Success story "Affilogic"

France - Atlanpole Biotherapies

Innovation

Affilogic is a biotech company engaged in the discovery and pre-clinical development of Nanofitins® as biotherapeutics. In particular, Affilogic is developing Nanofitins® directed against a classic receptor in Oncology, the receptor to Epithelial Growth Factor (EGF-R), involved in cancers such as Breast cancer, Kidney cancer, Colorectal cancer, Lung cancer. Many pharmaceutical and biotech companies are working on this receptor with antibodies but, due to their large size, one major drawback is a limited tumor penetration range. They circumvent this by displaying a long residence time in the blood, combating cancer by "peeling" the tumor. This comes to the expense of clinical side effects, due to an increased risk of non-specific binding of the antibody.

Affilogic assumed their much smaller proteins, Nanofitins®, shall penetrate much deeper into the tumor while unbound product shall be rapidly cleared. However Affilogic needed to measure how deep the Nanofitins® can diffuse into the tumor by performing a dedicated *in vivo* tumor penetration proof-of-concept.

Service provider

Center for Microscopy and Molecular Imaging / DIAPath
Brussels, Region of Wallonia

How the match was made

Affilogic identified DIAPath in the list of Service Providers presented on Boost4Health website. A travel voucher enabled a visit from Affilogic's scientists to their facilities to discuss about the project.

Service provided

DIAPath prepared a xenograft model which means they injected relevant cell lines over-expressing EGF-R to reproduce a tumor into the mice. They administered the molecules to the different groups: (i) injection of anti-EGF-R Nanofitins®, (ii) injection of anti-EGF-R antibodies as a benchmark and (iii) injection of both in the same mice. DIAPath sacrificed the mice and harvested the tumors, which were sectioned in slides and then observed via imaging techniques. This enabled them to see how deeply both the Nanofitins® and the antibodies were able to diffuse into the tumor after systemic administration. DIAPath analyzed such imaging data thanks to their extensive experience in the field and shared them with Affilogic.

Results

DIAPath has been able to demonstrate the Nanofitins® can penetrate deeper than a reference antibody in a solid tumor over-expressing EGF-R. Despite the fact that there is some literature supporting this hypothesis, the articles are merely based upon assumptions. The degree of innovation is very high here and we aim to be the first technology able to publish robust scientific data on measuring how deep Nanofitins® can penetrate with tumors.

From a clinical perspective, this advantage shall translate into an increased efficacy in killing the tumor cells in a shortened time for patients' benefits. From a business perspective for Affilogic, the economic value of these Nanofitins® will increase in the eyes of the Pharmaceutical companies that could in-license them to further develop them through clinical studies.

Affilogic and DIAPAth are still collaborating outside the Boost4Heath framework.