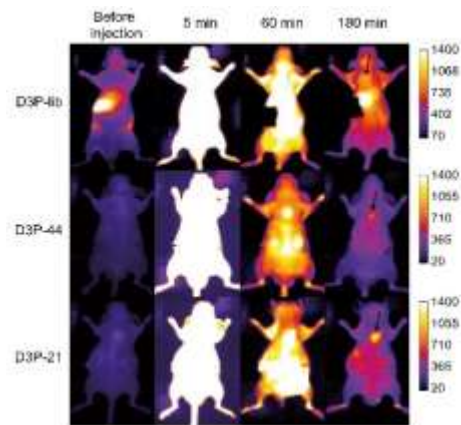


Aptamer D3P-21

An Aptamer that Targets Hormone Refractory Prostate Cancer

Invention

Prostate cancer the most common cancer among men. In particular, hormone refractory prostate cancer is not curable and targeted therapies are yet not available. Hormone refractory prostate



Detection of a tumor by D3P-21

tumour cells likely metastasize to distal sites accounting for poor prognosis and survival of patients. Thus, means for early diagnosis and treatment of hormone refractory prostate cancer are desperately needed. Aptamers are an emerging class of molecules for developing targeted therapy approaches. They are single chain nucleic acids, folding into well-defined three-dimensional shapes based on which they recognize target structures. The inventors used an orthotopic xenograft mouse model to perform an *in vivo* selection in order to identify an aptamer that selectively binds to cells of a hormone refractory prostate tumour. Several rounds of selection starting from a DNA library yielded an aptamer that binds to tumour tissue *in vivo* and to PC3 cells *in vitro*. The Aptamer is characterized in a PEGylation pattern that stabilizes the Aptamer and prolongs plasma half-life. In this particular case, the PEGylation was already present during *in vivo* selection. The Aptamer of the present invention may be used for diagnostic or therapeutic purposes. In particular when coupled to a drug, the Aptamer may be used in analogy to an antibody-drug-conjugate.

Commercial Opportunities

PROvendis is offering licenses for the invention to interested companies. There is also the possibility of collaboration with the inventor.

Current Status

Selective binding of the Aptamer to tumour cells and stability of the Aptamer have been proven in *in vivo* and *in vitro* models.

Relevant Publications

Civit, L. *et al.*: Targeting hormone refractory prostate cancer by *in vivo* selected DNA libraries in an orthotopic xenograft mouse model, *Scientific Reports* 9 4976 (2019).

An invention of the University of Bonn.

Competitive Advantages

- High affinity Aptamer
- Easy to produce
- High plasma half-life
- Excellent tumor selectivity

Technology Readiness Level

1 2 3 4 5 6 7 8 9

Experimental proof of concept

Industries

- Pharmaceutical Industry

Ref. No.

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