



Feb 13, 2026

In vitro LDTIA of tumors based on MTS formation

DOI

<https://dx.doi.org/10.17504/protocols.io.j8nlk12kwwg5r/v1>

Guangli Suo¹

¹CAS Key Laboratory of Nano-Bio Interface, Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences, Jiangsu, 215123, China.

MTS



Guangli Suo

Create & collaborate more with a free account

Edit and publish protocols, collaborate in communities, share insights through comments, and track progress with run records.

Create free account

OPEN  ACCESS



DOI: <https://dx.doi.org/10.17504/protocols.io.j8nlk12kwwg5r/v1>

Protocol Citation: Guangli Suo 2026. In vitro LDTIA of tumors based on MTS formation. **protocols.io**

<https://dx.doi.org/10.17504/protocols.io.j8nlk12kwwg5r/v1>

License: This is an open access protocol distributed under the terms of the **[Creative Commons Attribution License](#)**, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited



Protocol status: Working

We use this protocol and it's working

Created: February 13, 2026

Last Modified: February 13, 2026

Protocol Integer ID: 243173

Keywords: ldtia of tumor, clinical brc tissue, brc tissue, proportion of csc, tumor, csc, vitro model

Funders Acknowledgements:

National Natural Science Foundation of China

Grant ID: 32470814

Abstract

A in vitro model for determining the proportion of CSCs in clinical BRC tissue.



- 1 Four microengineered MWC-chips with microwells of varying diameters (80µm, 50µm, 30µm, and 15µm) and uniform depth (40µm) were designed to accommodate approximately 100, 40, 10, and 1 tumor cells per microwell, respectively. Tumor tissues from clinical BRC patients were dissociated into single-cell suspensions by enzymatic digestion and seeded onto the four different-sized MWC-chips for MTS generation.
- 2 MFR was calculated from 108 microwells in one microscopic field as: $MFR = (\text{number of MTSs} / \text{total microwells}) \times 100\%$.
- 3 The CSC frequencies were determined following the previous reported method. Briefly, a table listing the number of microwells containing MTSs and the corresponding cell count per microwell for each chip type was prepared.
- 4 Data were input into the online tool at <http://bioinf.wehi.edu.au/software/elda/>, which outputs a table with the estimated tumor-initiating cell frequency and its 95% confidence interval, along with a log-fraction plot of the limiting dilution model showing cell number per well (x-axis) versus nonresponders.