TCGA Breast Phenotype Research Group Data sets

Description

At the time of our study, 108 cases with breast MRI data were available in the TCGA-BRCA collection. In order to minimize variations in image quality across the multi-institutional cases we included only breast MRI studies acquired on GE 1.5 Tesla magnet strength scanners (GE Medical Systems, Milwaukee,Wisconsin, USA) scanners, yielding a total of 93 cases. We then excluded cases that had missing images in the dynamic sequence (1 patient), or at the time did not have gene expression analysis available in the TCGA Data Portal (8 patients). After these criteria, a dataset of 84 breast cancer patients resulted, with MRIs from four institutions: Memorial Sloan Kettering Cancer Center, the Mayo Clinic, the University of Pittsburgh Medical Center, and the Roswell Park Cancer Institute. The resulting cases contributed by each institution were 9 (date range 1999-2002), 5 (1999-2003), 46 (1999-2004), and 24 (1999-2002), respectively. The dataset of biopsy proven invasive breast cancers included 74 (88%) ductal, 8 (10%) lobular, and 2 (2%) mixed. Of these, 73 (87%) were ER+, 67 (80%) were PR+, and 19 (23%) were HER2+. Various types of analyses were conducted using the combined imaging, genomic, and clinical data. Those analyses are described within several manuscripts created by the group (cited below).

Data Access

Data Access

Click the **Download** button to save a ".tcia" manifest file to your computer, which you must open with the NBIA Data Retriever

Data Type	Download all or Query/Filter
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Detailed Description

Detailed Description

Readme instructions are available for the 3d segmentations. With regards to the naming structure, *S2-1.les: S2 means DCE-MRI sequence 2, lesion #1. Sometimes, there are multiple DCE-MRI sequences on TCIA data, and so the team used the sequence that corresponded to the one on which the radiologists annotated the truth.

Please reference these data extracted using version **V2010** of the UChicago MRI Quantitative Radiomics workstation.

Citations & Data Usage Policy

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Users of this data must abide by the Creative Commons Attribution 3.0 Unported License under which it has been published. Attribution should include references to the following citations:

Data Citation

Burnside E, Drukker K, Li H, Bonaccio E, Zuley M, Ganott M, Net JM, Sutton E, Brandt K, Whitman G, Conzen S, Lan L, Ji Y, Zhu Y, Jaffe C, Huang E, Freymann J, Kirby J, Morris EA, Giger ML. (2014). **Using Computer-extracted Image Phenotypes from Tumors on Breast MRI to Predict Stage.** The Cancer Imaging Archive. https://doi.org/10.7937/K9/TCIA.2014.8SIPIY6G

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. T**he Cancer Imaging Archive (TCIA): Maintaining and Operating a Public Information Repository**, Journal of Digital Imaging, Volume 26, Number 6, December, 2013, pp 1045-1057. DOI: https://doi.org/10.1007/s10278-013-9622-7

In addition to the dataset citation above, please be sure to cite the following if you utilize these data in your research:

Publication Citation

Guo W, Li H, Zhu Y, Lan L, Yang S, Drukker K, Morris E, Burnside E, Whitman G, Giger ML, Ji Y. (2015) **Prediction of clinical phenotypes in invasive breast carcinomas from the integration of radiomics and genomics data**. J Medical Imaging 2(4), 041007 (Oct-Dec 2015). doi: 10.1117/1.JMI.2.4.041007

Publication Citation

Burnside E, Drukker K, Li H, Bonaccio E, Zuley M, Ganott M, Net JM, Sutton E, Brandt K, Whitman G, Conzen S, Lan L, Ji Y, Zhu Y, Jaffe C, Huang E, Freymann J, Kirby J, Morris EA, Giger ML. (2016) **Using computer-extracted image phenotypes from tumors on breast MRI to predict breast cancer pathologic stage.** Cancer 122(5): 748-757 . DOI: 10.1002/cncr.29791

Publication Citation

Zhu Y, Li H, Guo W, Drukker K, Lan L, Giger ML*, Ji Y*: **Deciphering genomic underpinnings of quantitative MRI-based radiomic phenotypes of invasive breast carcinoma**. Nature – Scientific Reports 5:17787. doi: 10.1038/srep17787, 2015.

Publication Citation

Li H, Zhu Y, Burnside ES, Drukker K, Hoadley KA, Fan C, Conzen SD, Whitman GJ, Sutton EJ, Net JM, Ganott M, Huang E, Morris EA, Perou CM, Ji Y, Giger ML. (2016) **MR Imaging radiomics signatures for predicting the risk of breast cancer recurrence as given by research versions of gene assays of MammaPrint, Oncotype DX, and PAM50.** Radiology 281(2):382-391. doi: 10.1148/radiol.2016152110

Publication Citation

Li H, Zhu Y, Burnside ES, …. Perou CM, Ji Y, Giger ML: **Quantitative MRI radiomics in the prediction of molecular classifications of breast cancer subtypes in the TCGA/TCIA Dataset**. npj Breast Cancer (2016) 2, 16012; doi:10.1038/npjbcancer.2016.12; published online 11 May 2016.

Other Publications Using This Data

TCIA maintains a list of publications that leverage TCIA data. If you have a manuscript you'd like to add please contact the TCIA Helpdesk.

Versions

Version 1 (Current): 2018/09/04

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