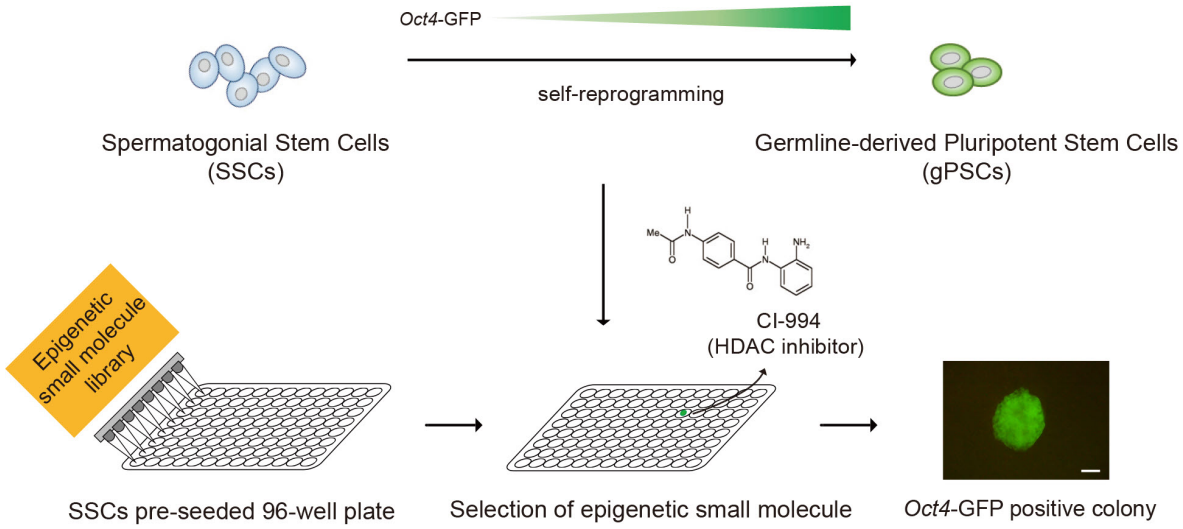

Fig. S1. Small molecule screening for induction of pluripotency in SSCs. Schematic diagram of small molecule screening using Oct4-GFP SSCs in 96-well plate. Oct4-GFP positive was generated in CI-994 treated well.

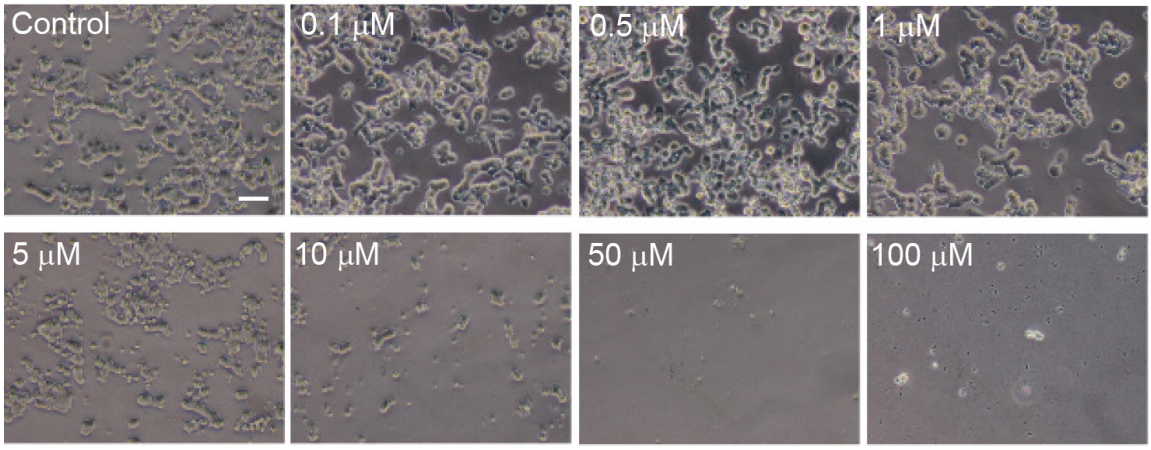

Fig. S2. Optimization of CI-994 concentration for SSC self-reprogramming. Morphologies of SSCs according to CI-994 concentration.

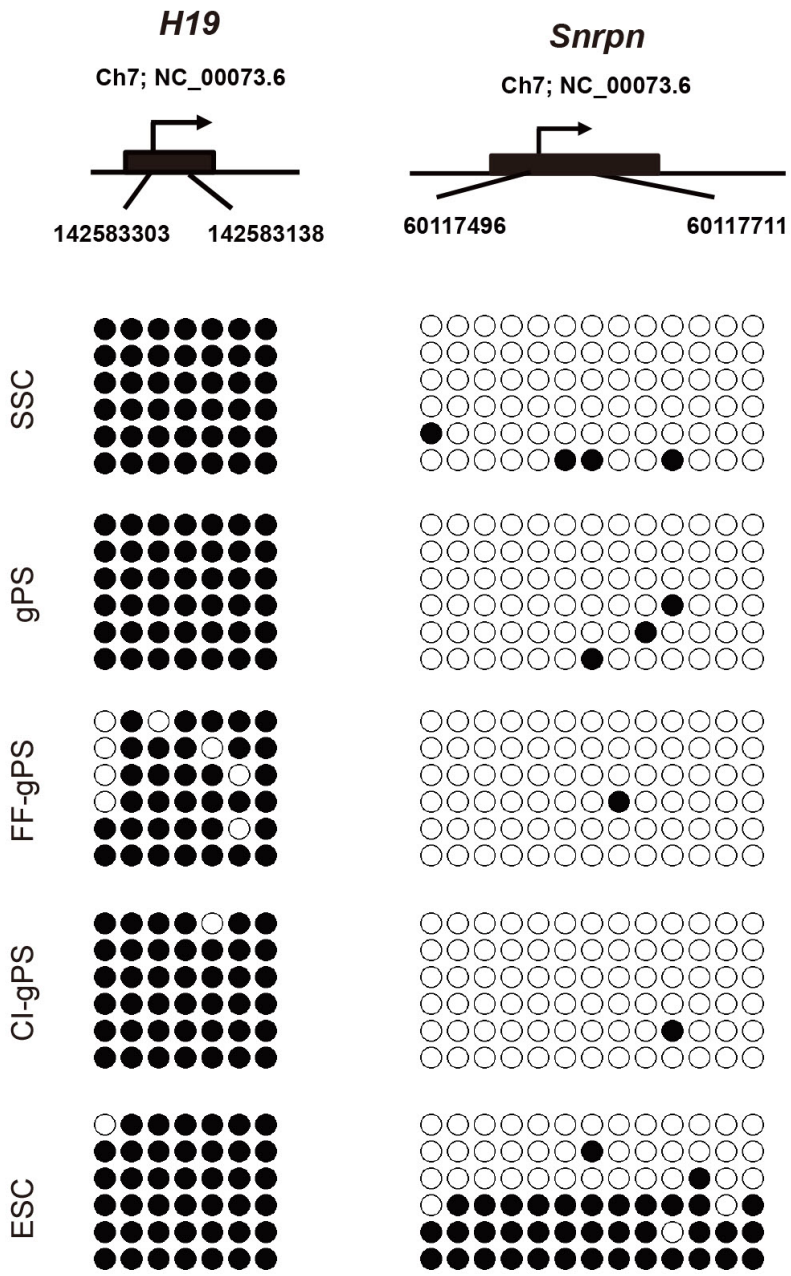

Fig. S3. Methylation status of the differentially methylated region of H19 and Snrpn in SSCs, gPSCs, FF-gPSCs, CI-gPSCs, and ESCs. DNA methylation was analyzed by bisulfite genomic sequencing. Open and filled circles indicate unmethylated and methylated CpGs, respectively.

Table S1. Epigenetic library for reprogramming of SSCs

No	Name	Function
1	Anacardic acid	HAT inhibitor
2	Butyrolactone 3	HAT inhibitor
3	CTPB	HAT inhibitor
4	Garcinol	HAT inhibitor
5	Apicidin	HDAC inhibitor
6	BML-210	HDAC inhibitor
7	CI-994	HDAC inhibitor
8	Fluoro-SAHA	HDAC inhibitor
9	MC-1293	HDAC inhibitor
10	M-344	HDAC inhibitor
11	NCH-51	HDAC inhibitor
12	NSC-3852	HDAC inhibitor
13	Oxamflatin	HDAC inhibitor
14	Phenylbutyrate NA	HDAC inhibitor
15	SAHA	HDAC inhibitor
16	Scriptaid	HDAC inhibitor
17	Suberoyl bis-hydroxamic acid	HDAC inhibitor
18	Trichostatin A	HDAC inhibitor
19	Valporic acid	HDAC inhibitor
20	Valporic acid hydroxamate	HDAC inhibitor
21	BML-281	HDAC6 inhibitor
22	Piceatannol	SIRT activator
23	Nicotineamide	SIRT inhibitor
24	Salermide	SIRT inhibitor
25	Sirtinol	SIRT inhibitor
26	Aminoreserveratrol sulfate	SIRT1 activator
27	Resveratrol	SIRT1 activator
28	Triacetylresveratrol	SIRT1 activator
29	BML-278	SIRT1 inhibitor
30	EX-527	SIRT1 inhibitor
31	Suramin 6Na	SIRT1 inhibitor
32	AGK2	SIRT2 inhibitor
33	B2	SIRT2 inhibitor
34	BML-266	SIRT2 inhibitor
35	Splitomicin	SIRT2 inhibitor
36	2,4-Pyridinedicarboxylic acid	Histone demethylase inhibitor
37	BIX-01294	Histone methyl transferase inhibitor
38	DZNep	Global histone methylation inhibitor
39	5-Aza-2′-deoxycytidine	DNA Me transferase inhibitor
40	Zebularine	DNA Me transferase inhibitor
41	Tranylcypromine hemisulfate	Lysine demethylase inhibitor
42	TTNPB	Activate retinoic acid receptor
43	Isonicotinamide	Nicotinamide antagonist
44	ITSA-1	Inhibitor of TSA activity
45	CHIR99021	GSK3ù inhibitor
46	E-616452	TGF-ù RI kinase inhibitor
47	Forskolin	Increase levels of cyclic AMP

Table S2. Primer for RT-PCR

Gene	Sequences (5′-3′)	Usage
Oct4	F-CTG AGG GCC AGG CAG GAG CAC GAG R-CTG TAG GGA GGG CTT CGG GCA CTT	RT-PCR
Nanog	F-AGG GTC TGC TAC TGA GAT GCT CTG R-CAA CCA CTG GTT TTT CTG CCA CCG	RT-PCR
Zfp57	F-ATC ACT TGT GCT GCC AAA GAC R-CTT CTC CTC CTG GAT TCC ATC	RT-PCR
Rex1	F-CAC CAT CCG GGA TGA AAG TGA GAT R-ACC AGA AAA TGT CGC TTT AGT TTC	RT-PCR
Utf1	F-CTC AAG GAC AAA CTC CGA GAC T R-AGA CTT CGT CGT GGA AGA ACT G	RT-PCR
Esg1	F-ATA AGC TTG ATC TCG TCT TCC R-CTT GCT AGG ATG TAA CAA AGC	RT-PCR
Fgf4	F-CAG CGA GGC GTG GTG AGC ATC TTC GGA R-CTT CTT GGT CCG CCC GTT CTT ACT GAG	RT-PCR
Eras	F-TCT GCG TGA CCA GTG CTT GGC R-TCT TCA GGC TAC AGA GCA GCC	RT-PCR
Cripto	F-ATG GAC GCA ACT GTG AAC ATG ATG TTC GCA R-CTT TGA GGT CCT GGT CCA TCA CGT GAC CAT	RT-PCR
β-actin	F-CGT GCG TGA CAT CAA AGA GAA GC R-ATC TGC TGG AAG GTG GAC AGT GAG	RT-PCR

F: forward primer, R: reverse primer.

Table S3. Antibodies for immunocytochemistry

Name	Source	Dilution
OCT4	Cell Signaling Technologies (Danvers, MA, USA)	1 : 200
SSEA1	Cell Signaling Technologies	1 : 200
TRA-1-100	Cell Signaling Technologies	1 : 200
NANOG	Cell Signaling Technologies	1 : 200
TRA-1-81	Cell Signaling Technologies	1 : 200
AFP	Research And Diagnostic Systems, Inc. (Minneapolis, MN, USA)	1 : 1,000
α-SMA	Research And Diagnostic Systems, Inc.	1 : 1,000
Tuj1	Sigma-Aldrich (St. Louis, MO, USA)	1 : 300
GFAP	DAKO (Carpinteria, CA, USA)	1 : 1,000
Anti-rabbit IgG Alexa Fluor 488	Life Technologies Corporation (Carlsbad, CA, USA)	1 : 1,000
Anti-mouse IgG Alexa Fluor 488	Molecular Probes, Inc. (Eugene, OR, USA)	1 : 1,000
Anti-mouse IgG Alexa Fluor 546	Life Technologies Corporation	1 : 1,000
DAPI	Sigma-Aldrich	1 : 1,000

Table S4. Primer for bisulfite sequencing

Gene	Sequences (5′-3′)
Oct4	F- GGG ATT TTT AGA TTG GGT TTA GAA AA
(1st)	R- CCA CCC TCT AAC CTT AAC CTC TAA C
Nanog	F- TTT GTA GGT GGG ATT AAT TGT GAA
(1st)	R- AAA AAA TTT TAA ACA ACA ACC AAA AA
H19	F- AGG TGT TTT AGT TTT ATG GAT GAT GG
(1st)	R- TCC TAT AAA TAT CCT ATT CCC AAA TAA CC
Snrpn	F- TAG GTT GTT TTT TGA GAG AAG
(1st)	R- AAA AAA ACT AAA ACC CCT ACA
Oct4	F- TGA GGA GTG GTT TTA GAA ATA ATT G
(2nd)	R- AAT CCT CTC ACC CCT ACC TTA AAT
Nanog	F- TTT GTA GGT GGG ATT AAT TGT GAA
(2nd)	R- AAA AAA ACA AAA CAC CAA CCA AAT
H19	F- TGG TAT TTT TAT GTA TAG TTA GGA TAG
(2nd)	R- AAA AAT TCT ATA ATC AAA ACC AAC
Snrpn	F- TAG AGG GAT AGA GAT TTT TGT ATT G
(2nd)	R- ACT AAA ATC CAC AAACCC AACTAA C

F: forward primer, R: reverse primer.

Table S5. HDAC inhibitor for CI-gPSC

No	Name	Function
1	Entinostat	HDAC inhibitor
2	MC1568	HDAC inhibitor
3	Givinostat	HDAC inhibitor
4	RGFP966	HDAC inhibitor
5	Tubastatin A	HDAC inhibitor
6	CUDC-101	HDAC inhibitor
7	Mocetinostat	HDAC inhibitor