

Dataset Metadata Publication Through



EZID

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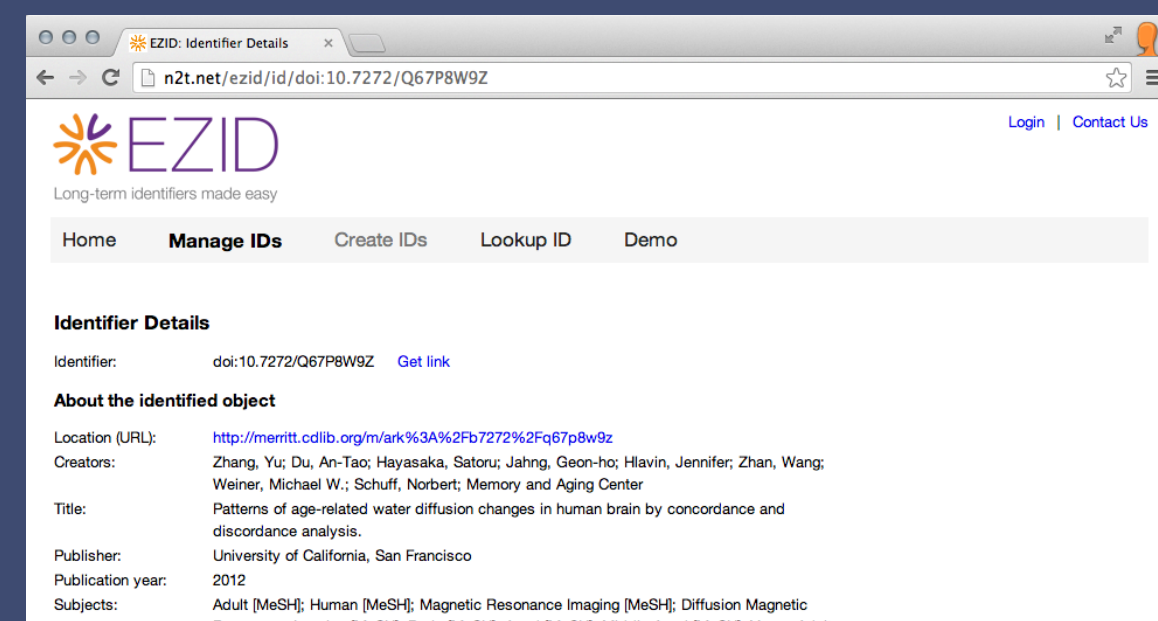
Goal

- Improve dataset discoverability and reuseability by publishing lightweight data papers

Principles

- **Cheap:** no extra effort from dataset authors required
- **Flexible:** authors have the option of putting in effort to get a better paper
- **Discoverable:** expose dataset metadata fully for indexing

User creates identifier for dataset



EZID issues identifier

doi:10.7272/Q67P8W9Z

Identifier metadata automatically formatted as a publication

Optionally, identifier resolves to the publication

Search engines index publication...

...making publication and dataset discoverable

Patterns of age-related water diffusion changes in human brain by concordance and discordance analysis.

Zhang, Yu; Du, An-Tao; Hayasaka, Satoru; Jahng, Geon-ho; Hlavin, Jennifer; Zhan, Wang; Weiner, Michael W.; Schuff, Norbert; Memory and Aging Center

Published: 2012
Created: 10/11/2012 01:51 PM, Last modified: 11/12/2013 04:14 PM

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Abstract

In diffusion tensor imaging (DTI), interpreting changes in terms of fractional anisotropy (FA) and mean diffusivity or axial (D_{||}) and radial (D_⊥) diffusivity can be ambiguous. The main objective of this study was to gain insight into the heterogeneity of age-related diffusion changes in human brain white matter by analyzing relationships between the diffusion measures in terms of concordance and discordance instead of evaluating them separately, which is difficult to interpret. Fifty-one cognitively normal subjects (22-79 years old) were studied with DTI at 4 Tesla. Age was associated with widespread concordant changes of decreased FA and increased MD but in some regions significant FA reductions occurred discordant to MD changes. Prominent age-related FA reductions were primarily related to greater radial (D_⊥) than axial (D_{||}) diffusivity changes, potentially reflecting processes of demyelination. In conclusion, concordant/discordant changes of DTI indices provide additional characterization of white matter alterations that accompany normal aging.

Citation

Zhang, Yu; Du, An-Tao; Hayasaka, Satoru; Jahng, Geon-ho; Hlavin, Jennifer; Zhan, Wang; Weiner, Michael W.; Schuff, Norbert; Memory and Aging Center (2012): **Patterns of age-related water diffusion changes in human brain by concordance and discordance analysis.** University of California, San Francisco. application/octet-stream. <http://dx.doi.org/doi:10.7272/q67p8w9z>

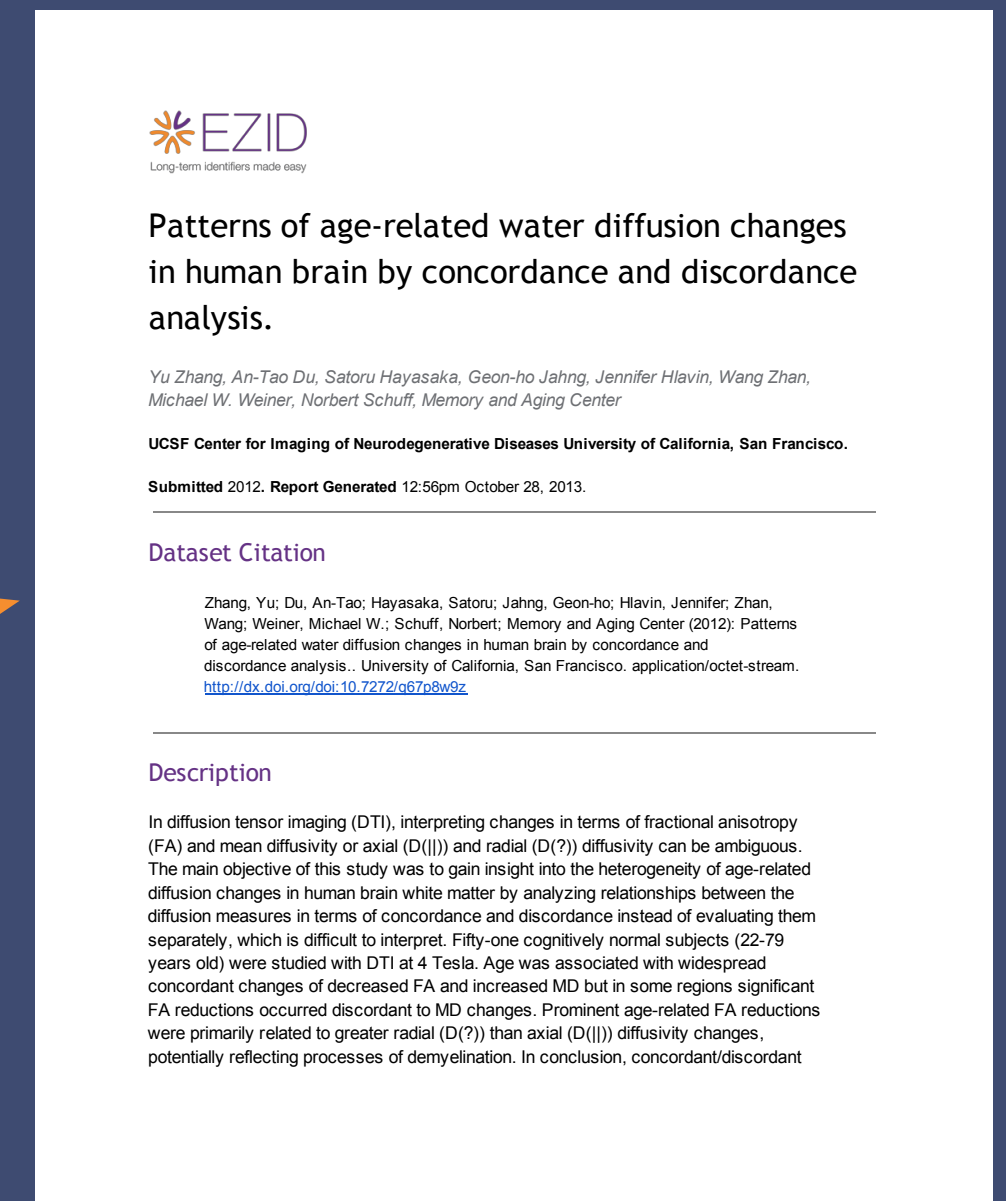
Methods

The dataset available here consists of Fractional Anisotropy (FA), Mean Diffusivity (MD), Axial Diffusivity (D_{||}), and Radial Diffusivity (D_⊥) images as well as subject-study-specific normalization images (B0, see methods in paper) in Analyze format. There are B0, FA, MD, D_{||}, and D_⊥ images for 51 subjects, and a spreadsheet describing each subject's handedness (right, left or ambidextrous), age (at time of scan), gender, ApoE alleles, and Mini-Mental State Exam score. Data Acquisition Location: San Francisco VA Medical Center; Scanner Type: Siemens Bruker 4T, equipped with a birdcage transmit and 8 channel receive coil. DTI was based on a dual spin-echo echo-planar imaging (EPI) sequence, augmented by parallel imaging acceleration (GRAPPA) by a factor 2 to reduce susceptibility distortions. Other imaging parameters were: TR/TE = 6000/77 ms; field of view 256 cm × 224 cm; 128 × 112 matrix size, yielding 2 mm × 2 mm in-plane resolution; 40 continuous slices, each 3 mm thick. A diffusion reference image (no diffusion gradient b = 0) and six diffusion-weighted images (b = 800 s/mm² along 6 non-collinear directions) were acquired. Four DTI scans were acquired and averaged after motion correction to boost signal-to-noise.

References

Zhang Y, Du AT, Hayasaka S, Jahng GH, Hlavin J, Zhan W, Weiner MW, Schuff N. **Patterns of age-related water diffusion changes in human brain by concordance and discordance analysis.** *Neurobiol Aging*. 2010 Nov;31(11):1991-2001. doi: 10.1016/j.neurobiolaging.2008.10.009. Epub 2008 Nov 25.

Publication links to...



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Metadata as XML



The Dataset itself

High Potential for Adoption

- EZID already has rich metadata for >2000 datasets.
- EZID is already incorporated into data management workflows through >100 clients and partners.

