

Imaging characterization of a metastatic patient derived model of bladder cancer: BL0293F (PDMR-BL0293-F563)

Summary

Redirection Notice

This page will redirect to <https://www.cancerimagingarchive.net/collection/pdmr-bl0293-f563/> in about 5 seconds.

Pre-clinical animal models of spontaneous metastatic cancer are infrequent; the few that exist are resource intensive because determination of the presence of metastatic disease, metastatic burden, and response to therapy normally require animal sacrifice and extensive pathological examination. We recently identified and characterized a patient derived xenograft model with metastatic potential, bladder xenograft BL0293-F563, developed by Jackson Laboratories and the University of California at Davis. In this study we performed a detailed imaging characterization of this model, which develops spontaneous liver and bone metastases. Using non-contrast T2 weighted MRI, hepatic metastases were demonstrated in over 70% of animals at 52 days post tumor implantation without resection of the xenograft and in 100% of animals at day 52 following resection of the xenograft. T2w turbo spin echo (T2wTSE) sequence was applied in the coronal view with a repetition time (TR) 5333ms, echo time (TE) 65ms, with an in-plane pixel of 0.180×0.180 mm². A Spectral Presaturation with Inversion Recovery (SPIR) sequence (Philips Healthcare, Best, The Netherlands) was used to suppress the fat component and assist in distinguishing fat from cystic mass and tumor tissue. In a group of animals receiving one cycle of effective chemotherapy ([Temozolomide; (50 mg/kg; PO, QDx5)] plus [(veliparib, a poly (ADP-ribose) polymerase inhibitor) (7.75 mg/kg; PO; BIDx7)]), no animals demonstrated metastasis by imaging. The imaging characteristics of this model, which is available from the National Cancer Institute Patient-Derived Models Repository (<https://pdmr.cancer.gov/>), is highly favorable for preclinical research studies of metastatic disease when used in conjunction with non-contrast T2 weighted MRI.

Acknowledgements

- We would like to thank Nimit Patel of the Small Animal Imaging Program for analyzing ultrasound and assisting with the experiment; Simone Difilippantonio for coordinating her staff and Amy James of the Animal Research Technical Support Program for preparing the drug and administration, measuring body weights, and tumor excision, Laboratory Animal Sciences Program, Frederick National Laboratory for Cancer Research.
- This project has been funded in whole or in part with Federal funds from the National Cancer Institute, National Institutes of Health, under Contract Number HHSN261200800001E. The content of this publication does not necessarily reflect the views or policies of the Department of Health and Human Services, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.

Data Access

Data Access

Data Type	Download all or Query/Filter	License
Images (DICOM, 3.2 GB)	Download Search	CC BY 3.0
	(Download requires the NBIA Data Retriever)	

Click the Versions tab for more info about data releases.

Additional Resources for this Dataset

The National Cancer Institute (NCI) has developed a national repository of Patient-Derived Models (PDMs) comprised of patient-derived xenografts (PDXs), in vitro patient-derived tumor cell cultures (PDCs) and cancer associated fibroblasts (CAFs) as well as patient-derived organoids (PDOrg). These models serve as a resource for public-private partnerships and for academic drug discovery efforts. These PDMs are clinically-annotated with molecular information and made available in the [Patient-Derived Model Repository](#). Data related to the specific subjects in this Collection can be found at:

- [PDMR-BL0293-F563](#)

Additional Resources for this Dataset

The NCI Cancer Research Data Commons (CRDC) provides access to additional data and a cloud-based data science infrastructure that connects data sets with analytics tools to allow users to share, integrate, analyze, and visualize cancer research data.

The NCI Cancer Research Data Commons (CRDC) provides access to additional data and a cloud-based data science infrastructure that connects data sets with analytics tools to allow users to share, integrate, analyze, and visualize cancer research data.

- [Imaging Data Commons \(IDC\)](#) (Imaging Data)

Detailed Description

Detailed Description

Image Statistics	
Modalities	MR
Number of Patients	19
Number of Studies	66
Number of Series	131
Number of Images	2222
Images Size (GB)	3.2

This [Standard Operating Procedure \(SOP\)](#) describes the procedures for animal handling and monitoring, anesthesia, daily MRI QC/QA, and MRI sequences for single and multi-mouse imaging for detection and monitoring of tumors and metastatic lesions. This SOP is used/performed by the Small Animal Imaging Program (SAIP) at NCI-Frederick, Frederick National Laboratory for Cancer Research.

In addition to images, this collection may include Raw Data Storage SOP Class instances with **MR Modality**, generated by a Philips MR scanner; this data is not useful to anyone without the proprietary software to interpret it.

Citations & Data Usage Policy

Citations & Data Usage Policy

Users must abide by the [TCIA Data Usage Policy and Restrictions](#). Attribution should include references to the following citations:

Data Citation

Tatum, J. L., Kalen, J. D., Ileva, L. V., Riffle, L. A., Jacobs, P. M., Hollingshead, M. G., Doroshov, J. H., Clunie, D. A., Smith, K. E., Wagner, U., Freymann, J. B. (2019). **Imaging characterization of a metastatic patient derived model of bladder cancer: BL0293F (PDMR-BL0293-F563) [Data set]**. The Cancer Imaging Archive. <https://doi.org/10.7937/tcia.2019.b6u7wmqw>

Publication Citation

Tatum, J. L., Kalen, J. D., Jacobs, P. M., Ileva, L. V., Riffle, L. A., Hollingshead, M. G., & Doroshov, J. H. (2019). **A spontaneously metastatic model of bladder cancer: imaging characterization**. In Journal of Translational Medicine (Vol. 17, Issue 1). Springer Science and Business Media LLC. <https://doi.org/10.1186/s12967-019-02177-y>

TCIA Citation

Clark, K., Vendt, B., Smith, K., Freymann, J., Kirby, J., Koppel, P., Moore, S., Phillips, S., Maffitt, D., Pringle, M., Tarbox, L., & Prior, F. (2013). **The Cancer Imaging Archive (TCIA): Maintaining and Operating a Public Information Repository**. In Journal of Digital Imaging (Vol. 26, Issue 6, pp. 1045–1057). Springer Science and Business Media LLC. <https://doi.org/10.1007/s10278-013-9622-7>

Other Publications Using This Data

TCIA maintains [a list of publications](#) which leverage TCIA data. If you have a manuscript you'd like to add please [contact TCIA's Helpdesk](#).

Versions

Version 1 (Current): Updated 2019/08/28

Data Type	Download all or Query/Filter
Images (DICOM, 3.2 GB)	Download Search
	(Download requires the NBIA Data Retriever)

Additional Resources for this Dataset

The National Cancer Institute (NCI) has developed a national repository of Patient-Derived Models (PDMs) comprised of patient-derived xenografts (PDXs), in vitro patient-derived tumor cell cultures (PDCs) and cancer associated fibroblasts (CAFs) as well as patient-derived organoids (PDOrg). These models serve as a resource for public-private partnerships and for academic drug discovery efforts. These PDMs are clinically-annotated with molecular information and made available in the [Patient-Derived Model Repository](#). Data related to the specific subjects in this Collection can be found at:

- [PDMR-BL0293-F563](#)