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Reporting Summary

Nature Research wishes to improve the reproducibility of the work that we publish. This form provides structure for consistency and transparency in reporting. For further information on Nature Research policies, see our Editorial Policies and the Editorial Policy Checklist.

Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

n/a	Confirmed	
☐	☒	The exact sample size (*n*) for each experimental group/condition, given as a discrete number and unit of measurement
☐	☒	A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
☒	☐	The statistical test(s) used AND whether they are one- or two-sided *Only common tests should be described solely by name; describe more complex techniques in the Methods section.*
☒	☐	A description of all covariates tested
☒	☐	A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
☐	☒	A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals)
☒	☐	For null hypothesis testing, the test statistic (e.g. *F*, *t*, *r*) with confidence intervals, effect sizes, degrees of freedom and *P* value noted *Give P values as exact values whenever suitable.*
☒	☐	For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
☒	☐	For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
☒	☐	Estimates of effect sizes (e.g. Cohen's *d*, Pearson's *r*), indicating how they were calculated

Our web collection on statistics for biologists contains articles on many of the points above.

Software and code

Policy information about availability of computer code

Data collection	ABI PRISM 3730 genetic analyzer, Gene Marker 2.2.0, Olympus VS120, GraphPad Prism 9, ImageJ2/FIJI.
Data analysis	ABI PRISM 3730 genetic analyzer and program Gene Marker 2.2.0 were used to obtain the result of short tandem repeat. Olympus VS120 was used to acquire images. GraphPad Prism 9 was used to statistical analyses. ImageJ2/FIJI was used to the quantification of the calcification level and thickness of placentas.

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Research guidelines for submitting code & software for further information.

Data

Policy information about availability of data

All manuscripts must include a data availability statement. This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A list of figures that have associated raw data
- A description of any restrictions on data availability

All data are available in the manuscript or the supplementary materials.

Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☒ Life sciences ☐ Behavioural & social sciences ☐ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see nature.com/documents/nr-reporting-summary-flat.pdf

Life sciences study design

All studies must disclose on these points even when the disclosure is negative.

Sample size	For placenta examination, at least 3 placentas for each group and the only one placenta of cloned rhesus monkey was determined. For somatic cell nuclear transfer and trophoblast replacement, at least 200 embryos was initially proposed.
Data exclusions	No data were excluded from the analysis.
Replication	We randomly selected 3 full-term ICSI placentas and 4 late-stage aborted SCNT placentas, plus 5 previously reported full-term SCNT placentas and the one full-term SCNT placenta that derived from blastocyst reconstruction. For calculating the thickness of placentas, data were collected from 3 full-term ICSI placentas and 3 late-stage aborted SCNT placentas, plus 5 previously reported full-term SCNT placentas and the only one full-term SCNT placenta that derived from blastocyst reconstruction. The blastocyst reconstruction was replicated for 5 times.
Randomization	All samples used in this study were selected randomly.
Blinding	The investigators were blinded to group allocation during STR and mitochondrial analyses. The investigators were not blinded while performing placenta examination as the threshold and quantification pipeline were constant.

Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

Materials & experimental systems

n/a	Involved in the study
☒	☐ Antibodies
☐	☒ Eukaryotic cell lines
☒	☐ Palaeontology and archaeology
☐	☒ Animals and other organisms
☒	☐ Human research participants
☒	☐ Clinical data
☒	☐ Dual use research of concern

Methods

n/a	Involved in the study
☒	☐ ChIP-seq
☒	☐ Flow cytometry
☒	☐ MRI-based neuroimaging

Eukaryotic cell lines

Policy information about cell lines

Cell line source(s)	The fibroblast donor cell line were generated in our lab as described in Methods.
Authentication	None of the cell lines used were authenticated.
Mycoplasma contamination	We confirm that the cell line used in this study tested negative for mycoplasma contamination
Commonly misidentified lines (See ICLAC register)	No commonly misidentified cell lines were used.

Animals and other organisms

Policy information about studies involving animals; ARRIVE guidelines recommended for reporting animal research

Laboratory animals	Macaca fascicularis; Macaca mulatta
Wild animals	The study did not involve wild animals.

Field-collected samples	The study did not involve samples collected from field.
Ethics oversight	Shanghai Institute of Biological Science, Chinese Academy of Sciences; Institute of Neuroscience, CAS Center for Excellence in Brain Science and Intelligence Technology, Shanghai, China.

Note that full information on the approval of the study protocol must also be provided in the manuscript.