

Additional Table 1 Clinical potentials of cell-based therapies for SCI within the next decade.

Type of cells	Source of cells	Procedure	S-R&D	PP	References
OECs	Olfactory mucosa (OM)	<ol style="list-style-type: none"> 1. Surgical sampling of the OM. 2. Isolation and culture of OECs. 3. Midline incision, laminectomy, durotomy at the injury site for the transplantation. 4. Injection of the OECs suspension at different levels around the SCI injury. 	Clinical Trials Phase I/II	4	Féron et al., 2005; Mackay-Sim et al., 2008; Tabakow et al., 2013
Schwann cells (SCs)	Sural nerve	<ol style="list-style-type: none"> 1. Surgical harvesting of the Sural nerve from the calf. 2. Isolation and culture of SCs. 3. Midline incision, laminectomy, durotomy at the injury site for the transplantation. 4. Injection of the SCs suspension at different levels around the SCI. 	Clinical Trials Phase I	1	Saberi, 2011; Zhou et al., 2012
Immunomodulatory cells	Peripheral blood	<ol style="list-style-type: none"> 1. Harvesting of peripheral blood and dermis. 2. Isolation and culture of monocytes and <i>ex vivo</i> incubation with autologous dermis for autologous incubated macrophages induction. 3. Midline incision, laminectomy, durotomy at the injury site for the transplantation. 4. Injection of the cell suspension at different levels around the SCI (other immunomodulatory cells are to be tested). 	Clinical Trials Phase II	2	Lammertse et al., 2012
Mesenchymal stem cells (MSCs)	Bone marrow (BM), adipose tissue, umbilical cord	<ol style="list-style-type: none"> 1. Aspiration of BM, liposuction, harvesting of umbilical cord samples or cord blood and other less common methods, 2. Isolation and culture of MSCs. 3. Midline incision, laminectomy, durotomy at the injury site for the transplantation or minimally invasive microsurgical techniques or simple lumbar puncture. 4. Injection of the MSCs suspension at different levels around the SCI. 	Clinical Trials Phase I/II	3	Ra et al., 2011; Karamouzian et al., 2012; Dai et al., 2013; Mendonça et al., 2014
hESCs	Blastocyst	The exact methodology used has not been disclosed yet by the company.	Clinical Trial Phase I/IIa	7	Lebkowski, 2014; Asterias Biotherapeutics Inc., 2015
FSCs	Fetal central nervous system (CNS) tissue (brain, spinal cord)	The exact methodology used has not been disclosed yet by the companies.	Clinical Trial Phase I/II	8	NeuralStem Inc., 2015; StemCells Inc., 2015a, b
iPSCs	Fibroblasts (or blood, MSCs and other less common sources being explored)	<ol style="list-style-type: none"> 1. Pre-evaluated human induced pluripotent stem cell-derived neural stem/progenitor cells (hiPS-NS/PCs) derived from the safe human iPSC (hiPSC) clone, 201B7 cells were used for the transplantation. 2. The hiPSCs were cultured with a specific protocol to develop iPSC-derived primary neurospheres. 12 days later, the primary neurospheres were then passaged into secondary and tertiary neurospheres and used for transplantation. 3. A moderate contusive SCI was induced in 10 marmosets using a modified New York University (NYU) weight-drop device and approximately 1 million cells/5 µL in cell culture medium without added growth factors were injected into the lesion epicenter. Control animals received an injection of an equal volume of phosphate buffered saline (PBS) instead. 	Preclinical studies using non-human primates	9	Kobayashi et al., 2012

SCI: Spinal cord injury; S-R&D: stage of R&D bench, preclinical or clinical; PP: possible product within 10 years (1–10), 10 the strongest.