Clinical Pharmacology
& Biopharmaceutics

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4UFN $FMM "QQSPBDIFT GPS 5SFBUNFOU PG

6DXUDEK $QDQG DQG .LPLQREX 6XJD\D

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Keywords:

metal ion's interaction with beta-amyloid, oxidative stress etc. [17-27]. Cholinesterase inhibitors and NMDA receptor antagonists provide symptomatic relief to patients but fail in curing the underlying disease [28]. e conventional drugs targeting A and tau failed in phase III

renewing state can be utilized for treatment of neurodegenerative diseases [84]. e list of such molecules utilized for maintaining pluripotency in laboratory is increasing, thus holding a lot of promise for these to be used in treatment of human diseases.

MS-818 as an Endogenous Stem Cell Proliferator

e currently available medications for neurodegenerative diseases only improve the symptoms and not treat the underlying disease. e fact that they show side e ects in patients undergoing treatment calls for further re nement in the process of drug development. Di erent compounds including neurotransmission enhancers, anti-in ammation molecules, antioxidants, neurotropic factors, hormones have been utilized for developing promising therapies for neurodegenerative diseases [85]. Interestingly, di erent disease conditions, stressors, and the process of aging itself are known to negatively a ect neurogenesis from endogenous NSCs highlighting the important roles played by endogenous factors [86]. So it is logical to target compounds resembling these factors for developing e ective therapies. Several growth factors, peptides, and neurotransmitters including bFGF, TGF-alpha, insulin-like growth factor-1, monoamine neurotransmitters, collagen peptides etc. have been shown to enhance neurogenesis [87-91]. However, their use as a pharmacological compound has always been limited by the stability and their ability to cross the BBB. is

apoptosis etc. It is also possible that MS-818 works through cytokine receptors, or through altering the gene expression.

Not only MS-818 but also any molecule that acts through any of the above mentioned mechanisms to proliferate the endogenous stem cell population could be a good candidate for a generalized stem cell proliferator to be utilized for treatment of neurodegenerative diseases. e studies performed in our laboratory show that MS-818 is highly permeable to the BBB and nontoxic even at very high dose. Our long-term goal is to develop oral pills of MS-818 as a stem cell proliferator. However, towards that goal its stability in highly acidic environment and adsorption in stomach have to be nailed down rst.

Conclusions

e absence of e ective treatment for neurodegenerative diseases put enormous monetary and emotional burden on the nation. A lot of progress has been made in the last few decades utilizing stem cell therapy and pharmacology towards that goal. Although these endeavors have be8.9(o)19.igrirom11(.)]TJ40.033 Tw Tdi(f e a)eureenahkls(o)1f olif 4.5(lge. A)-. ascentass,d pn. A l, alinici(. A)- l, 5.9(m)4(e)icini e

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