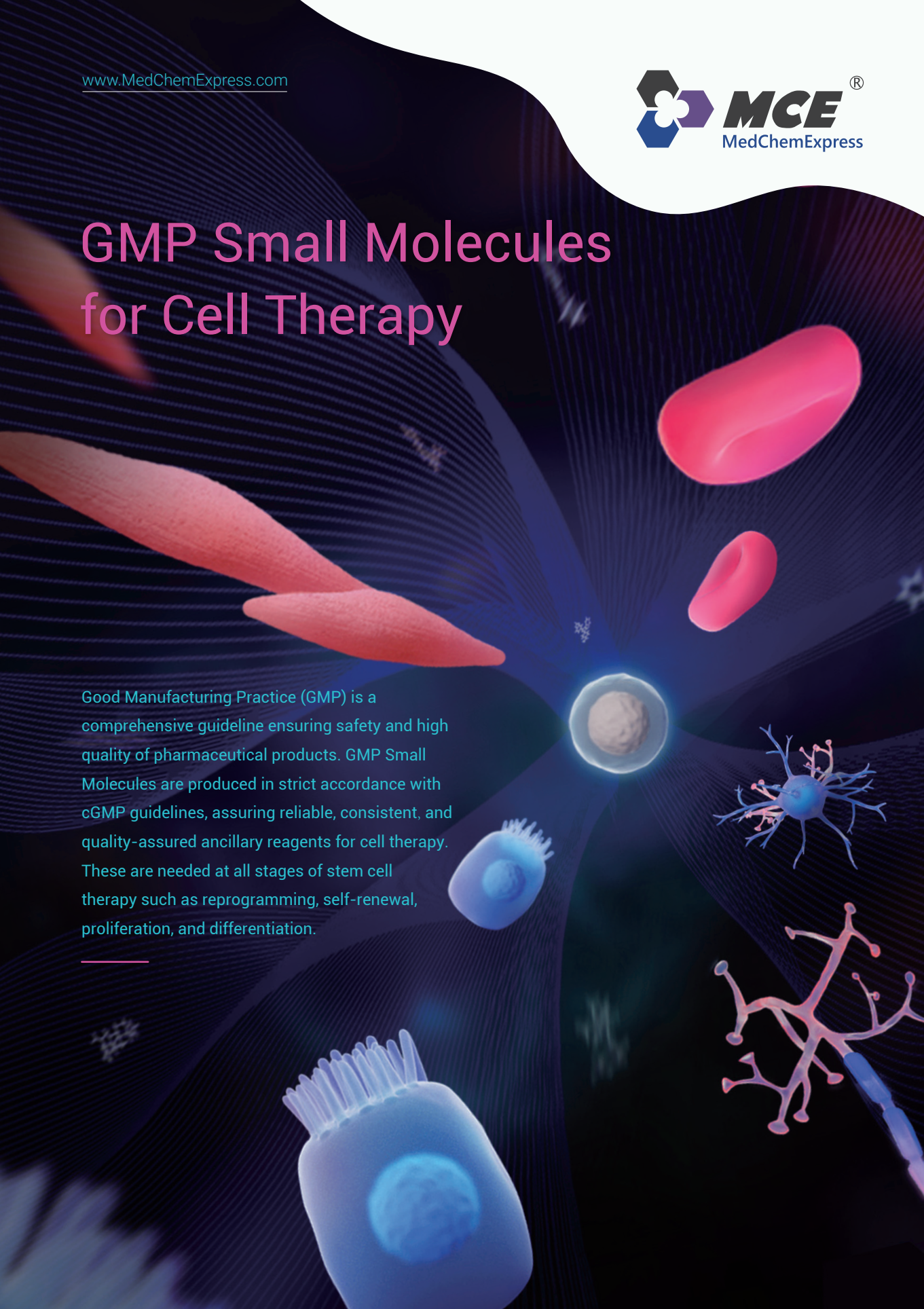


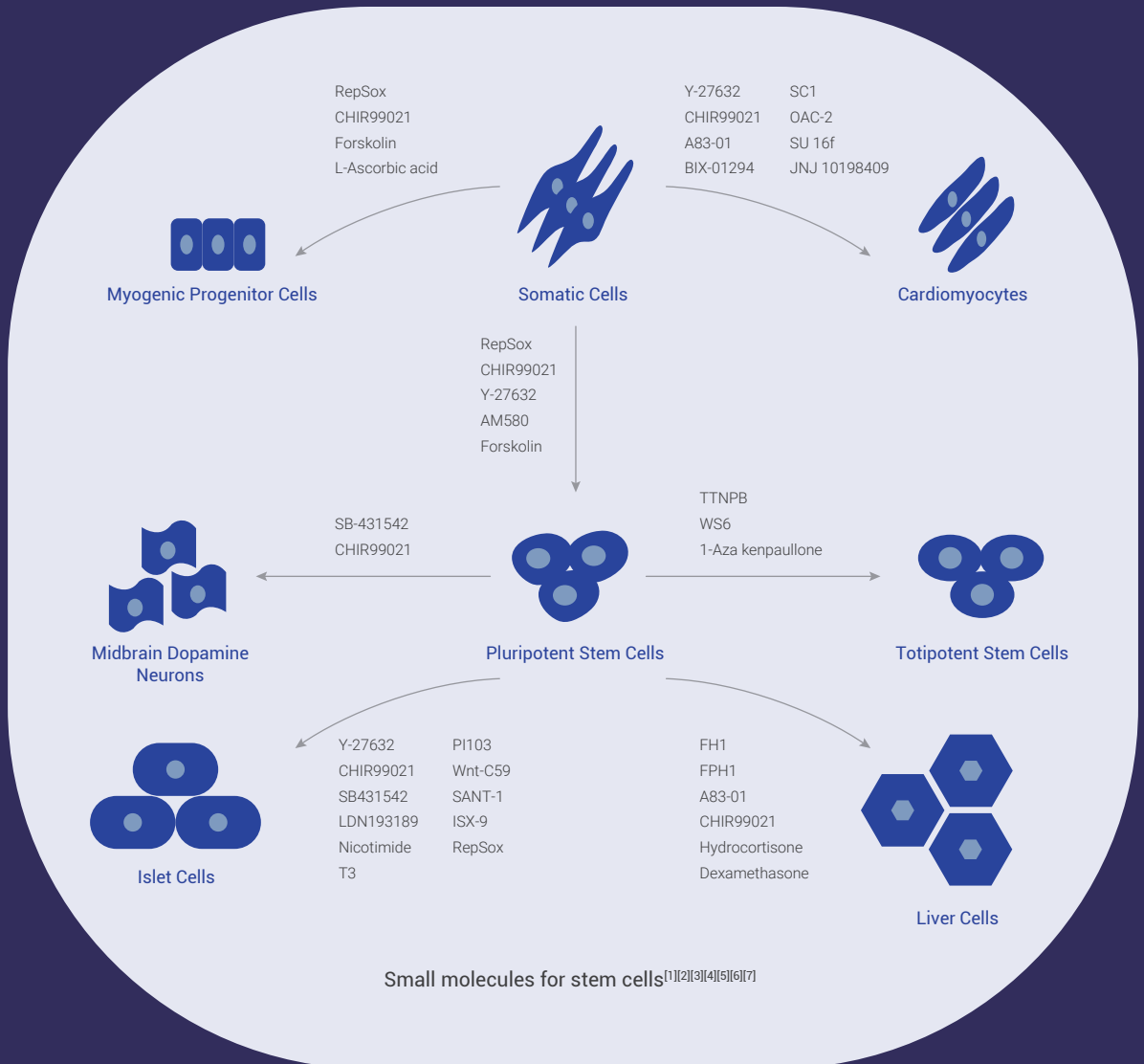
# GMP Small Molecules for Cell Therapy

Good Manufacturing Practice (GMP) is a comprehensive guideline ensuring safety and high quality of pharmaceutical products. GMP Small Molecules are produced in strict accordance with cGMP guidelines, assuring reliable, consistent, and quality-assured ancillary reagents for cell therapy. These are needed at all stages of stem cell therapy such as reprogramming, self-renewal, proliferation, and differentiation.

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## Stem Cells and Small Molecules



As raw materials in the stem cell therapy, small molecules are used in following operations:

1/ To introduce new, safe, and fast reprogramming technology<sup>[1][6]</sup>

2/ To maintain self-renewal, and potency of stem cells<sup>[9]</sup>

3/ To induce differentiation of stem cells<sup>[6]</sup>

4/ To trans-differentiate somatic cells into another functional cells<sup>[2]</sup>

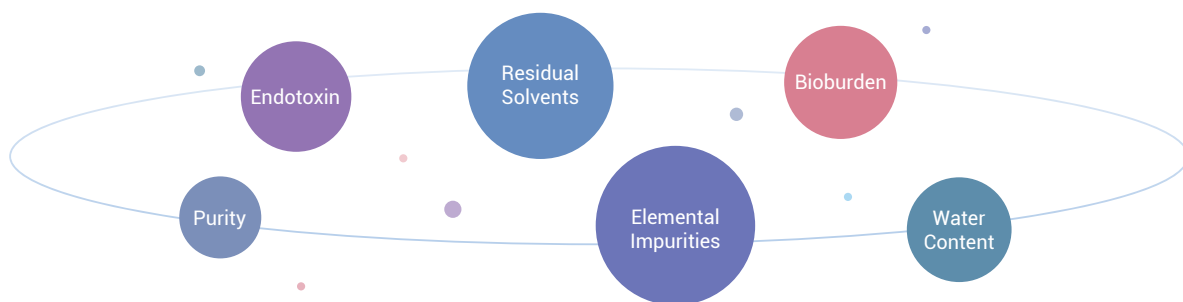
## Small Molecules as Ancillary Reagents for Stem Cell Therapy

Advantages of using small molecules in cell preparation for stem cell therapy:



## MCE Product Quality Assurance

The GMP Small Molecules are synthesized following ICH Q7 guidelines (Good Manufacturing Practice Guide for Active Pharmaceutical Ingredients). Each batch has strict QC tests, including:



## Ancillary Materials Features

To avoid any unnecessary cost and risk, MCE can provide GMP Small Molecules:



Drug name	Catalog	Function
<b>Laduviglusib (CHIR-99021)</b>	HY-10182G	Laduviglusib is a potent, orally active and selective GSK-3 $\alpha$ / $\beta$ inhibitor. Laduviglusib converts human fibroblasts into functional cardiomyocytes.
<b>Y-27632 dihydrochloride</b>	HY-10583G	Y-27632 dihydrochloride is an orally active and ATP-competitive ROCK inhibitor. Y-27632 dihydrochloride induces fibroblasts into pluripotent stem cells.
<b>XAV-939</b>	HY-15147G	XAV-939 is a tankyrase inhibitor. XAV-939 induces human pluripotent stem cells to post-mitotic cortical neurons differentiation.
<b>SB-431542</b>	HY-10431G	SB-431542 is a TGF- $\beta$ type I receptor inhibitor. SB-431542 promotes differentiation of human pluripotent stem cells to multipotent hematopoietic progenitors.
<b>LDN193189 (DM-3189)</b>	HY-12071G	LDN193189 is a selective BMP type I receptor inhibitor. LDN193189 induces the generation of glucose-responsive $\beta$ cells from human pluripotent stem cells.
<b>RepSox (E-616452)</b>	HY-13012G	RepSox is a potent and selective TGF- $\beta$ type I receptor inhibitor. RepSox induces MEFs reprogramming to chemically induced pluripotent stem cells.
<b>AM580</b>	HY-10475G	AM580 is a selective RAR $\alpha$ agonist. AM580 induces human iPSCs/ESCs into Nephrogenic Intermediate Mesoderm.
<b>Forskolin</b>	HY-15371G	Forskolin is a potent adenylate cyclase activator and intracellular cAMP formation inducer. Forskolin induces MEFs reprogramming to chemically induced pluripotent stem cells. Forskolin induces human iPSCs into hepatocytes and islets.

## References:

[1] Nature. 2022;605(7909):325-331.

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[3] Cell Stem Cell. 2021;28(2):343-355.e5.

[4] Nat Med. 2022 Feb;28(2):272-282.

[5] STAR Protoc. 2020 Oct 16;1(3):100130.

[6] Nature. 2022;10.1038/s41586-022-04967-9.

[7] Stem Cell Reports. 2018;10(5):1505-1521.

[8] Science. 2013, 341(6146):651-4.

[9] Cell Stem Cell. 2008;3(1):7-8.

**MedChemExpress Europe**

Tel: + 46 86500910

E-mail: eu.sales@MedChemExpress.com

Address: Bergkällavägen 37C, 192 79 Sollentuna, SWEDEN

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