

1 **Name of Journal:** World Journal of Stem Cells

2

3 **Manuscript Type:** Minireview

4

5 (< 12 words)

6 **Title:** Protein factors in adipose-derived mesenchymal stem cell transplantation for liver
7 cirrhosis

8

9

10

11 *Nahar S et al.* Protein factors in cirrhosis treatment

12

13 **Author list**

14 Saifun Nahar¹, Yoshiki Nakashima^{2*}, Chika Miyagi-Shiohira², Takao Kinjo³, Zensei Toyoda³,
15 Naoya Kobayashi⁴, Issei Saitoh⁵, Masami Watanabe⁶, Hirofumi Noguchi^{2**}, and Jiro Fujita¹

16

17 **Affiliations**

18 ¹ Department of Infectious, Respiratory, and Digestive Medicine, Graduate School of Medicine,
19 University of the Ryukyus, Okinawa 903-0215, Japan

20 ² Department of Regenerative Medicine, Graduate School of Medicine, University of the
21 Ryukyus, Okinawa 903-0215, Japan

22 ³ Department of Basic Laboratory Sciences, School of Health Sciences in the Faculty of
23 Medicine, University of the Ryukyus, Okinawa 903-0215, Japan

24 ⁴ Okayama Saidaiji Hospital, Okayama 704-8192, Japan

25 ⁵ Division of Pediatric Dentistry, Graduate School of Medical and Dental Science, Niigata
26 University, Niigata 951-8514, Japan

27 ⁶ Department of Urology, Okayama University Graduate School of Medicine, Dentistry and
28 Pharmaceutical Sciences, Okayama 700-8558, Japan

29

30 **ORCID number:** Saifun Nahar (0000-0003-4696-617X), Yoshiki Nakashima (0000-0003-
31 1827-7609), Chika Miyagi-Shiohira (0000-0003-0061-585X), Takao Kinjo (0000-0002-5316-
32 4071), Zensei Toyoda (0000-0002-2667-0446), Naoya Kobayashi (0000-0003-2638-3102),
33 Issei Saitoh (0000-0002-7451-0666), Masami Watanabe (0000-0003-1268-1029), Hirofumi
34 Noguchi (0000-0002-0880-6805), and Jiro Fujita (0000-0003-3423-8343)

35

36 **Author contributions:** study design, SN, YN, CS, HN; study conduct, SN, YN, CS, HN; data
37 collection, SN, YN, CS, TK, ZT, HN; data analysis, SN, YN, CS, TK, ZT, HN; data
38 interpretation, SN, YN, CS, TK, ZT, HN; provision of materials, TM, NK, IS, MW, JF; drafting
39 of the manuscript, SN, YN, HN; revision of the content of the manuscript, SN, YN, HN;
40 approval of the final version of the manuscript, SN, YN, CS, TK, ZT, NK, IS, MW, JF, HN.
41 SN takes responsibility for the integrity of all of the data analyses.

42

43 **Supported by:** This work was supported by the Research Laboratory Center, Faculty of
44 Medicine, and the Institute for Animal Experiments, Faculty of Medicine, University of the
45 Ryukyus. This work was supported in part by the Japan Society for the Promotion of Science
46 (JSPS; KAKENHI Grant Number JP16H05404, JP16K10435, JP18K08545), Japan Agency
47 for Medical Research and Development, The Naito Foundation, and Okinawa Science and
48 Technology Promotion Center (OSTC).

49

50 **Institutional review board statement:**

51 Not applicable (this paper does not report clinical studies that required institutional review).

52

53 **Institutional animal care and use committee statement:**

54 All experimental protocols were performed according to the guidelines for the care and use of
55 laboratory animals set by Research Laboratory Center, Faculty of Medicine, and the Institute
56 of Animal Experiments, Faculty of Medicine, University of the Ryukyus (Okinawa, Japan).
57 The experimental protocol was approved by the Committee on Animal Experiments of
58 University of the Ryukyus (permit number: A2017101).

59

60 **Conflict-of-interest statement:**

61 According to the definitions of the World Journal of Stem Cells, the authors of this manuscript
62 have no conflicts of interest to disclose.

63

64 **Data sharing statement:**

65 Biostatistics Review Certificate: not applicable (no significant difference test was carried out
66 in this paper).

67

68 **ARRIVE guidelines statement:**

69 ARRIVE Guidelines have been adopted.

70

71 ***Correspondence to:**

72 Yoshiki Nakashima, DDS, PhD

73 Department of Regenerative Medicine

74 Graduate School of Medicine, University of the Ryukyus

75 207 Uehara, Nishihara-cho, Okinawa 903-0215, Japan

76 TEL: +81-98-895-1698; FAX: +81-98-895-1684

77 E-mail: nakasima@med.u-ryukyu.ac.jp

78

79 ****Correspondence to:**

80 Hirofumi Noguchi, MD, PhD

81 Department of Regenerative Medicine

82 Graduate School of Medicine, University of the Ryukyus

83 207 Uehara, Nishihara, Okinawa 903-0215, Japan.

84 Tel: +81-98-895-1696; Fax: +81-98-895-1684

85 E-mail: noguchih@med.u-ryukyu.ac.jp

86

87