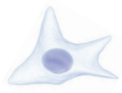


Neural stem cell research

www.invitrogen.com/stemcell/nsc



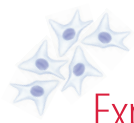
Characterization

Surface markers

Positive:		
AC133	NA	NA
Lex1	NA	NA
Negative:		
CD44	Mouse monoclonal antibody	MHCD4400
A2B5	Mouse monoclonal antibody	433110
PSN-CAM	NA	NA
Self renewal (cell proliferation)		
Ki67 antigen	Mouse monoclonal antibody	MHK16701
AlamarBlue® reagent	NA	DAL1025
Click-iT® EdU imaging kits	NA	C10337-C10339
Click-iT® EdU flow cytometry kits	NA	C35002, A10034, A10202
CyQUANT® assay	NA	C7026
CyQUANT® Direct assay	NA	C35011, C35012

Transcription factors and intracellular proteins

Sox1	NA	NA
Sox2	Rabbit polyclonal antibody	481400
Nestin	NA	NA
Musashi	NA	NA



Expansion

Complete medium

StemPro® NSC SFM	A1050901
------------------	----------

Basal media

KnockOut™ DMEM/F-12	12660012
DMEM/F-12	11330032
Neurobasal®	21103049
Neurobasal®-A	10888022

Supplements and growth factors

N-2 Supplement	17502048
B-27 Supplement	17504044
B-27 Supplement Minus Vitamin A	12587010
bFGF	13256029
EGF	PHG0314

Substrate

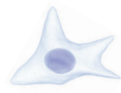
CELLstart™	A1014201
------------	----------

Basal media

DMEM	10567022, 10564011
DMEM/F-12	12660012

Supplements and growth factors

N-2 Supplement	17502048
B-27 Supplement	17504044
bFGF	13256029
EGF	PHG0314



Isolation

Pluripotent stem cells:

Embryonic stem cells (ESCs)
Embryonic carcinoma cells
Induced pluripotent stem cells (iPSCs)

Endogenous isolation:

Fetal brain—GIBCO® Rat Fetal Neural Stem Cells (Cat. No. N7744-100)
Fetal spinal cord
Adult brain biopsy
Cadavers

Applications

Developmental biology:
Cellular models in development
Cellular models in pathology

Tissue engineering:
Control over cell fate
Guide axonal growth

Disease modeling:
Cell lines carrying specific genetic alteration associated with the disease
Pathogen infectivity
Disease progression

Drug screening:
Pharmacological screens
Drug discovery
Toxicology

Therapeutic applications:
Cell replacement
Trophic support
Therapeutic vehicles

Differentiation

Basal media

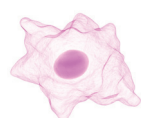
KnockOut™ DMEM/F-12	12660012
DMEM	10567022, 10564011
DMEM/F-12	12660012

Substrate

Poly-L-ornithine	NA
------------------	----

Supplements and growth factors

StemPro® Neural Supplement	A1050801
GlutaMax™	35050-061
PDGF-AA	PHG0035
bFGF	13256029



Astrocyte progenitors

Markers

A2B5	Mouse monoclonal antibody	433110
CD44	Mouse monoclonal antibody	MHCD4400

Basal medium

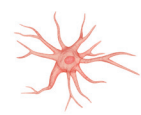
DMEM	10567022, 10564011
------	--------------------

Supplements and growth factors

StemPro® Neural Supplement	A1050801
LIF	A1050801
Fetal Bovine Serum	NA
EGF	PHG0314

Substrate

Geltrex™ matrix	12760021
-----------------	----------



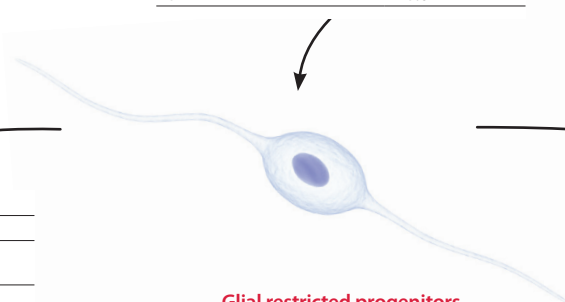
Astrocytes

Markers

Glial fibrillary acidic protein (GFAP)	Mouse monoclonal antibody	180021
--	---------------------------	--------

Cells

GIBCO® Rat Primary Cortical Astrocytes	N7745-100
--	-----------



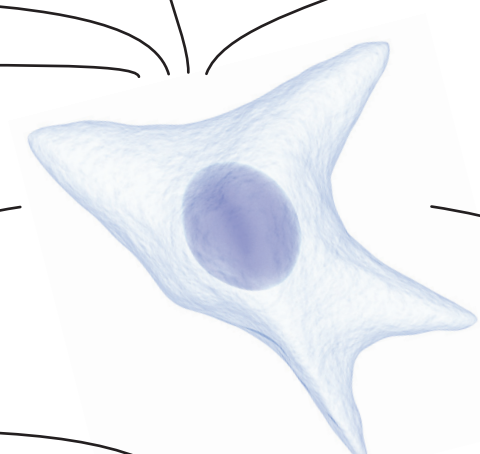
Glial restricted progenitors

Markers

A2B5	Mouse monoclonal antibody	433110
NG2	Mouse monoclonal antibody	372300

Cells

GIBCO® Rat Glial Precursor Cells	N7746-100
----------------------------------	-----------



Basal media

Neurobasal® Medium	21103049
DMEM/F-12	12660012

Supplements and growth factors

N-2 Supplement	17502048
B-27 Supplement	17504044
PDGF-AA	PHG0035
Thyroid hormone (T3)	NA



Oligodendrocyte progenitors

Markers

A2B5	Mouse monoclonal antibody	433110
NG2	Mouse monoclonal antibody	372300
Platelet-derived growth factor receptor α	PDGFRα	NA
Olig2	NA	NA

Basal medium

DMEM/F-12	12660012
-----------	----------

Supplements and growth factors

StemPro® Neural Supplement	A1050801
N-2 Supplement	17502048
NT-3	PHC7034
T3	NA

Substrate

Laminin	23017015
---------	----------



Oligodendrocytes

Markers

Olig1	Rabbit polyclonal antibody	428200
Olig2	NA	NA
Olig3	Rabbit polyclonal antibody	423600
Galactocerebroside	GalC	NA
O1	NA	NA
O4	NA	NA
Myelin basic protein (MBP)	Rabbit polyclonal antibody	180444

Basal media

Neurobasal® Medium	21103049
Neurobasal®-A Medium	10888022

Supplements and growth factors

B-27 Supplement	17504044
NT-3	PHC7034
NT-4	PHC7024
BDNF	10908010
GDNF	PHC7044



Neuronal progenitors

Markers

Polysialated NCAM	PSNCAM	NA
P75 neurotrophin receptor	NA	NA

Basal media

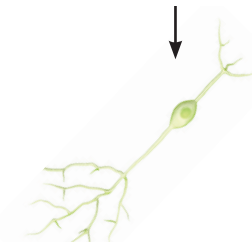
Neurobasal® Medium	21103049
Neurobasal®-A Medium	10888022

Supplements and growth factors

B-27 Supplement	17504044
bFGF	13256029
BDNF	10908010
GDNF	PHC7044

Substrate

Laminin	23017015
---------	----------



Neurons

Markers

Neural cell adhesion molecule (NCAM)	Mouse monoclonal antibody	MHCD5600
Microtubule-associated protein2 (MAP2)	Mouse monoclonal antibody	131500
Doublecortin (DCX)	Rabbit polyclonal antibody	481200
Beta III tubulin	Mouse monoclonal antibody	480011
RNA-binding protein HuC	Mouse monoclonal antibody, biotin conjugate	A21272
Neurofilament (NF)	Mouse monoclonal antibody	131000

Cells

GIBCO® Primary Rat Cortex Neurons	A1084001
GIBCO® Primary Rat Hippocampus Neurons	A1084101

References

CNS Neurol Disord Drug Targets 7:98 (2008)
Stem Cells 25:1298 (2007)

Stem Cells 25:781 (2005)
Hum Mol Genet 17:R67 (2008)
Nat Biotechnol 21:1200 (2003)