



3 ▼

Nov 29, 2021

Targeted Expansion Sequencing Protocols V.3

Anubhav Sinha^{1,2,3}, Yi Cui⁴, Shahar Alon^{1,5,3}, Fei Chen^{6,3},
Asmamaw T. Wassie^{1,7,3}, Ed Boyden^{8,1,7,9,10,11,3}

¹McGovern Institute, MIT; ²Harvard-MIT Program in Health Sciences and Technology;

³Human Tumor Atlas Pilot Project; ⁴Massachusetts Institute of Technology;

⁵Faculty of Engineering, Gonda Brain Research Center and Institute of Nanotechnology, Bar-Ilan University;

⁶Broad Institute of MIT and Harvard; ⁷Department of Biological Engineering, MIT;

⁸Department of Media Arts and Sciences, MIT; ⁹Koch Institute for Integrative Cancer Research, MIT;

¹⁰Howard Hughes Medical Institute; ¹¹Department of Brain and Cognitive Sciences

Ed Boyden: Corresponding author;

1



dx.doi.org/10.17504/protocols.io.b2e4qbgw

NCIHTAN



Anubhav Sinha

This protocol collection is shared under the [HTAN Internal Data and Materials Sharing Agreement](#) and is provided as is. See section 14 of full agreement for full details.

This protocol is shared as an Open Access protocol (under HTAN's definitions). This protocol is Subject to IP Restrictions.

This protocol collection accompanies [Expansion Sequencing](#) (ExSeq), covering the four key steps of a targeted Expansion Sequencing (targeted ExSeq) experiment: (1) Padlock probe design; (2) tissue preparation and expansion; (3) library preparation; and (4) *in situ* sequencing with the Illumina chemistry.

For further details, consult the relevant protocols within the collection. These protocols were used to profile human metastatic breast cancer biopsies as a part of the Human Tumor Atlas Pilot Project (HTAPP).

DOI

dx.doi.org/10.17504/protocols.io.b2e4qbgw

<https://pubmed.ncbi.nlm.nih.gov/33509999/>

Anubhav Sinha, Yi Cui, Shahar Alon, Fei Chen, Asmamaw T. Wassie, Ed Boyden
2021. Targeted Expansion Sequencing Protocols. **protocols.io**
<https://dx.doi.org/10.17504/protocols.io.b2e4qbgw>
Anubhav Sinha



in situ sequencing, expansion sequencing, targeted ExSeq, ExSeq, spatial transcriptomics, spatially resolved transcriptomics, spatial omics

collection ,

All images (c) Massachusetts Institute of Technology.

Nov 29, 2021

Nov 29, 2021

55484

See individual protocols for materials.

DISCLAIMER:









This protocol collection is shared under the [HTAN Internal Data and Materials Sharing Agreement](#) and is provided as is. See section 14 of full agreement for full details.

This protocol is shared as an Open Access protocol (under HTAN's definitions). This protocol is Subject to IP Restrictions.

This protocol collection accompanies [Expansion Sequencing](#) (ExSeq), covering the four key steps of a targeted Expansion Sequencing (targeted ExSeq) experiment: (1) Padlock probe design; (2) tissue preparation and expansion; (3) library preparation; and (4) *in situ* sequencing with the Illumina chemistry.

For further details, consult the relevant protocols within the collection. These protocols were used to profile human metastatic breast cancer biopsies as a part of the Human Tumor Atlas Pilot Project (HTAPP).

FILES

-  Targeted ExSeq -- Probe Generation
Version 2
by Anubhav Sinha
-  Targeted ExSeq -- Tissue Preparation
Version 2
by Anubhav Sinha
-  Targeted ExSeq -- Sequencing Library Preparation
Version 1
by Anubhav Sinha
-  Targeted ExSeq -- In Situ Sequencing (Illumina Chemistry)
Version 1
by Yi Cui, Massachusetts Institute of Technology