Supplementary Table S1. List of authorized cell therapy

|  |  |  |  |
| --- | --- | --- | --- |
| **Product name\*** | **Company** | **Approved in** | **First MA****(Year)** |
| Carticel | Genzyme Biosurgery  | US | 1997 |
| Chondron | Sewon Cellontech Co., Ltd. | Korea | 2001 |
| OrcelTM | Ortec International | US | 2001 |
| Holoderm | Tego Science, Inc. | Korea | 2002 |
| Kaloderm | Tego Science, Inc | Korea | 2005 |
| KeraHeal | Biosolution Co., Ltd. | Korea | 2006 |
| JACE | J-TEC | Japan | 2007 |
| Immuncell-LC | GC Cell Corp. | Korea | 2007 |
| RMS Ossron | Sewon Cellontech Co., Ltd. | Korea | 2009 |
| Queencell | Anterogen | Korea | 2010 |
| CureSkin | S-Biomedics Co., Ltd. | Korea | 2010 |
| PROVENGE | Dendreon Corporation | US | 2010 |
| LaViv | Fibrocell Science, Inc. | US | 2011 |
| Cellgram-AMI | Pharmicell Co., Ltd. | Korea | 2011 |
| Hemacord | New York Blood Center, Inc | US | 2011 |
| JACC | J-TEC  | Japan | 2012 |
| Cupistem | Anterogen | Korea | 2012 |
| Gintuit | Organogenesis, Inc. | US | 2012 |
| Cartistem | MEDIPOST Co., Ltd. | Korea | 2012 |
| Prochymal | Osiris | Canada, New Zealand | 2012 |
| HPC, Cord Blood | Clinimmune Labs, University of Colorado Cord Blood Bank | US | 2012 |
| DUCORD | Duke University School of Medicine | US | 2012 |
| ALLOCORD | SSM Cardinal Glennon Chidren’s Medical Center | US | 2013 |
| HPC, Cord Blood-LifeSouth | LifeSouth Community Blood Centers, Inc. | US | 2013 |
| Novocart 3D | B. Braun Medical | Switzerland | 2014 |
| NEURONATA-R | Corestem, Inc. | Korea | 2014 |
| Holoclar | Chiesi Farmaceutici S.p.A. | EU | 2015 |
| HeartSheet | Terumo Corporation, Ltd. | Japan | 2015 |
| KeraHeal-Allo | Biosolution Co., Ltd. | Korea | 2015 |
| Temcell | JCR Pharmaceuticals Co. Ltd. | Japan | 2015 |
| MACI | Vericel Corporation | US | 2016 |
| Stempeucel | Stempeutics Research | India | 2016 |
| HPC, Cord Blood-Bloodworks | Bloodwroks | US | 2016 |
| CLEVECORD | Clevecord Cord Blood Center | US | 2016 |
| CARTIGROW | RMS Regrow | India | 2017 |
| Chondrocytes–T–Ortho-ACI | Orthocell Pty. Ltd.  | Australia | 2017 |
| Spherox | CO.DON AG | EU, Switzerland | 2017 |
| APCEDEN | APAC Biotech | India | 2017 |
| Rosmir | Tego Science, Inc | Korea | 2017 |
| OSSGROW | RMS Regrow | India | 2017 |
| Stemiracl | Nipro Corporation | Japan | 2018 |
| Alofisel | Takeda Pharma | EU, Switzerland, Japan | 2018 |
| HPC, Cord Blood-MD aderson Cord Blood Bank | MD Anderson Cord Blood Bank | US | 2018 |
| CartiLife | Biosolution Co., Ltd. | Korea | 2019 |
| Nepic | J-TEC | Japan | 2020 |
| O’Curel | J-TEC | Japan | 2021 |
| Rethymic | Enzyvant Therapeutics GmhH | US | 2021 |

ACE, Autologous cultured epidermis; LC, Liver cancer; AMI, Acute myocardial infarction; MACI, Matrix-induced autologous chondrocyte implantation; ACC, Autologous cultured cartilage; HPC, Hematopoietic progenitor cells; ACI, Autologous chondrocyte implantation; Inc., Incorporated; Co., Ltd., Company, limited; J-TEC, Japan Tissue Engineering Company; GC, Great commitment; S.p.A., Società per azioni; RMS, Regenerative medical services; Pty Ltd., Proprietary limited; EU, European Union; US, United States; MA, Marketing authorization

\*As DERMAGRAFT, Transcyte, and Epicel are classified as medical device in the US, the products are excluded in the table

\*As STRATAGRAFT is classified as xenotransplantation and cell therapy in the US, the product is excluded in the table

Supplementary Table S2. List of authorized gene therapy

|  |  |  |  |
| --- | --- | --- | --- |
| **Product name** | **Company** | **Approved in** | **First MA****(Year)** |
| Vitravene | Isis Pharmaceuticals Inc. | US | 1998 |
| Gendicine | Shenzhen SiBiono GeneTech | China | 2003 |
| Oncorine | Shanghai Sunway Biotech | China | 2005 |
| Rexin-G | Epeius Biotechnologies | Philippine, EU | 2007 |
| Neovascullgen | Human Stem Cells Institute | Russia | 2011 |
| Kynamro | Genzyme | EU | 2013 |
| IMLYGIC | Amgen Inc. | US, EU | 2015 |
| Strimvelis | GSK Trading Services | EU | 2016 |
| Exondys 51 | Sarepta Therapeutics | US | 2016 |
| SPINRAZA | Biogen | US, EU, South Korea | 2016 |
| KYMRIAH | Novatis | US, EU, Japan, South Korea | 2017 |
| Yescarta | Kite Pharma Inc. | US, EU, Japan | 2017 |
| Luxturna | Spark Therapeutics | US, EU | 2017 |
| Tegsedi | Ionis Pharmaceuticals Inc. | US, EU, Canada | 2018 |
| Onpattro | Alnylampharms Inc. | US, EU | 2018 |
| Collategene | AnGes Inc. | Japan | 2019 |
| Zolgensma | AveXis Inc. | US. EU, Japan, South Korea | 2019 |
| Zynteglo | Blubird Bio | EU | 2019 |
| Waylivra | Ionis Pharmaceuticals, Akcea Therapeuticals, Anges MG | EU | 2019 |
| Tecartus | Kite Pharma Inc. | US | 2020 |
| Delytact | Daiichi Sankyo Co. Ltd. | Japan | 2020 |
| ABECMA | Celgene Corporation | US | 2021 |
| BREYANZI | Juno Therapeutics Inc., Bristol-Myers Squibb Company  | US, Japan | 2021 |

Inc., Incorporated; Co., Ltd., Company, limited; GSK, GlaxoSmithKline; EU, European Union; US, United States; MA, Marketing authorization