PC-3 human prostate cancer cell ectopic xenograft

A MODEL FOR HUMAN PROSTATIC CARCINOMA

Model

We developed an ectopic xenograft preclinical model of prostate cancer based on the widely used PC-3 human cell line (human prostate cancer cell lines).
In collaboration with Flash Therapeutics*, PC-3 cells were initially transduced with luciferase and a reporter fluorescent protein.
This approach allows *in vivo* imaging of tumor growth and metastasis by luminescence (BLI) and fluorescence (FLI).
We could also offer inducible genetic approaches to overexpress or silence any target gene.

Specie

Nude mouse

Interest

- Xenogeneic models combine the advantage of working with human cancer with relevance of an *in vivo* host.
- Ectopic models allow rapid and easy analysis of tumor response to a test item.
- Fluorescence and bioluminescence enable real-time, non-invasive monitoring of tumor growth, progression and test item response over time.
- With these imaging systems, quantitative accurate results are obtained soon as early stage of prostate cancer.
- This model is validated by the clinically relevant compound Docetaxel.
- Test compound treatment or gene activation/silencing can be initiated in a desired schedule (before or after tumor establishment).

Model Description

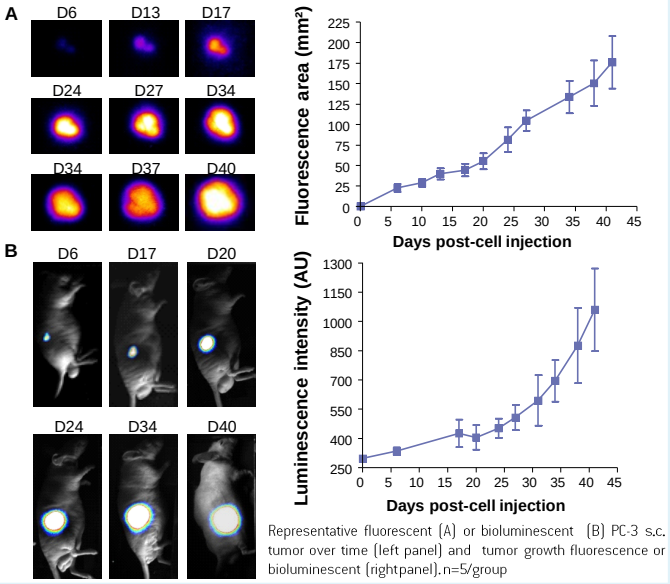
- Human cancer cells are subcutaneously (s.c.) injected into the dorsal region of Nude mice.
- Mice are imaged once or twice weekly (caliper measurement may be performed in parallel).
- Test compounds can be administered *via* various routes (i.v., i.p., s.c., p.o.) in preventive or curative treatment.

Parameters evaluated

- Tumor growth: volume (mm^3), area (mm^2) and fluorescence or bioluminescence intensity (AU).
- Tested item efficacy: tumor growth delay or inhibition.
- Tumor can be resected for histological, molecular or biomarkers analysis.

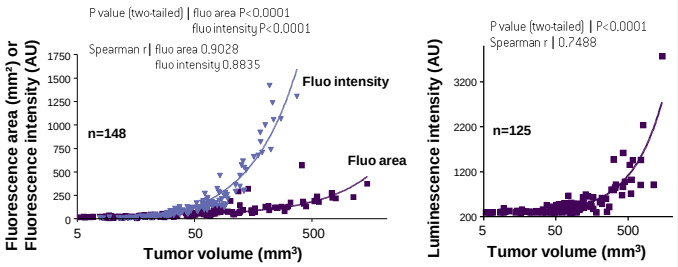
* Flash Therapeutics (formerly Vectalys) is a new gene therapy company developing gene and cell-based therapies by leveraging its proprietary lentiviral platform and bioproduction technologies.

PC-3 s.c. tumor growth monitoring via *in vivo* Imaging



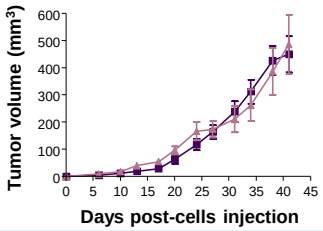
Representative fluorescent (A) or bioluminescent (B) PC-3 s.c. tumor over time (left panel) and tumor growth fluorescence or bioluminescent (right panel). n=5/group

High correlation between imaging and caliper results



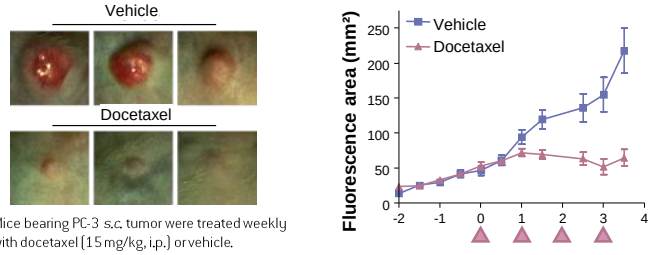
Tumor fluorescence intensity or area (left panel) and bioluminescence intensity (right panel) correlate with tumor volume calculated from caliper measurements. Tumors were imaged and sized at various time points. Data were compared using Sperman correlation.

Transduced PC-3 have same phenotype as original cell line



Tumor growth was determined by measuring tumor volume (caliper). n=5-7/group

Docetaxel inhibits growth of established PC-3 s.c. tumor



Mice bearing PC-3 s.c. tumor were treated weekly with docetaxel (15 mg/kg, i.p.) or vehicle.
Representative pictures of PC-3 tumor at D24 post-treatment (left panel) and tumor growth determined by measuring tumor fluorescent area (right panel). n=5-6/group