

**Cell Fusion**

update June 11, 2020

No.	Author	Reference	PubMed ID	Fused cell	Application
1	K. Hiraoka <i>et al.</i>	<i>Journal of Immunology</i> , 173, 4297-4307 (2004).	15383558	Dendritic cells and B16BL6 melanoma cells	Cancer immunology
2	M. Okada <i>et al.</i>	<i>Mutation Research</i> , 562(1-2), 11-17 (2004).	15279826	Nornal human fibroblasts(G0/G1) and HeLa(M phase)	Premature chromosome condensation (PCC)
3	R. Okayasu <i>et al.</i>	<i>Radiation Research</i> , 165(1), 59-67 (2006).	16392963	Nornal human fibroblasts(G0/G1) and HeLa(M phase)	Premature chromosome condensation (PCC)
4	S. Yamaguchi <i>et al.</i>	<i>Chromosome Science</i> , 9, 65-73 (2006).		Microcell and HT1080 Microcell and hiMSC (immortalized human mesencymal stem cell)	Microcell mediated chromosome transfer
5	N. Uekawa <i>et al.</i>	<i>Hybridoma (Larchmt)</i> , 26(6), 381-385 (2007).	18158782	Rat lymph node cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal [Immunogen: recombinant TARSH-CH protein]
6	T. Nishioka <i>et al.</i>	<i>Immunol,Lett</i> , 121(2), 97-104 (2008).	18930767	Rat lymph node cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies
7	A. Inoue <i>et al.</i>	<i>Human Reproduction</i> , 23, 1377-1384 (2008).	18367455	Mouse enucleated oocyte and nucleus	GV transplantation
8	D. Matsuyama <i>et al.</i>	<i>Biosystems</i> , 92(3), 226-232 (2008).	18423847	Rat cardiac myocyte and Rat cardiac fibroblast	Analysis of cellular function
9	K. Riento <i>et al.</i>	<i>Journal of Cell Science</i> , 122, 912- 918 (2009).	19258392	HeLa	Analysis of cellular function
10	S. Yanai <i>et al.</i>	<i>Int. J. Oncol.</i> , 35(2), 249-255 (2009).	19578737	Dendritic cells and Meth A cells (BALB/c-derived fibrosarcoma)	Cancer immunology
11	M. Tachibana <i>et al.</i>	<i>Nature</i> , 461(7262), 367-372 (2009).	19710649	Macaca mulatta enucleated oocyte and nucleus	Mitochondrial gene replacement
12	D. M. Mattiske <i>et al.</i>	<i>Reproduction</i> , 137(4), 625-632 (2009).	19129368	Mouse enucleated oocyte and nucleus	Nuclear transfer
13	Y. Kato <i>et al.</i>	<i>Biochem. Biophys. Res. Commun.</i> , 390(3), 547-551 (2009).	19818334	Mouse spleen cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies [Immunogen: synthetic human IDH1R132H peptide]
14	R. Kaushik <i>et al.</i>	<i>Cell Host Microbe.</i> , 6, 68-80 (2009).	19616766	HeLa and Human primary monocyte	Analysis of cellular function
15	Y. Kato <i>et al.</i>	<i>Biochem. Biophys. Res. Commun.</i> , 391(1), 750-755 (2010).	19944071	Mouse spleen cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies [Immunogen: lacto-series gangliosides 30-isoLM1and 30,60-isoLD1]
16	A. Kunisato <i>et al.</i>	<i>Stem Cells Dev.</i> , 19(2), 229-238 (2010).	19558219	Mouse adult bone marrow mononuclear cells and Mouse ES cells Mouse embryonic fibroblasts (from Oct4-GFP transgenic mice) and Mouse ES cells	Reprogramming of somatic cells
17	XS.Yue <i>et al.</i>	<i>Biochem. Biophys. Res. Commun.</i> , 394(4), 1053-1057 (2010).	20338150	Mouse embryonic fibroblasts and Mouse ES cells	Reprogramming of somatic cells
18	L. Craven <i>et al.</i>	<i>Nature</i> , 465, 82-85 (2010).	20393463	Human zygotes	Pronuclear transfer
19	M.Tachibana <i>et al.</i>	<i>Nature Protocols</i> , 5(6), 1138-1147 (2010).	20539289	Macaca mulatta enucleated oocyte and nucleus	Mitochondrial gene replacement
20	H. Nakamura <i>et al.</i>	<i>Hybridoma (Larchmt)</i> , 29(1), 7-11 (2010).	20199145	Rat lymphoid cells(immunized) and Mouse myeloma cells P3U1	Preparation of monoclonal antibodies
21	K. Hasegawa <i>et al.</i>	<i>Stem Cells</i> . 28(8), 1338-1348 (2010).	20572011	Human Es cells and Human fibroblasts	Reprogramming of somatic cells
22	J. Nakata <i>et al.</i>	<i>Vet. Immunol. Immunopathol.</i> , 138(3), 231-234 (2010).	20739069	Mouse lymphoid cells(immunized) and mouse myeloma cells(P3X63Ag8.653)	Preparation of monoclonal antibodies [Immunogen:recombinant feline cystatin C]

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23	C. Liua <i>et al.</i>	<i>Radiat. Res.</i> , 174(5), 566-573 (2010).	20954858	Human fibroblasts	Premature chromosome condensation (PCC)
24	R. Metzela <i>et al.</i>	<i>FASEB J.</i> , 25(3), 830-839 (2011).	21059751	Human adipose tissue-derived stem cells and Neonatal rat cardiomyocytes	Analysis of cellular function
25	M K Kaneko <i>et al.</i>	<i>Biochem. Biophys. Res. Commun.</i> , 406(4), 608-613 (2011).	21352804	Mouse spleen cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies
26	A. Inoue <i>et al.</i>	<i>Biol. Reprod.</i> , 85, 70-77 (2011).	21415138	Mouse enucleated oocyte and nucleolus-like body (NLB)	GV transplataction
27	N. Ogonuki <i>et al.</i>	<i>J. Reprod. Dev.</i> , 57, 534-538 (2011).	21441713	Mouse oocyte and pronucleus	Pronuclear transfer
28	YH Song <i>et al.</i>	<i>Cell Cycle</i> , 10(14), 2281-2286 (2011).	21654195	Human adipose tissue-derived stem cells and rat cardiomyocytes	Analysis of cellular function
29	P. Comizzoli <i>et al.</i>	<i>Hum. Reprod.</i> , 26(8), 2165-2177 (2011).	21665874	Cat enucleated oocyte and GV karyoplast	GV transplataction
30	S. Noggle <i>et al.</i>	<i>Nature</i> , 478, 70-75 (2011).	21979046	Human oocyte and Human skin cell	Reprogramming of somatic cells
31	H. Nawata <i>et al.</i>	<i>PLoS One</i> , 6(9), e25319 (2011).	21980425	Microcell and Human embryonic cell(HE35)	Microcell-mediated chromosome transfer
32	H. Hayashi <i>et al.</i>	<i>FASEB J.</i> , 26(6), 2306-2317 (2012).	22355194	Mouse spleen cells(immunized) and mouse myeloma cells(X-63-Ag8.653)	Preparation of monoclonal antibodies
33	S. Takano <i>et al.</i>	<i>J. Neurooncol.</i> , 108(3), 361-373 (2012).	22396072	Mouse spleen cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies
34	HS. Lee <i>et al.</i>	<i>Cell Reports</i> 1(5), 506-515 (2012).	22701816	Rhesus monkey oocyte	Heteroplasmic oocytes
35	YW. Yang <i>et al.</i>	<i>Nucleic Acids Res.</i> , 40(19), e148 (2012).	22753025	Mitocytoplast(Mouse STO cell) and recipient cell(LL/2 rho0 cell)	Mitochondrial transfer
36	T. Shibata <i>et al.</i>	<i>Int. Immunol.</i> , 24(10), 613-623 (2012).	22836022	Mouse spleen cells(immunized) and mouse myeloma cells(SP2/O)	Preparation of monoclonal antibodies
37	C. Kaji <i>et al.</i>	<i>Acta. Histochem. Cytochem.</i> , 45(4), 227-237 (2012).	23012488	Rat spleen cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies
38	H. Moribe <i>et al.</i>	<i>PLoS Genet.</i> , 8(9), e1002957 (2012).	23028364	HT1080	Analysis of cellular function
39	Y. Isaji <i>et al.</i>	<i>J. Reprod. Dev.</i> , 59(2), 196-204 (2013).	23337102	Mouse enucleated oocyte and cumulus cell	Somatic cell nuclear transfer
40	M K Kaneko <i>et al.</i>	<i>Biochem. Biophys. Res. Commun.</i> , 432(1), 40-45 (2013).	23376717	Mouse spleen cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies
41	H. Watanabe <i>et al.</i>	<i>Hum. Reprod.</i> , 28(2), 531-537 (2013).	23136143	Mouse oocyte and pronucleus	Pronuclear transfer
42	Y. Fujii <i>et al.</i>	<i>Int. J. Radiat. Biol.</i> , 89(6), 401-410 (2013).	23363030	CHO and HeLa	Premature chromosome condensation (PCC)
43	R. Willett <i>et al.</i>	<i>Nat. Commun.</i> , 4, 1553 (2013).	23462996	Vero	Analysis of cellular function
44	K. Shien <i>et al.</i>	<i>Cancer Res.</i> , 73(10), 3051-3061 (2013).	23542356	HCC827 and HCC827-GR-high2	Analysis of cellular function
45	M. Tachibana <i>et al.</i>	<i>Nature</i> , 493 (7434), 627-631 (2013).	23103867	Human enucleated oocyte and nucleus	Spindle-chromosomal complex transfer
46	D. Paull <i>et al.</i>	<i>Nature</i> , 493 (7434), 632-637 (2013).	23254936	Human enucleated oocyte and nucleus	Nuclear genome transfer
47	C. Liu <i>et al.</i>	<i>J. Radiat. Res.</i> , 54 (6) 989-997 (2013).	23674607	Normal human skin fibroblasts(G0/G1) and HeLa(M phase)	Premature chromosome condensation (PCC)
48	NC Lee <i>et al.</i>	<i>Cell Mol. Life Sci.</i> , 70 (19), 3723-3737 (2013).	23677492	Microcell and HeLa	Microcell mediated chromosome transfer
49	M. Tachibana <i>et al.</i>	<i>Cell</i> , 153 (6), 1228-1238 (2013).	23683578	Human enucleated oocyte and Human dermal fibroblasts nuclei	Somatic cell nuclear transfer
50	MK. Paudel <i>et al.</i>	<i>J. Nat. Prod.</i> , 76 (9), 1654-1660 (2013).	23987562	Mouse spleen cells(immunized) and mouse myeloma cells(SP2/O-Ag14)	Preparation of monoclonal antibodies
51	G. Wu <i>et al.</i>	<i>Nature Cell Biol.</i> , 15, 1089-1097(2013).	23934214	MEFcell and Mouse enucleated oocyte	Somatic cell nuclear transfer
52	GD. Greggains <i>et al.</i>	<i>Scientific Reports</i> , 4, 3844 (2014).	24457623	Human enucleated oocyte and Human adult skin fibroblast, Human enucleated oocyte and Human amnion fibroblast / Human enucleated oocyte and nucleus	Somatic cell nuclear transfer / M II spindle transfer

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53	E. Kang <i>et al.</i>	<i>Nature</i> , 509 (7498), 101-104 (2014).	24670652	Mouse donor cell and Mouse enucleated blastomere	Somatic cell nuclear transfer
54	M. Yamada <i>et al.</i>	<i>Nature</i> , 510 (7506), 533-536 (2014).	24776804	Human enucleated oocyte and Human skin fibroblast(adult type 1 diabetic donor)	Somatic cell nuclear transfer
55	T. Wang <i>et al.</i>	<i>Cell</i> , 157 (7) , 1591-1604 (2014).	24949971	Mouse enucleated oocyte and Polar Body	Polar Body Genome Transfer
56	SK. Saka <i>et al.</i>	<i>Nature Communications</i> , 5, 4509 (2104).	25060237	COS7	Analysis of cellular function
57	Y. Kato <i>et al.</i>	<i>Scientific Reports</i> , 4, 5924 (2014).	25080943	Mouse spleen cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies
58	AV.Kononenko <i>et al.</i>	<i>Nucl. Acids Res.</i> , 42(21), e164 (2014) .	25260588	Microcell and UWB1.289 (human ovarian cancer cell line)	Microcell-mediated chromosome transfer
59	K.Wada <i>et al.</i>	<i>Biotechnology and Bioengineering</i> ,111(7),1464-1468 (2014).	24420735	CgNr3T3(expressing EGFP and H2B-mCherry) and Nr3T3(expressing H2B-mCherry), Mito3T3(expressing COX8a-EGFP) and Nr3T3 [using three kinds of NIH3T3-derived cells]	Cytoplasmic Transfer (including mitochondria transfer)
60	J. Neupanea <i>et al.</i>	<i>Mitochondrion</i> , 18, 27-33 (2014).	25229667	Mouse enucleated oocyte and The karyoplast [GV nucleus or MII oocytes (SCC) or zygote (two PN)]	Nuclear transfer
61	S. Matoba <i>et al.</i>	<i>Cell</i> , 159,(4), 884-895 (2014).	25417163	Mouse enucleated oocyte and cumulus cell	Somatic cell nuclear transfer
62	J. Li <i>et al.</i>	<i>Oncol. Lett.</i> , 8(1) 198-202 (2014).	24959245	B16F0 and B16F0a, DC and B16F0, Lymphocyte and B16F0	Analysis of cellular function
63	A. Poole <i>et al.</i>	<i>J.Cell Biochem.</i> , 115(5) 874-888 (2014).	24375433	Swiss 3T3 cells(FGF-primed) and Swiss 3T3 cells(naïve)	Analysis of cellular function
64	P. Reddy <i>et al.</i>	<i>Cell</i> , 159,(4), 884-895 (2014).	25910206	Human osteosarcoma cybrid cells and mature Human MII oocytes	Mitochondria transfer
65	H. Oki <i>et al.</i>	<i>Monoclon. Antib. Immunodiagn. Immunother.</i> , 34(1) 44-50 (2015).	25723283	Mouse spleen cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies
66	AV. Kononenko <i>et al.</i>	<i>Nucleic Acids Res.</i> , 43(9), e57 (2015).	25712097	Microcell and HeLa	Microcell-mediated chromosome transfer
67	Y.Takahashi <i>et al.</i>	<i>World J Stem Cells</i> . 7(5), 883-893 (2015).	26131319	Mouse skeletal muscle fibers and Mouse cardiomyocytes	Analysis of cellular function
68	Y. Tanaka <i>et al.</i>	<i>Retrovirology</i> , 12(56) (2015).	26129803	Rat spleen cells(immunized) and mouse myeloma cells(SP2/O)	Preparation of monoclonal antibodies
69	P. Quijada <i>et al.</i>	<i>Circ. Res.</i> , 117(8), 695-706 (2015).	26228030	Cardiac progenitor cell and Mesenchymal stem cell	Analysis of cellular function
70	J. Rosseels <i>et al.</i>	<i>J.Biol.Chem.</i> , 290(7) 4059-4074 (2015).	25540200	Mouse spleen cells(immunized) and mouse myeloma cells(SP2/O)	Preparation of monoclonal antibodies
71	M. Liskovkykh <i>et al.</i>	<i>Cell Cycle</i> , 14(8), 1268-1273 (2015).	25695642	Microcell and E14 mouse ES cells	Microcell-mediated chromosome transfer
72	M k Kaneko <i>et al.</i>	<i>Monoclon. Antib. Immunodiagn. Immunother.</i> , 34(5) 310-317 (2015).	26492618	Mouse spleen cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies
73	R. Honma <i>et al.</i>	<i>Monoclon. Antib. Immunodiagn. Immunother.</i> , 35(2) 65-72 (2016).	26977704	Mouse spleen cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies

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74	S. Markossian <i>et al.</i>	<i>Cell Cycle</i> ., 15(13) 1706-1714 (2016).	27104376	Microcell and U2OS cells	Microcell-mediated chromosome transfer
75	T. Mashiko <i>et al.</i>	<i>J. Biol. Chem.</i> , 291(29), 14996-15007 (2016).	27226551	NIH3T3 and HeLa, NIH3T3 and SH-SY5Y	Analysis of cellular function
76	A. Suetsugu <i>et al.</i>	<i>Anticancer Res.</i> , 36(8), 3827-3831(2016).	27466484	HT-1080-H2B-mCherry-GFP cells and HT-1080-H2B-GFP-RFP cells	Analysis of cellular function
77	K. Miyamoto <i>et al.</i>	<i>Biol. Open.</i> , 6(4), 415-424 (2017).	28412714	Mouse enucleated oocyte and cumulus cell	Somatic cell nuclear transfer
78	S. Itai <i>et al.</i>	<i>Monoclon Antib Immunodiagn Immunother</i> . 36(4), 143-148 (2017).	28700270	Mouse spleen cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies
79	S. Itai <i>et al.</i>	<i>Monoclon. Antib. Immunodiagn Immunother.</i> , 36(5), 214-219 (2017).	28891752	Mouse spleen cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies
80	S. Itai <i>et al.</i>	<i>Monoclon. Antib. Immunodiagn. Immunother</i> ., 36(5), 231-235 (2017).	28910211	Mouse spleen cells(immunized) and mouse myeloma cells(P3U1)	Preparation of monoclonal antibodies
81	K. Wada <i>et al.</i>	<i>Biol. Open</i> , 6(12) 1960-1965 (2017).	29092814	Mito3T3 and CrNr3T3, Ng3T3 and CrNr3T3, Mito143B and Crp0143B ,143B/TK-neoR and Nrp0143B (NIH3T3-derived cells)	mitochondria transfer
82	M. Yamada <i>et al.</i>	<i>Stem Cell Reports</i> , 8(3) 576-588 (2017).	28242217	Mouse enucleated oocyte and nucleus (Genome Exchange between oocyto from 6-8w and 12m mice)	Nuclear Transfer of Oocytes
83	G. Chia <i>et al.</i>	<i>Nature Cell Biology</i> 19, 282-291 (2017)	28263958	Human enucleated oocyte and somatic cell	Nuclear transfer
84	Z. Liu <i>et al.</i>	<i>Cell</i> , 172(4), 881-887 (2018).	29395327	Macaque Monkeys enucleated oocyte and cumulus cell	Somatic Cell Nuclear Transfer
85	R. Azuma <i>et al.</i>	<i>J. Vis. Exp.</i> , 134 (2018).	29757287	Mouse enucleated oocyte and cumulus cell	Somatic Cell Nuclear Transfer
86	T. Ban <i>et al.</i>	<i>Biochim. Biophys. Acta.</i> , 1859(9) 951-957 (2018).	29852142	HeLa (expressing mit-GFP) and HeLa(expressing mit-RFP)	Analysis of cellular function
87	T. Maruhashi <i>et al.</i>	<i>Nat. Immunol.</i> ,19(12) 1415-1426 (2018).	30349037	Mouse spleen cells(immunized) and mouse myeloma cells(SP2/o)	Preparation of monoclonal antibodies
88	Y. Li <i>et al.</i>	<i>Nature</i> , 564 (7734) 136-140 (2018).	30487604	Mouse enucleated oocyte and cumulus cell	Spindle transfer
89	T K. Maeda <i>et al.</i>	<i>J. Biol. Chem.</i> ,294(15) 6017-6026 (2019).	30760527	Mouse spleen cells(immunized) and mouse myeloma cells(SP2/o)	Preparation of monoclonal antibodies
90	A. Rössl <i>et al.</i>	<i>J. Biol. Chem.</i> , 294(16), 6227-6239 (2019).	30804216	Mouse spleen cells(immunized) and mouse myeloma cells(SP2/o)	Preparation of monoclonal antibodies
91	TL. Ryan <i>et al.</i>	<i>PLoS One.</i> , 14(5) e0216081(2019).	31059552	Lymphocyte(G0) and CHO (M phase)	Premature chromosome condensation (PCC)
92	N. Shimizu <i>et al.</i>	<i>BMC Mol. Cell Biol.</i> , 20(1) 2 (2019).	31041889	COLO 320DM (human colorectal carcinoma) and MEF COLO 320DM (human colorectal carcinoma) and CHO-K1 COLO 320DM (human colorectal carcinoma) and HeLa COLO 320DM (human colorectal carcinoma) and L929	Analysis of cellular function

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93	S. Morita <i>et al.</i>	<i>Cancer Lett.</i> , 461,144-152 (2019).	31325530	Mouse spleen cells(immunized) and mouse myeloma cells(SP2/o)	Preparation of monoclonal antibodies
94	M.Tang <i>et al.</i>	<i>Mol. Hum. Reprod.</i> , 25(12),797-810 (2019).	31651030	Mouse enucleated oocyte or zygote and karyoplast Human enucleated oocyte and second polar body(PB2)	Nuclear transfer
95	F.Firouzi <i>et al.</i>	<i>J. Am. Heart Assoc.</i> , 9(1), e013452 (2020).	31902324	Human c-kit <sup>+</sup> cardiac interstitial cells(-EGFP) and Human mesenchymal stem cells(-mCherry)	Analysis of cellular function

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