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Manuscript Number: CDDIS-22-0638

Reporting Summary

Springer Nature wishes to improve the reproducibility of the work that we publish. This checklist is used to ensure good reporting standards and to improve the reproducibility. Please respond completely to all questions relevant to your manuscript. For more information, please read the journal’s Guide to Authors.

☐ Check here to confirm that the following information is available in the Material & Methods section:

- The exact sample size (n) for each experimental group/condition, given as a number, not a range
- A description of the sample collection allowing the reader to understand whether the samples represent technical or biological replicates (including how many animals, litters, culture, etc.)
- A statement of how many times the experiment shown was replicated in the laboratory
- Definitions of statistical methods and measures: For small sample sizes (n<5) descriptive statistics are not appropriate, instead plot individual data points
  - Very common tests, such as t-test, simple \( \chi^2 \) tests, Wilcoxon and Mann-Whitney tests, can be unambiguously identified by name only, but more complex techniques should be described in the methods section
  - Are tests one-sided or two-sided?
  - Are there adjustments for multiple comparisons?
  - Statistical test results, e.g., \( P \) values
  - Definition of ‘center values’ as median or mean;
  - Definition of error bars as s.d. or s.e.m. or c.i.

Please ensure that the answers to the following questions are reported in the manuscript itself. We encourage you to include a specific subsection in the methods section for statistics, reagents and animal models. Below, provide the page number or section and paragraph number.

Statistics and general methods

1. How was the sample size chosen to ensure adequate power to detect a pre-specified effect size? (Give section/paragraph or page #)
   
   For animal studies, include a statement about sample size estimate even if no statistical methods were used.

2. Describe inclusion/exclusion criteria if samples or animals were excluded from the analysis. Were the criteria pre-established? (Give section/paragraph or page #)
   
   No data were excluded from analysis.

3. If a method of randomization was used to determine how samples/animals were allocated to experimental groups and processed, describe it. (Give section/paragraph or page #)
   
   In Figure 2, the wild type mice were allocated into two groups randomly for miR-125b-5p knockdown or control treatment. In Figure 4, the wild type mice were allocated into two groups randomly for the infusion of miR-125b-5p overexpressing endothelial cells or control endothelial cells.

Reported in section/paragraph or page #

We chose the sample size of animal experiments according to similar studies in the field. We usually use at least 4 mice per group. For cell and biochemical experiments, our data represent at least three independent assays. The number of

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| Question                                                                 | Answer                                                                                                                                 |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 4. If the investigator was blinded to the group allocation during the    | Investigators were blinded during the data collection and analysis where possible. This included mice data collection, flow cytometry   |
| experiment and/or when assessing the outcome, state the extent of       | analysis, CFU count, etc. The quantification for immunofluorescence assays was performed blindly.                                      |
| blinding. (Give section/paragraph or page #)                           |                                                                                                                                          |
| For animal studies, include a statement about blinding even if no       | Investigators were blinded during the mouse data collection and analysis in Figure 2 and Figure 4.                                    |
| blinding was done.                                                     | Yes. A full description of the statistical parameters including means and variation (e.g., standard deviation) was indicated in each figure legend. |
| 5. For every figure, are statistical tests justified as appropriate?    | Yes, the data meet the assumptions of the test.                                                                                      |
| Do the data meet the assumptions of the tests (e.g., normal            | Yes.                                                                                                                                 |
| distribution)?                                                         | Yes. The variance is similar between the groups in each figure.                                                                     |
| Is there an estimate of variation within each group of data?            |                                                                                                                                          |
| Is the variance similar between the groups that are being statistically |                                                                                                                                          |
| compared? (Give section/paragraph or page #)                          |                                                                                                                                          |
| Reagents                                                               | Antibodies used in our study have been described in table S3.                                                                      |
| 6. Report the source of antibodies (vendor and catalog number)         | Human erythroleukemia K562 cells were purchased from National Infrastructure of Cell Line Resource. They were authenticated before    |
|                                                                       | distribution and tested for mycoplasma contamination.                                                                             |
| 7. Identify the source of cell lines and report if they were            |                                                                                                                                     |
| recently authenticated (e.g., by STR profiling) and tested for         |                                                                                                                                          |
| mycoplasma contamination                                               |                                                                                                                                          |
| Animal Models                                                          | 5-6 weeks age of ICR mice were used to address the                                                                                |
|                                                                       | Animal experiments were approved by the Beijing Medical Experimental Animal Care Commission (IACUC of AMMS-2014-036), and the     |
| 8. Report species, strain, sex and age of animals                      | procedures were in strict accordance with the Academy of Military Medical Sciences                                               |
|                                                                       | We recommend consulting the ARRIVE guidelines (PloS Biol. 8(6), e1000412, 2010) to ensure that other relevant aspects of animal      |
| 9. For experiments involving live vertebrates, include a statement of  | studies are adequately reported.                                                                                                    |
| compliance with ethical regulations and identify the committee(s)      |                                                                                                                                          |
| approving the experiments.                                             |                                                                                                                                          |
| 10. We recommend consulting the ARRIVE guidelines                      |                                                                                                                                          |
|                                                                       | (PloS Biol. 8(6), e1000412, 2010) to ensure that other relevant aspects of animal studies are adequately reported. |
### Human subjects

11. Identify the committee(s) approving the study protocol.
   - The Research Ethics Committee of Beijing Institute of Transfusion Medicine approved all the study protocol, which is indicated in Materials and Methods, call culture section.

12. Include a statement confirming that informed consent was obtained from all subjects.
   - Informed consent was obtained for experimentation with human subjects, which is indicated in Materials and Methods, call culture section.

13. For publication of patient photos, include a statement confirming that consent to publish was obtained.
   - N/A

14. Report the clinical trial registration number (at ClinicalTrials.gov or equivalent).
   - N/A

15. For phase II and III randomized controlled trials, please refer to the CONSORT statement and submit the CONSORT checklist with your submission.

16. For tumor marker prognostic studies, we recommend that you follow the REMARK reporting guidelines.

### Data deposition

17. Provide accession codes for deposited data.
   - Data deposition in a public repository is mandatory for:
     a. Protein, DNA and RNA sequences
     b. Macromolecular structures
     c. Crystallographic data for small molecules
     d. Microarray data
   - Deposition is strongly recommended for many other datasets for which structured public repositories exist; more details on our data policy are available in the Guide to Authors. We encourage the provision of other source data in supplementary information or in unstructured repositories such as Figshare and Dryad. We encourage publication of Data Descriptors (see Scientific Data) to maximize data reuse.

18. If computer code was used to generate results that are central to the paper’s conclusions, include a statement in the Methods section under “Code availability” to indicate whether and how the code can be accessed. Include version information as necessary and any restrictions on availability.
   - N/A