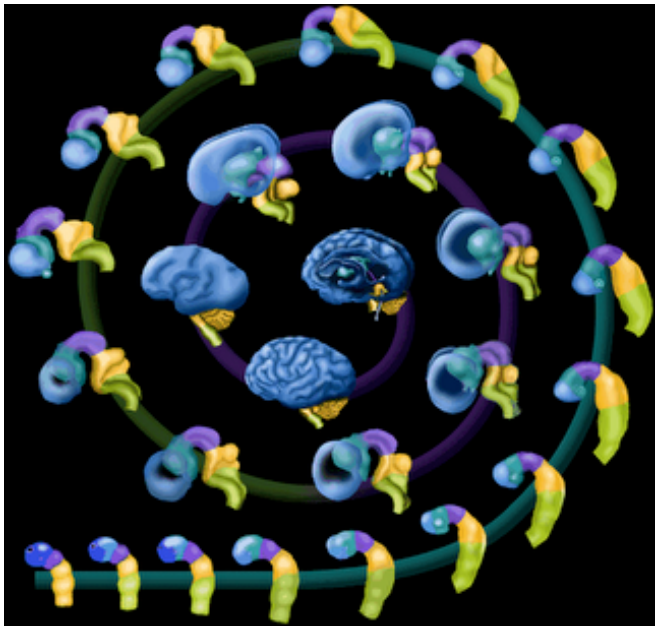
RNA recentemente descoberto conduz o desenvolvimento do cérebro

Quinta-feira, Abril 15, 2010

Newly Discovered RNA Steers Brain Development

ScienceDaily (Apr. 14, 2010) — ***How does the brain work? This question is one of the greatest scientific mysteries, and neurobiologists have only recently begun to piece together the molecular building blocks that enable human beings to be "thinking" animals.***



Source/Fone: **The Visible Embryo**

One fundamental property of the mammalian brain is that it continues to develop after birth, and one of the biggest drivers of the formation of new links between neurons is experience. Every time a baby sticks her finger on a pin or laughs in response to an adult's embellished gestures, a cascade of genetic activity is triggered in her brain that results in new, and perhaps even lifelong, synaptic connections.

New research from the lab of Michael Greenberg, Nathan Marsh Pusey professor and chair of neurobiology at HMS, in collaboration with bioinformatics specialist and neuroscientist Gabriel Kreiman, assistant professor of ophthalmology at Children's Hospital, Boston, has found that ***a particular set of RNA molecules widely considered to be no more than a***

Enézio E. de Almeida Filho
Campinas, São Paulo, Brazil

Por que sou 'pós-darwinista'? Porque já fui evolucionista de carteirinha. Hoje, sou cético da teoria macroevolutiva como verdade científica. Contudo, meu ceticismo ao 'dogma central' darwinista não é baseado em relatos da criação de textos sagrados. Foi a séria e conflituosa consideração do debate que ocorre intramuros e nas publicações científicas há muitos anos sobre a insuficiência epistêmica da teoria geral da evolução. Eu fui ateu marxista-leninista. Hoje, não tenho mais fé cega no ateísmo. Não creio mais na interpretação literal dos dogmas de Darwin aceitos 'a priori' e defendidos ideologicamente com unhas e dentes pela Nomenklatura científica. A Ciência me deu esta convicção. Aprendi na universidade: quando uma teoria científica não é apoiada pelas evidências, ela deve ser revista ou simplesmente descartada. Sou pós-darwinista me antecipando à iminente e eminente ruptura paradigmática em biologia evolutiva. Chegou a hora de dizer adeus a Darwin. Mestre, Doutorando (in absentia) em História da Ciência – PUC-SP. CV Plataforma Lattes: http://lattes.cnpq.br/6602620537249723

Visualizar meu perfil completo

genomic oddity* [SIC] *are actually major players in brain development -- and are essential for regulating the process by which neurons absorb the outside world into their genetic machinery.

"This discovery may inform disorders of cognition such as autism spectrum disorders," says Greenberg. "It's incredibly important to know all about the brain's genetic regulatory mechanisms in order to think more deeply about how to develop therapies for treating these sorts of conditions."

This research will be published online April 15 in the journal Nature.
...

Read more here/Leia mais aqui: **Science Daily**

+++++

Nature advance online publication 14 April 2010 | doi:10.1038/nature09033; Received 21 October 2009; Accepted 25 March 2010; Published online 14 April 2010

Widespread transcription at neuronal activity-regulated enhancers

Tae-Kyung Kim1,9,10, Martin Hemberg2,9, Jesse M. Gray1,9, Allen M. Costa1, Daniel M. Bear1, Jing Wu3, David A. Harmin1,4, Mike Laptewicz1, Kellie Barbara-Haley5, Scott Kuersten6, Eirene Markenscoff-Papadimitriou1,10, Dietmar Kuhl7, Haruhiko Bito8, Paul F. Worley3, Gabriel Kreiman2 & Michael E. Greenberg1

Department of Neurobiology, Harvard Medical School, 220 Longwood Avenue, Boston, Massachusetts 02115, USA
Department of Ophthalmology, Children's Hospital Boston, Center for Brain Science and Swartz Center for Theoretical Neuroscience, Harvard University, 300 Longwood Avenue, Boston, Massachusetts 02115, USA
The Solomon H. Snyder Department of Neuroscience, Johns Hopkins University School of Medicine, 725 North Wolfe Street, Baltimore, Maryland 21205, USA
Children's Hospital Informatics Program at the Harvard-MIT Division of Health Sciences and Technology, 300 Longwood Avenue, Boston, Massachusetts 02115, USA
Molecular Genetics Core facility, Children's Hospital Boston, 300 Longwood Avenue, Boston, Massachusetts 02115, USA
Epicentre Biotechnologies, 726 Post Road, Madison, Wisconsin 53713, USA
Institute for Molecular and Cellular Cognition (IMCC), Center for Molecular Neurobiology (ZMNH), University Medical Center Hamburg-Eppendorf (UKE), Falkenried 94, 20251 Hamburg, Germany
Department of Neurochemistry, Graduate School of Medicine, University of Tokyo, Bunkyo-ku, Tokyo 113-0033, Japan

These authors contributed equally to this work.

Present addresses: University of Texas Southwestern Medical Center, Department of Neuroscience, 5323 Harry Hines Blvd, Dallas, Texas 75390-9111, USA (T.-K.K.); Graduate Program in Neuroscience, University of California San Francisco, 1550 4th Street, San Francisco, California 94158, USA (E.M.-P.).

Correspondence to: Michael E. Greenberg1 Correspondence and requests for materials should be addressed to M.E.G. (Email: michael_greenberg@hms.harvard.edu).

Abstract

We used genome-wide sequencing methods to study stimulus-dependent enhancer function in mouse cortical neurons. We identified ~12,000 neuronal activity-regulated enhancers that are bound by the general transcriptional co-activator CBP in an activity-dependent manner. A function of CBP at enhancers may be to recruit RNA polymerase II (RNAPII), as we also observed activity-regulated RNAPII binding to thousands of enhancers. Notably, RNAPII at enhancers transcribes bi-directionally a novel class of enhancer RNAs (eRNAs) within enhancer domains defined by the presence of histone H3 monomethylated at lysine 4. The level of eRNA expression at neuronal enhancers positively correlates with the level of messenger RNA synthesis at nearby genes, suggesting that eRNA synthesis occurs specifically at enhancers that are actively engaged in promoting mRNA synthesis. These findings reveal that a widespread mechanism of enhancer activation involves RNAPII binding and eRNA synthesis.

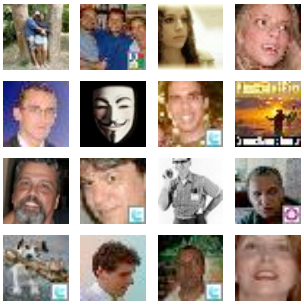
+++++

Professores, pesquisadores e alunos de universidades públicas e privadas com acesso ao site **CAPES/Periódicos** podem ler gratuitamente este artigo da Nature e de mais 22.440 publicações científicas.

Seguir

Google Friend Connect

Seguidores (81) Mais »



Já é um membro? Fazer login

ClustrMap

SiteMeter

sitemeter

ShareThis