



Syngeneic AY-27 rat bladder cancer cell orthotopic model

A MODEL FOR UROTHELIAL CARCINOMA

Model

Under a license agreement with the University of Toledo, we established a syngeneic orthotopic preclinical model of bladder cancer based on the AY-27 cells [rat bladder transitional carcinoma cell line].

In collaboration with Flash Therapeutics*, AY-27 cells were initially transduced with luciferase reporter gene. This approach allows non-invasive in vivo monitoring of tumor growth by bioluminescence (BLI).

We could also offer inducible genetic approaches to over-express or silence any target gene.

Specie

Fischer 344 rats

Interest

- Syngeneic models provide an effective approach for studying how cancer therapies perform in the presence of a functional immune system.
- AY-27 cells are inoculated in the proper tumor microenvironment.
- BLI enables real-time, non-invasive monitoring of tumor growth and test item response over time.
- This model is validated with the combination chemotherapy treatment cisplatin and gemcitabine [CisGem].
- Test compound treatment or gene activation/silencing can be initiated in a desired schedule (before or after tumor establishment).

Model Description

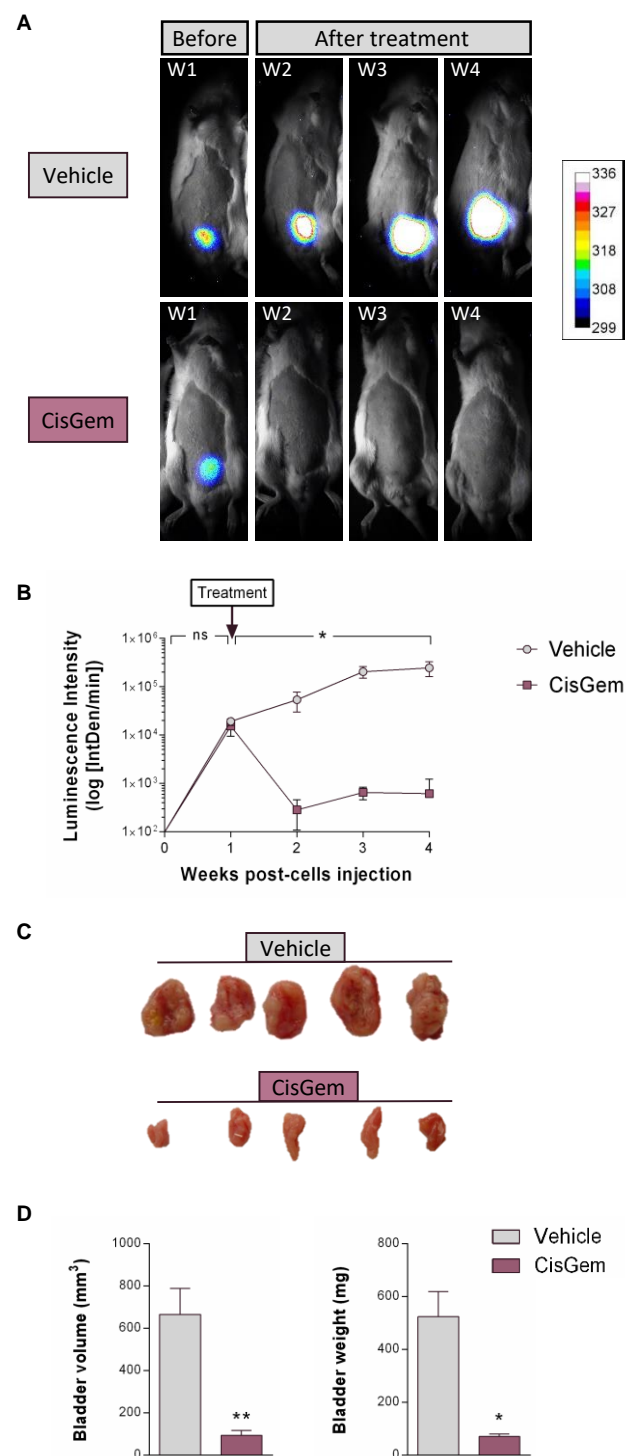
- Bladder cancer is established by intravesical instillation of AY-27 cells.
- Rats are imaged by bioluminescence once or twice weekly.
- Bladders are excised at week 4 for macroscopic evaluation.
- Test compounds can be administered via various routes (i.v., i.p., s.c., p.o., intravesical) in preventive or curative treatment.

Parameters evaluated

- Tumor growth: bioluminescence intensity from W1 to W4, weight and volume of the bladder at W4
- Test item efficacy: tumor growth delay or inhibition
- Tumor can be resected for histological, molecular or biomarkers analysis
- Survival 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.

Cisplatin-gemcitabine combination inhibits tumor growth on rats-bearing AY-27 bladder cancer



- (A) Time-course bioluminescence imaging of orthotopic syngeneic AY-27 bladder tumor. Rats with established tumor were treated with combination of cisplatin and gemcitabine or vehicle at W1 (after imaging).
- (B) Bioluminescence-based kinetic of AY-27 tumor growth expressed in IntDen/min on a log scale. ^{ns} P>0.05, * P<0.05 (n=7-12/group).
- (C) Photographs of rat bladders at W4.
- (D) Bladder volume and weight at W4. * P<0.05, ** P<0.01 (n=7-12/group).