



# **C\_NMC\_2019 Dataset: ALL Challenge dataset of ISBI 2019**

## Summary

Acute lymphoblastic leukemia (ALL) constitutes approximately 25% of the pediatric cancers. In general, the task of identifying immature leukemic blasts from normal cells under the microscope is challenging because morphologically the images of the two cells appear similar.

### Challenge is split into 3 separate phases:

- **Train set composition:**

Total subjects: 73, ALL (cancer): 47, Normal: 26

Total cell images: 10,661, ALL(cancer): 7272, Normal: 3389

- **Preliminary test set composition:**

Total subjects: 28, ALL (cancer): 13, Normal: 15

Total cell images: 1867, ALL(cancer): 1219, Normal: 648

- **Final test set composition:**

Total subjects: 17, ALL (cancer): 9, Normal: 8

Total cell images: 2586

### Additional Publications using this dataset:

- Anubha Gupta, Rahul Duggal, Shiv Gehlot, Ritu Gupta, Anvit Mangal, Lalit Kumar, Nisarg Thakkar, and Devprakash Satpathy, "GCTI-SN: Geometry-Inspired Chemical and Tissue Invariant Stain Normalization of Microscopic Medical Images," *Medical Image Analysis*, vol. 65, Oct 2020. DOI: <https://doi.org/10.1016/j.media.2020.101788>.
- Rahul Duggal, Anubha Gupta, Ritu Gupta, and Pramit Mallick, "SD-Layer: Stain Deconvolutional Layer for CNNs in Medical Microscopic Imaging," In: Descoteaux M., Maier-Hein L., Franz A., Jannin P., Collins D., Duchesne S. (eds) *Medical Image Computing and Computer-Assisted Intervention MICCAI 2017*, MICCAI 2017. Lecture Notes in Computer Science, Part III, LNCS 10435, pp. 435–443. Springer, Cham. DOI: [https://doi.org/10.1007/978-3-319-66179-7\\_50](https://doi.org/10.1007/978-3-319-66179-7_50).
- Rahul Duggal, Anubha Gupta, Ritu Gupta, Manya Wadhwa, and Chirag Ahuja, "Overlapping Cell Nuclei Segmentation in Microscopic Images Using Deep Belief Networks," *Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP)*, India, December 2016.


### Data Access

#### Data Access

Click the **Download** button to browse and download the data from Box.

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Images (BMP, CSV, PDF, 10.44 GB)

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### Detailed Description

## Detailed Description

Image Statistics	
Modalities	Pathology
Number of Participants	118
Number of Studies	118
Number of Images	15,135
Images Size (GB)	10.44

Please see the readme for a more detailed description of the dataset: [CNMC\\_readme.pdf](#)

### Citations & Data Usage Policy

## Citations & Data Usage Policy

Users of this data must abide by the [TCIA Data Usage Policy](#) and the [Creative Commons Attribution 3.0 Unported License](#) under which it has been published. Attribution should include references to the following citations:

#### Data Citation

"Gupta, A., & Gupta, R. (2019). ALL Challenge dataset of ISBI 2019 [Data set]. The Cancer Imaging Archive. <https://doi.org/10.7937/tcia.2019.dc64i46r>"

#### Publication Citation

- Shiv Gehlot, Anubha Gupta, and Ritu Gupta, "SDCT-AuxNet: DCT Augmented Stain Deconvolutional CNN with Auxiliary Classifier for Cancer Diagnosis," Medical Image Analysis, Elsevier, vol. 61, pp. 1-15, April 2020, DOI: <https://doi.org/10.1016/j.media.2020.101661>.
- Shubham Goswami, Suril Mehta, Dhruv Sahrawat, Anubha Gupta and Ritu Gupta, "Heterogeneity Loss to Handle Intersubject and Intrasubject Variability in Cancer", ICLR workshop on Affordable AI in healthcare, 2020. arXiv preprint arXiv:2003.03295.

### 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. **The 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: [10.1007/s10278-013-9622-7](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 the TCIA Helpdesk](#).

### Versions

#### **Version 1 (Current): Updated 2019/03/26**

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