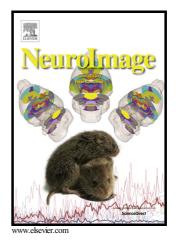
Author's Accepted Manuscript

Functional Connectivity dynamically evolves on multiple time-scales over a static Structural Connectome: Models and Mechanisms

Joana Cabral, Morten Kringelbach, Gustavo Deco



 PII:
 S1053-8119(17)30253-7

 DOI:
 http://dx.doi.org/10.1016/j.neuroimage.2017.03.045

 Reference:
 YNIMG13920

To appear in: NeuroImage

Received date: 1 November 2016 Revised date: 27 January 2017 Accepted date: 20 March 2017

Cite this article as: Joana Cabral, Morten Kringelbach and Gustavo Decc Functional Connectivity dynamically evolves on multiple time-scales over a stati Structural Connectome: Models and Mechanisms, *NeuroImage* http://dx.doi.org/10.1016/j.neuroimage.2017.03.045

This is a PDF file of an unedited manuscript that has been accepted fo publication. As a service to our customers we are providing this early version o the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain

ACCEPTED MANUSCRIPT

Functional Connectivity dynamically evolves on multiple time-scales over a static

Structural Connectome: Models and Mechanisms

Joana Cabral^{1,2}, Morten Kringelbach^{1,2} Gustavo Deco^{4,5}

- ¹ Department of Psychiatry, University of Oxford, UK
- ² Center for Music in the Brain, Aarhus University, Denmark

³ Center of Brain and Cognition, Universitat Pompeu Fabra, Barcelona, Spain

⁴ ICREA, Institució Catalana de Recerca i Estudis Avancats (ICREA), Spain

Abstract

Over the last decade, we have observed a revolution in brain structural and functional *Connectomics.* On one hand, we have an ever-more detailed characterization of the brain's white matter structural connectome. On the other, we have a repertoire of consistent functional networks that form and dissipate over time during rest. Despite the evident spatial similarities between structural and functional connectivity, understanding how different time-evolving functional networks spontaneously emerge from a single structural network requires analyzing the problem from the perspective of complex network dynamics and dynamical system's theory. In that direction, bottom-up computational models are useful tools to test theoretical scenarios and depict the mechanisms at the genesis of resting-state activity.

Here, we provide an overview of the different mechanistic scenarios proposed over the last decade via computational models. Importantly, we **highlight** the need of **incorporating** additional **model constraints considering the properties observed at finer temporal scales with MEG and the dynamical properties of FC** in order to refresh the list of candidate scenarios.

Keywords: Resting-state, Network Model, Dynamic FC, Envelope FC

Download English Version:

https://daneshyari.com/en/article/8687485

Download Persian Version:

https://daneshyari.com/article/8687485

Daneshyari.com