

High-dimensional imaging of colorectal carcinoma and other tumors with 50+ markers (CRC_FFPE-CODEX_CellNeighs)

Summary

We have used CODEX to image 56 proteins simultaneously in 140 tissue regions from the tumor invasive front of 35 advanced-stage colorectal cancer (CRC) patients (17 patients with Crohn's-like reaction (CLR) - leading to high amount of tertiary lymphoid structures (TLS); and 18 patients with diffuse inflammatory infiltration (DII) and no TLS). These patients were selected from an initial cohort of 715 CRC patients. Patients with low-stage CRC (pTNM 0-2), pre-operative chemotherapy, insufficient material, and low immune infiltration were excluded. The 35 resulting patients were matched for age, sex and tumor characteristics. CLR patients had a much better survival compared to DII patients. We expect that making this dataset publicly available will stimulate broad research endeavors into the immune tumor microenvironment of colorectal cancer and allow computational scientists to discover new biomarkers and features. Further details on the study can be obtained in our paper here: [https://www.cell.com/cell/fulltext/S0092-8674\(20\)30870-9](https://www.cell.com/cell/fulltext/S0092-8674(20)30870-9)

Details on image acquisition and processing:

Automated imaging was performed on a Keyence BZ-X710 microscope using a CFI Plan Apo 20x/0.75 objective (Nikon), in high-resolution mode, with a lateral resolution of 377.44 nm/pixel. Processed images labeled with “montage” only have half of that resolution, resulting in a 4x smaller image size (used for stitching of large tissue microarrays).

Acknowledgement

This work would not have been possible without the support and efforts of many individuals and organizations.

- A complete list of acknowledgements can be found [here](#).

Data Access

Data Access

Data Type	Download all or Query/Filter
Tissue Slide Images (TIFF, 2.0TB)	Download
Clinical data (XLS, DOC)	Multi-tumor_TMA_composition.xlsx CRC_TMAs_patient_annotations.xlsx

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Detailed Description

Detailed Description

Image Statistics	
Modalities	Pathology
Number of Subjects	35
Number of Images	200
Images Size (TB)	2.0

High-dimensional CODEX images (hyperstacks of immunofluorescence images)

Citations & Data Usage Policy

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Data Citation

Schürch, C. M., Bhate, S., Barlow, G., Phillips, D., Noti, L., Zlobec, I., Chu, P., Black, S., Demeter, J., McIlwain, D., Samusik, N., Goltsev, Y., & Nolan, G. (2020). *High-dimensional imaging of colorectal carcinoma and other tumors with 50+ markers* [Data set]. The Cancer Imaging Archive. <https://doi.org/10.7937/TCIA.2020.FQN0-0326>

Publication Citation

Schürch et al., Coordinated Cellular Neighborhoods Orchestrate Antitumoral Immunity at the Colorectal Cancer Invasive Front, *Cell* (2020), <https://doi.org/10.1016/j.cell.2020.07.005>

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)

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Versions

Version 1 (Current): Updated 2020/08/05

Data Type	Download all or Query/Filter
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Clinical Data (XLS, DOC)	Multi-tumor_TMA_composition.xlsx
	CRC_TMAs_patient_annotations.xlsx