Table S1. Index sequences of barcode.

Index	Sequence
barcode1	AGGCCAGAGCATTCGNNNNNNNN*
barcode2	CATCGGCGTACGACTNNNNNNNNATCCACGTGCTTGAG*
barcode3	NNNNNNNNGTGGCCGATGTTTCG*
index32	GTGGCCGATGTTTCGCATCGGCGTACGACT
index21	ATCCACGTGCTTGAGAGGCCAGAGCATTCG

*NNNNNNNN referred to indicator sequences.

Table S2. The sequence of PrimerList.

No.	Sequence
1	AGTCGTACGCCGATGCGAAACATCGGCCAC
2	CAGACGTGTGCTCTTCCGATCT
3	GTGGCCGATGTTTCGCATCGGCGTACGACT
4	CAAGCAGAAGACGGCATACGAGATGATCTGGTGACTGGAGTTCAGACGTGTGCTCT
5	CAAGCAGAAGACGGCATACGAGATTCAAGTGTGACTGGAGTTCAGACGTGTGCTCT
6	CAAGCAGAAGACGGCATACGAGATCTGATCGTGACTGGAGTTCAGACGTGTGCTCTT
7	CAAGCAGAAGACGGCATACGAGATAAGCTAGTGACTGGAGTTCAGACGTGTGCTCT
8	CAAGCAGAAGACGGCATACGAGATGTAGCCGTGACTGGAGTTCAGACGTGTGCTCT
9	CAAGCAGAAGACGGCATACGAGATTACAAGGTGACTGGAGTTCAGACGTGTGCTCT
10	CAAGCAGAAGACGGCATACGAGATTTGACTGTGACTGGAGTTCAGACGTGTGCTCT
11	CAAGCAGAAGACGGCATACGAGATGGAACTGTGACTGGAGTTCAGACGTGTGCTCT
12	AAGCAGTGGTATCAACGCAGAGT
13	AATGATACGGCGACCACCGAGATCTACACTAGATCGCTCGTCGGCAGCGTCAGATGT
14	AAGCAGTGGTATCAACGCAGAGTGAATGGG
15	CGAATGCTCTGGCCTCTCAAGCACGTGGAT
16	ATCCACGTGCTTGAGAGGCCAGAGCATTCG
17	GTGGCCGATGTTTCGCATCGGCGTACGACT
18	AGATCGGAAGAGCACACGTCTG
19	AGTCGTACGCCGATGCGAAACATCGGCCAC
20	AGATCGGAAGAGCACACGTCTGAACTCCAGTCACCAGATCATCTCGTATGCCGTCTT
21	AGATCGGAAGAGCACACGTCTGAACTCCAGTCACACTTGAATCTCGTATGCCGTCTT
22	AGATCGGAAGAGCACACGTCTGAACTCCAGTCACGATCAGATCTCGTATGCCGTCTT
23	AGATCGGAAGAGCACACGTCTGAACTCCAGTCACTAGCTTATCTCGTATGCCGTCTT
24	AGATCGGAAGAGCACACGTCTGAACTCCAGTCACGGCTACATCTCGTATGCCGTCTT
25	AGATCGGAAGAGCACACGTCTGAACTCCAGTCACCTTGTAATCTCGTATGCCGTCTT
26	AGATCGGAAGAGCACACGTCTGAACTCCAGTCACAGTCAAATCTCGTATGCCGTCTT
27	AGATCGGAAGAGCACACGTCTGAACTCCAGTCACAGTTCCATCTCGTATGCCGTCTT
28	ACTCTGCGTTGATACCACTGCTT
29	CTGTCTCTTATACACATCTGACGCTGCCGACGAGCGATCTAGTGTAGATCTCGGTGGT
30	CCCATTCACTCTGCGTTGATACCACTGCTT
31	ATCCACGTGCTTGAGAGGCCAGAGCATTCG

Table S3. The uniquely identified and mapped reads information in SCSit.

Sample	Identified reads				Mapped reads		
	Total no.	UMI and barcode identified	Abense barcode	Barcode with indel	Total no.	Consistent no.[1]	Unique no.[2]
SAMN0856726	7,142,680	6,529,228	37,968	575,484	5,924,198	5,551,723	372,475
SAMN0856726	22,079,78	20,035,54	112,125	1,932,12	17,661,502	16,587,344	1,074,15
SAMN0856725	20,440,16	19,084,79	104,712	1,250,65	16,127,622	15,014,861	1,112,76
SAMN0856726	83,743,89	81,971,15	94,533	1,678,20	63,095,029	62,454,583	640,446
SAMN0856726	86,777,52	84,999,60	99,277	1,678,65	62,799,705	62,037,223	762,482

[1]: Consistent was consistently identified reads using SCSit and original in uniquely mapped.

[2]: Unique was uniquely identified reads using SCSit in uniquely mapped.

Table S4. The identified reads number in SCSit with more than one mismatch and indel.

BioSample	Identified reads	Increased reads	Increased	Runtime (h)	Increased
SAMN0856726	59,729,025	2,895,697	5.10	0.88	41.94
SAMN0856726	170,496,465	6,715,843	4.10	2.48	30.53
SAMN0856726	170,944,621	7,441,637	4.55	2.48	25.25
SAMN0856725	154,181,681	5,758,512	3.88	2.47	32.09
SAMN0856726	166,753,060	6,495,821	4.05	2.67	24.19