

FID Data Reconstruction

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Overview

1 Theory

2 Result

3 Discussion

References

- Brain development is protract process that begins in the 3rd gestational week, and it continues for an extended period post-natally. (Stiles & Jernigan, 2010)
- MRI studies of structural and functional changes in the developing human brain. (Casey, Giedd, & Thomas, 2000)

Substantia Nigra (SN)

- SN is an anatomically heterogeneous nucleus with regional alternation in striatal projections and distribution of histo-chemical markers. (Fearnley & Lees, 1991)
- Dopamine contributes to the processing of signals in SN. (Geffen, Jessell, Cuello, & Iversen, 1976)
- Dopaminergic neurons have been developed in SN. (Freeman et al., 1991)

Corpus callosum (CC)

- CC is a wide and thick nerve tract, beneath the cerebral cortex in the brain.
- CC plays a major role in inter-hemispheric integration and communication. (Schlaug, Jäncke, Huang, Staiger, & Steinmetz, 1995)
- The size of CC differs upon disease, occupations, genders, and etc.
- Growth of CC was noticed from the 4th fetal month to maturity. (Rakic & Yakovlev, 1968; Pujol, Vendrell, Junqué, Martí-Vilalta, & Capdevila, 1993)

Development in Rats and Humans

- Some papers made approximate one-to-one correspond between development of rats and humans. (Andreollo, Santos, Araújo, & Lopes, 2012)
- The relation between rats and human aging:
 - 6 week in Rat = 4.5 years in Human
 - 4 month in Rat = 12 years in Human
 - 20 month in Rat = 50 years in Human

RARE-VTR FID Image

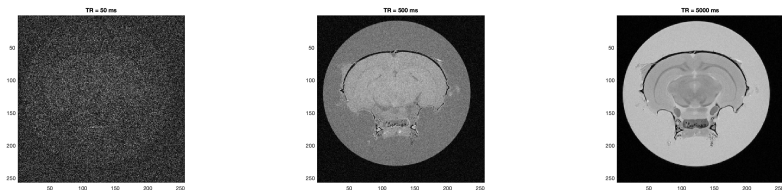


Figure: RARE-VTR FID Images in 6 week

MSME FID Image

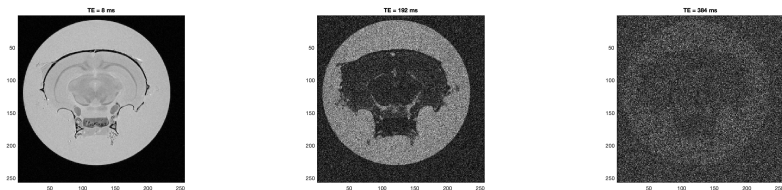


Figure: MSME FID Images in 6 week

MGE FID Image

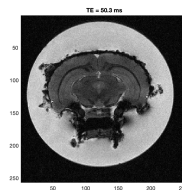
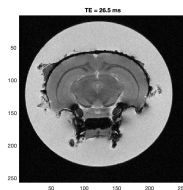
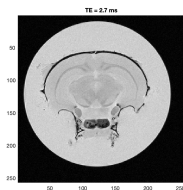


Figure: MGE FID Images in 6 week

T_1 Fitting

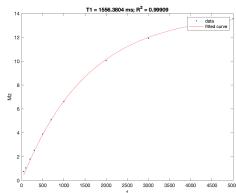
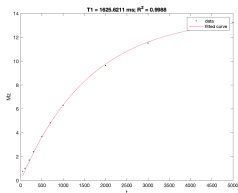
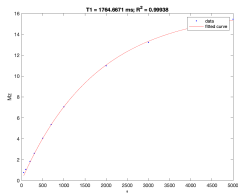


Figure: T_1 Fitting

T_2 Fitting

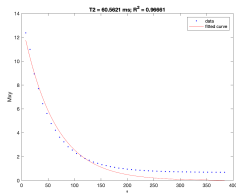
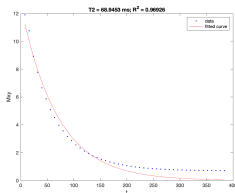
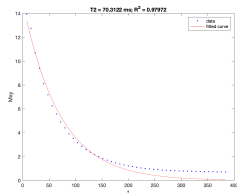


Figure: T_2 Fitting

T_2^* Fitting

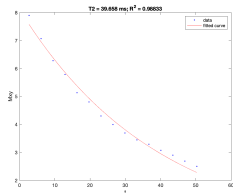
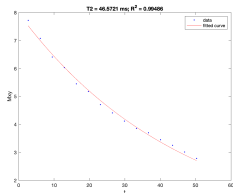
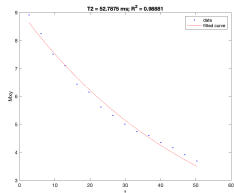


Figure: T_2^* Fitting

T_1 Mapping

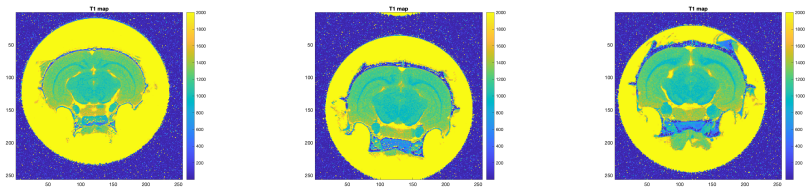


Figure: T_1 Mapping

T_2 Mapping

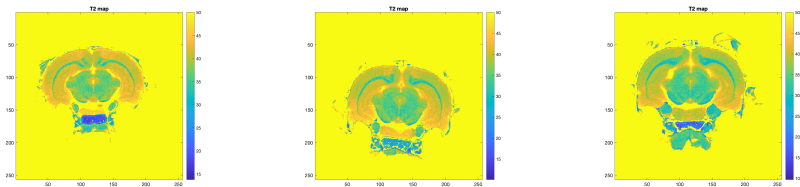


Figure: T_2 Mapping

T_2^* Mapping

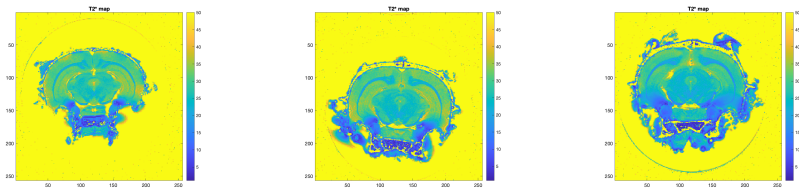


Figure: T_2^* Mapping

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