can be seen as an in vivo clinical trial performed in vitro.

Publication: Patient-derived scaffolds uncover breast cancer promoting properties of the microenvironment by Göran Landberg et al. Biomaterials Volume 235, March 2020, 119705

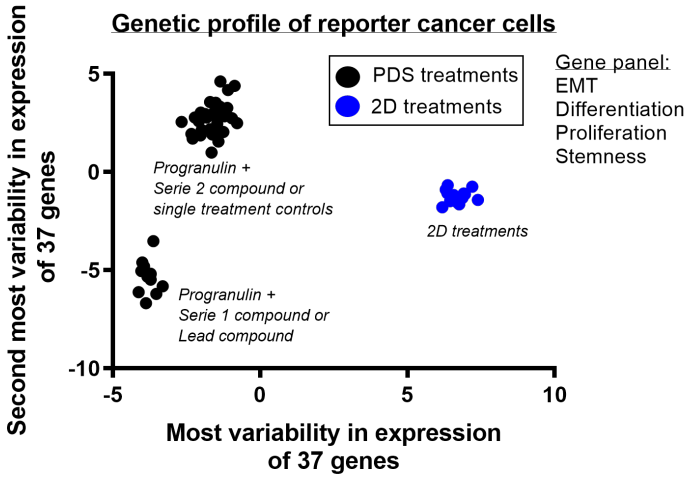
Case report Sortina Pharma

Sortina Pharma is developing a new medical treatment for patients with aggressive breast cancer. The treatment will be able to prevent and treat spreading and recurrence of disease by targeting the cancer stem cells which are unaffected by current treatments.

Sortina Pharma utilized Iscaffpharma´s technology in their lead generation program in order to obtain functional lead structures binding to their target with effect on cancer stem cells. Breast cancer reporter cells were cultured and treated with two lead structural series on patient derived scaffolds for three weeks. Thereafter their genetic fingerprint, relevant for breast cancer aggressiveness, were analysed for an additional one-two weeks. The results clearly demonstrated that one out of the two lead structural series induced a separate genetic profile that were similar to the genetic fingerprint of their reference molecule, a small molecule known to bind to target. From these results Sortina Pharma could exclude one structural serie of molecules for further optimization that did not induce alteration in the genetic fingerprint, relevant for breast cancer aggressiveness.

PDS compared with 2D

Importantly, culturing the reporter cells in normal 2D in vitro cultures did not reveal differences in the genetic profile related to breast cancer aggressiveness. This demonstrates that the genetic fingerprint obtained using Iscaffpharma's technology revealed cellular characteristics that were not observed in normal 2D-in vitro cultures.



Drug fingerprint showing effect on gene expression for aggressive features in breast cancer for two compounds in PDS also compared with 2D. The results clearly indicate preferred lead compound for continued development.

Result
Sortina Pharma has, based on the PDS technology, been able to accelerate their lead generation program for development of a small molecule as new medical treatment for patients with aggressive breast cancer.

> *"Iscaffpharma's pre-clinical model has given us high quality data and analyses reflecting relevant human in vivo conditions for the validation of our novel lead compounds. We are confident that this will lead to a higher success rate and finally an optimal molecule for treatment of metastatic cancer."*
> Sara Rhost, lead scientist at Sortina Pharma

Development support
Iscaffpharma offers development support for drug screening and validation of new oncology drugs in solid cancer. Our technology increases success rates for cancer pharmaceutical projects by:

- Identifying new targets and validation of targets
- Creating a unique fingerprint predicting drug effect on aggressive and recurrent cancer (Indicating effect on phase 3 endpoints)
- Mimicking true human environment, in vivo like model.
- Cost effectively improving the relevance of preclinical screening
- Reducing the need for animal testing

> *"Seeing the success Iscaffpharma's technology have on Sortina Pharma's development and their struggle to cure cancer makes us proud. We can truly fight aggressive cancer together"*
> Per Setterberg, CEO Iscaffpharma

Contact us to get more information and discuss how Iscaffpharma can help you succeed in developing effective treatments for cancer.

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