

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 [Authors & Referees](#) 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 MBF Biosciences Neurolucida, Leica LASAF, ImageJ

Data analysis MBF Biosciences Neurolucida, ImageJ, GraphPad Prism, R

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/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

Raw RNA-seq data (fastq files) are available at Sequence Read Archive (SRA), accession number PRJNA530977. The authors declare that the data supporting the findings of this study are available within the paper and its supplementary information files.

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

Life sciences study design

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

| | |
|-----------------|---|
| Sample size | We initially assessed the variance of each cell population quantified within four age groups: gestation (20 GW to 39 GW; n=10), infancy (term to 1 year; n = 14), childhood and adolescence (2 to 19 years; n = 7), and adulthood (24 to 78 years; n = 9). These data were used to conduct power analyses which guided section sampling frequency and total numbers of cells evaluated for marker expression. |
| Data exclusions | No data were excluded. |
| Replication | Experiments were repeated at minimum in technical triplicate; all attempts at replication were successful. |
| Randomization | The tissue samples at each age were not allocated into experimental groups, so randomization did not apply. |
| Blinding | Investigators were blinded to the age of the tissue sample during image collection and during quantification. |

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 | Included in the study |
|-------------------------------------|--|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> Antibodies |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Eukaryotic cell lines |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Palaeontology |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Animals and other organisms |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Human research participants |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Clinical data |

Methods

| n/a | Included in the study |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> ChIP-seq |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Flow cytometry |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> MRI-based neuroimaging |

Antibodies

Antibodies used

Antigen Manufacturer Cat. No. Lot No.
 ALDH1L1 NeuroMab N103/39 N103/31
 BCL2 Santa Cruz Biotech sc-7382 (C-2) K1218
 BLBP EMD Millipore ABN14 2299161
 BLBP Abcam ab131137 AT1D1
 Calbindin Swant CB-38a 9.03
 Calretinin Swant 6B3 7699/4
 CoupTFII R&D Systems PP-H7147-00 A-2
 Doublecortin Cell Signaling 4604S 42798
 Doublecortin EMD Millipore AB2253 2787730
 GFAP Abcam ab4674 GR267558-1
 Iba1 Wako 019-1974 LKJ2979
 Ki-67 BD Pharmingen 556003 6110925
 Ki-67 Novocastra NCL-Ki67p 6029714
 Ki-67 Vector Labs VP-K451 6013873
 MAP2 Abcam ab5392 GR286806-6
 Nestin Covance MMS-570p 14683401
 NeuN EMD Millipore ABN91 2620673
 NeuN Novus Biologicals R-3770-100 201605-SH
 Neurofilament Abcam ab24574 GR191433-7
 NKX2.1 Santa Cruz Biotech sc-13040 (H-190) B2216
 nNOS EMD Millipore AB5380 2519293
 NPY Abcam ab30914 GR212905-1
 OLIG2 EMD Millipore AB9610 2519344
 PROX1 EMD Millipore AB5475 LV1354325
 PROX1 R&D Systems AF2727 VIY0216011
 PSA-NCAM EMD Millipore MAB5324 2201402
 ROBO1 Santa Cruz Biotech sc-293444 D2817
 SCGN Sigma-Aldrich HPA006641 A106808
 SOX2 Santa Cruz Biotech sc-17320 (Y-17) H2914
 SOX2 Cell Signaling 2748S 2

Validation

SOX11 EMD Millipore AB5776 3054693
 SP8 Santa Cruz Biotech sc-104661 (C-18) G0516
 SST Santa Cruz Biotech sc-7819 (D-20) G0716
 TBR1 EMD Millipore AB2261 2893188
 TUJ1 Covance MMS-435P TU1
 VGLUT2 EMD Millipore AB5907 2894024
 Vimentin Sigma-Aldrich V5255 045K4826

Antigen Manufacturer Specificity Description
 ALDH1L1 Human reactivity
 BCL2 Raised against human Bcl-2
 BLBP Human reactivity predicted based on sequence
 BLBP Human reactivity
 Calbindin Human reactivity
 Calretinin Human reactivity
 CoupTFII Raised against human COUPTFII
 Doublecortin Human reactivity
 Doublecortin Human reactivity predicted based on sequence
 GFAP Human reactivity
 Iba1 Reactivity to human Iba1
 Ki-67 QC resting: human
 Ki-67 Specificity: human Ki-67
 Ki-67 Specificity: human Ki-67
 MAP2 Human reactivity
 Nestin Human reactivity
 NeuN Human reactivity
 NeuN Raised against human FOX3
 Neurofilament Human reactivity
 NKX2.1 Raised against human NKX2.1
 nNOS Raised against human nNOS
 NPY Human reactivity
 OLIG2 Human reactivity
 PROX1 Human reactivity
 PROX1 Human reactivity
 PSA-NCAM Human reactivity
 ROBO1 Raised against human ROBO1
 SCGN Human reactivity
 SOX2 Reactivity to human SOX2
 SOX2 Reactivity to human SOX2
 SOX11 Human reactivity
 SP8 Human reactivity
 SST Human reactivity
 TBR1 Human reactivity
 TUJ1 Human reactivity
 VGLUT2 Rat (protein seq. 98% identical to human)
 Vimentin Tested in human appendix/ tonsil

Conditions of use for each antibody was validated by the manufacturer. We evaluated each antibody by comparison to no primary antibody (negative) controls, comparison to (often enriched) expression in human gestational tissue, and comparison to rodent staining patterns.