From: F1000 Biology Update <info@f1000biology.com>
To: Jeff Epstein <jeeproject@yahoo.com>
Subject: Unravelling the origin of swine flu, exploring the link between Down's syndrome and tumor suppression, and can fat enhance your memory?
Date: Wed, 01 Jul 2009 16:56:04 +0000

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Wellcome Trust Praises F1000

The Wellcome Trust has used Faculty of 1000 evaluations to monitor the success of their funding support for scientific studies over the past 5 years.

As well as accumulating bibliometric data, a panel of experts reviewed the publications funded by the Wellcome Trust for scientific merit and found their scores agreed with F1000 ratings. The Wellcome Trust highlighted the need for post-publication review as many articles they highly regarded did not have high citation scores and might be missed when reviewing bibliometric data alone.

The authors of the study believe that "mechanisms such as Faculty of 1000 of post-publication peer review are a valuable additional mechanism for assessment of the quality of

biomedical research literature."

View the F1000 press release.
View the original article in PLoS ONE.

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Editor's choice: Unravelling the origin of swine flu

It is three months since the first case of swine flu was uncovered in Mexico and the number of cases now stands at over 70,000 in 75 countries worldwide. With the recent declaration from the WHO that the current outbreak has reached Pandemic proportions, it is more important than ever for researchers to understand more about the new swine-origin influenza A (H1N1) virus (S-OIV) and its origin.

In an important and illuminating paper, evaluated by Genomics and Genetics Faculty Member Steven Salzberg, the authors analyse sequences from all viruses known to be related to the current outbreak in order to build up a picture of the relationships and estimate a date of origin for the new H1N1 influenza A virus.

Dr Salzberg writes

> "The authors report that the pandemic sequences have a common origin, with their most recent common ancestor having originated only a few months in the past, probably in January 2009 and no earlier than August 2008. More interesting, though, is their finding that the common ancestor of the S-OIV virus and other known (sequenced) viruses is between 9 and 17 years ago."

He explains the implications of these findings, observing

> "This result shows that the pandemic virus has been circulating - in pigs, presumably - for 9 years or more without a single isolate being reported."

Dr Salzberg concludes by noting

> "Clearly, our efforts as a community to track the influenza virus need to be much more extensive. Collecting and sequencing influenza samples is relatively inexpensive and closer surveillance may allow us to contain and perhaps prevent future outbreaks."

Read the comments in full

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Hidden Jewel: Can fat enhance your memory?

The authors of this fascinating paper, evaluated by Michael Andresen of the Physiology Faculty, look at the effect of fat-induced release of satiety factor Oleoylethanolamide (OEA) on memory consolidation.

Dr Andresen writes

"In this elegantly spare series of studies, the authors make the case that postprandial fat reaching the small intestine can significantly enhance memory consolidation."

He adds

"The work draws attention to the integrative impact of reflex pathways of the lower brainstem in linking homeostatic state to cortical function -- a body-mind interaction -- and, in a bit of a tweak, these results might suggest that there are important, healthy rewards in a bit of fat in your meal."

[See full evaluation]

The Hidden Jewels lists are one of the most popular features on the Faculty of 1000 Biology site as they bring to scientists' attention papers they otherwise might have missed (especially in fields adjacent to their own). These lists are compiled daily and include highly viewed papers evaluated within the previous month.

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Broad Impact: Exploring the link between Down's syndrome and tumor suppression

Recent work has shown that individuals with Down's syndrome have a lower risk of developing many solid tumors and that Down's syndrome candidate region-1 (DSCR1) plays a key role in inhibiting tumor angiogenesis. The authors of the current study further investigate the mechanism of this interesting observation.

Maria L. Mancini and Alex Toker of the Cell Biology Faculty report

"This most recent paper reveals that DSCR1 inhibits tumor angiogenesis in vivo through suppression of the NFAT/calcineurin signaling axis and decrease in endothelial specific NFAT target genes such as COX-2. Furthermore, they show that DYRK1A, which also regulates the NFAT pathway and is associated with Down's syndrome phenotypes, may act in concert with DSCR1, making these two molecules potentially important novel targets for therapeutic intervention in cancer."

Eugenio Sangiorgi and Genomics and Genetics Faculty Member, Giovanni Neri, explains that the authors.

"…used a wide range of techniques from iPS to a transgenic mouse model for Down's syndrome to a KO mouse for Dscr1, conclusively showing that the Dscr1 copy number influences growth and vascularization, modulating angiogenesis within the host tumour microenvironment."

Lin Chen of the Structural Biology Faculty, explores the therapeutic implications of this finding, observing,

"…the fact that DYRK1A, another chromosome 21 gene with tumor suppressor function, is also an NFAT inhibitor, and that DYRK1A and DSCR1 have been previously shown to function synergistically to inhibit NFAT {2}, will definitely draw attention to the possibility that NFAT inhibition might offer a potential therapeutic strategy for cancer."

The structure of Faculty of 1000 Biology makes it possible to identify papers of broad interest, irrespective of the journal in which they are published. You can see the full comments of all the evaluating Faculty Members on this 'Must Read' Broad Impact paper by visiting the Faculty of 1000 Biology website.

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In this paper, a novel DNA hydrogel that greatly enhances protein production in a cell free system is presented. It is shown that the efficiency of protein production for a number of test proteins is about 300-fold higher for this method than for the traditional solution-based procedures…MORE
Selected by |Barbara Imperiali (Massachusetts Institute of Technology, Cambridge, USA)

A cell-free protein-producing gel.
Park N et al. *Nat Mater* 2009 May **8**(5):432-7

Computer reconstruction of a fossilized Neandertal pelvis indicates that the human birth mechanism, which differs from that of primates including great apes, originated late in human evolution, and differed from that of Neandertals…MORE
Selected by |Anthony Zera (University of Nebraska, USA)

Neandertal birth canal shape and the evolution of human childbirth.
Weaver TD and Hublin JJ, *Proc Natl Acad Sci U S A* 2009 May 19 **106**(20):8151-6

The authors report the remarkable mutant phenotype in Arabidopsis in which meiosis is replaced by mitosis, whereby diploid fertile gametes are produced. This reproduces one of the key events in producing apomictic plants and the clonal production of hybrid seed…MORE
Selected by |John Bowman (Monash University, Australia)

Turning meiosis into mitosis.
d'Erfurth I et al. *PLoS Biol* 2009 Jun 9 **7**(6):e1000124

In this study, fruit flies were selectively bred over 60 generations for poor sleep (short total daily sleep, short sleep bout length and long sleep onset latency), resulting in a novel line of flies that may be the best available animal model of chronic insomnia for genetic analysis…MORE
Selected by |Ralph Mistlberger (Simon Fraser University, Canada)

Identifying sleep regulatory genes using a Drosophila model of insomnia.
Seugnet L et al. *J Neurosci* 2009 Jun 3 **29**(22):7148-57

This paper provides an insight into the evolution and economics of cooperation in yeast. Using the model system of "cooperating" and "cheater" strains, the authors demonstrate an emergence of a stable steady-state coexistence of the two strategies… MORE
Selected by |Yuri Wolf (NCBI/NLM/NIH, USA)

Snowdrift game dynamics and facultative cheating in yeast.
Gore J et al. *Nature* 2009 May 14 **459**(7244):253-6

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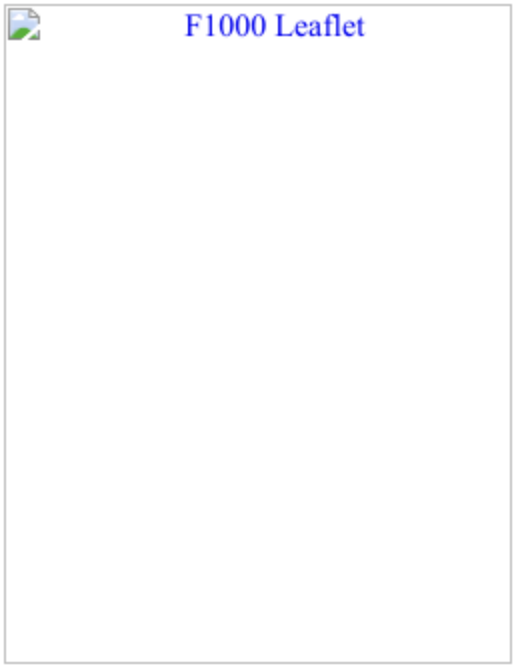

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