

Resource Summary Report

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DroNc-seq step-by-step

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Type: Protocol

Proper Citation

Anindita Basu, Inbal Avraham-Davidi, Naomi Habib, Aviv Regev, Feng Zhang, Karthik Shekhar, Matan Hofree, David Weitz, Orit Rozenblatt-Rosen, Tyler Burks, Sourav Choudhury, François Aguet, Ellen Gelfand, Kristin Ardlie 2018. DroNc-seq step-by-step. protocols.io dx.doi.org/10.17504/protocols.io.md2c28e

Protocol Information

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Group: Human Cell Atlas Method Development Community

Summary: Currently, most single cell protocols require the preparation of a single cell suspension from fresh tissue, a major roadblock to clinical deployment, to archived materials and to certain tissues such as adult brain. In the adult brain the harsh enzymatic dissociation harms the integrity of the cells and their RNA, and biases toward easily dissociated cell types, and is restricted to young animals. We developed DroNc-seq, a droplet microfluidic and DNA barcoding technique for analysis of RNA profiles of single nuclei from fresh, frozen or lightly fixed tissues at high throughput and low cost. The utility of DroNc-Seq lies in working with hard-to-dissociate, frozen and/or archived tissues. To demonstrate the utility of this technique, we sequenced over 39 thousand nuclei from mouse and human archived brain samples, including post-mortem human brain tissue from GTEx project.

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