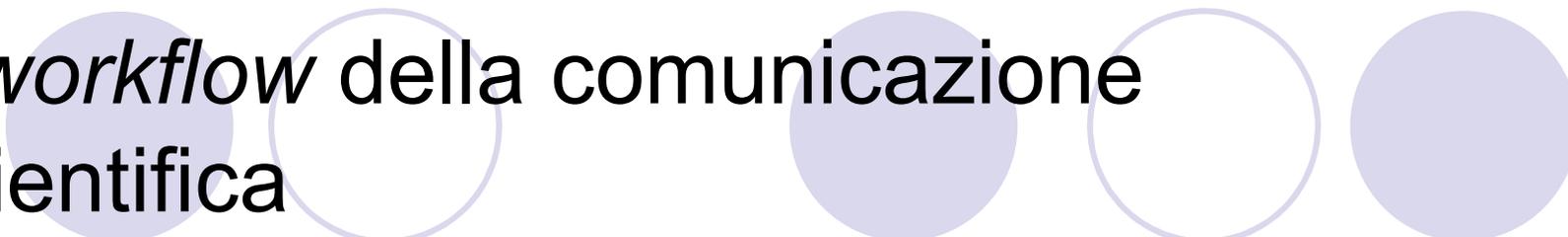


Le nuove frontiere della ricerca
scientifica: le nuove forme di
documento: dal *data/text mining*
al web semantico

Maria Cassella
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maria.cassella@unito.it

Il *workflow* della comunicazione scientifica



- Gather = raccolta
- Create = (ri-uso) e creazione
- Share = condivisione

Lorcan Dempsey - Reconfiguring the Library Systems Environment - Portal: libraries and the academy , 2008

In altre parole ... il profilo del ricercatore nella **Scholarship 2.0**

- Ha molte risorse a disposizione, ma l'attenzione è scarsa (Lorcan Dempsey)
- Ha un approccio sempre più collaborativo alla ricerca ... dai medici agli umanisti !
 - Affermazione di discipline transnazionali e “cross-fertilizzate”
- Ha bisogno di integrare e ri-utilizzare automaticamente una grande mole di dati e di informazioni rilevanti (*data/text mining*)
 - Data repositories
http://oad.simmons.edu/oadwiki/Data_repositories
 - Data journal : [The Journal of Meteorological Data](#)
 - Nuovo ruolo per i bibliotecari: Data Curator
- Rielabora e condivide *preprint*, dati, video, mappe, immagini, *podcast*, commenti, bibliografie, valutazioni sulle piattaforme di *social, academic and professional networking*



Nature Network: connecting scientists

<h3>Connect</h3> <p>Keep in touch with colleagues. Make new contacts.</p>	<h3>Discuss</h3> <p>Talk about research and scientific issues.</p>	<h3>Explore</h3> <p>Read the blogs. Browse the forums and profiles.</p>	<h3>Search</h3> <input type="text"/> <input type="button" value="Search"/>	<h3>Get Started</h3> <input type="button" value="Sign up"/>
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What's new on Nature Network

[Scientia pro Publica](#)

<h4>Most commented blog posts</h4>	<h4>Most active forums</h4>	<h4>Recently active people</h4>	<h4>Popular tags</h4> <ul style="list-style-type: none">sciencebioinformaticsbiology
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First Name

2. Ask Questions



3. Get Answers



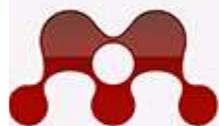
Curbsides

What's New

Recent News

[athenahealth/Sermo Partner with Common Goal: Enable MDs to Leverage Technology to Improve Patient Care](#)

[Sermo Named to Fast Company's List of Most Innovative Companies Recognized as 'Political Force' Behind Healthcare Reform Efforts](#)



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 RESEARCH NETWORKS BETA 0.9

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The screenshot shows the Mendeley Desktop application. On the left is a sidebar with 'My Library' (All Documents, Recently Added, Favorites, My Publications) and 'Shared Collections'. The main area is a table of documents with columns for Author, Title, Year, Published In, and Added. A preview window is open over a document titled 'Unconscious Emotion' by Wilson, Timothy D., showing text and brain diagrams.

Author	Title	Year	Published In	Added
Henning, Victor; Re...	Mendeley - A Lesson for Research	2008	Proceedings of the 4th E...	Sat Jan 27 2009
Isenmann, Sandra; ...	TRAF7 family of basic Helix-Loop-Helix Transcription Factors Mediate Human Mes...	2009	Stem cells (Dayton, Oh., 2009)	Mon Jul 20 2009
Lazarus, Richard S	Progress on a Cognitive-Motivational-Relational Theory of Emotion	1991	American Psychologist	Mon Jul 27 2009
Mendeley	Getting Started with Mendeley	2009	Mendeley Desktop	Thu Jul 16 2009
Roth, J	Promoting a Brand's Emotion Benefits: The Influence of Emotion Categorization Proces...	2001	Journal of Consumer P...	Mon Jul 27 2009
Sutton, S; French, D...	Salient beliefs in research on the theory of planned behaviour: The effect of question ...	2003	Current Psychology	Mon Jul 27 2009
Thagard, Paul; Nei...	Emotional Gestalts: Appraisal, Change, and the Dynamics of Affect	2002	Personality and Social P...	Mon Jul 27 2009
Tice, Dianne M; Wal...	Mood and Emotion Control: Some Thoughts on the State of the Field	2000	Psychological Inquiry	Mon Jul 27 2009
Tuan Pham, Michel...	Beyond the Obvious: Chronic Vividness of Imagery and the Use of Information in D...	2001	Organizational	Mon Jul 27 2009
Veiling, Drew M; Lie...	Predicting Three Mood Phenomena From Factors and Facets of the NEO-PI			
Wilson, Timothy D...	The pleasures of uncertainty: prolonging positive moods in ways people do not a...			
Winkielman, P.	Unconscious affective reactions to mask happy versus angry faces influence cons...			
Zheng, Ying; Fohba...	The Role of Anticipated Emotions in the Endowment Effect			
Zhu, Jing; Thagard, ...	Emotion and action			
de Wiyntec, Erika; Uh...	Wellcome Trust/CRUK 2009 Meeting Report: Perspectives in Stem Cell Proteomics 22...			

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Parole chiave della **Scholarship 2.0**

- **Ri-uso**

- **Integrazione**

- Web semantico, *text mining/data mining*, mappe concettuali, grafici ... (Gargiulo 2009)
- L'Open Access è un prerequisito

ChemSpider: il *data/text mining* accademico

- <http://www.chemspider.com/>
- “ChemSpider is a free access service providing a structure centric community for chemists. Providing access to millions of chemical structures and integration to a multitude of other online services, ChemSpider is the richest single source of structure-based chemistry information”

DPedia: il Web semantico applicato a Wikipedia [1]

- **Dbpedia.org** is a community effort to extract structured information from Wikipedia and to make this information available on the Web. Dbpedia allows you to ask sophisticated queries against Wikipedia and to link other datasets on the Web to Wikipedia data.
- The **Dbpedia.org** project uses the [Resource Description Framework \(RDF\)](#) as a flexible data model for representing extracted information and for publishing it on the Web.

DPedia: il Web semantico applicato a Wikipedia [2]

The screenshot shows a Windows Internet Explorer browser window displaying the DBpedia website. The address bar shows the URL <http://wiki.dbpedia.org/About>. The page features the DBpedia logo at the top left, which consists of a stylized network of orange and yellow nodes connected by lines, above the text "DBpedia".

Below the logo is a navigation menu with the following items: About / News, Applications, Use Cases, Datasets, Online Access, Downloads, ChangeLog, Interlinking, Framework, Publications, Community, Blog, Credits, and Contact / ...

The main content area contains a paragraph describing DBpedia: "DBpedia is a community effort to extract structured information from Wikipedia and to make this information available on the Web. DBpedia allows you to ask sophisticated queries against Wikipedia, and to link other data sets on the Web to Wikipedia data. We hope this will make it easier for the amazing amount of information in Wikipedia to be used in new and interesting ways, and that it might inspire new mechanisms for navigating, linking and improving the encyclopaedia itself."

Below this paragraph is a "News" section with a red header. It contains three news items:

- Open Knowledge Conference 2010**: OKCon, now in its fifth year, is the interdisciplinary conference that brings together individuals from across the open knowledge spectrum (such as also DBpedia in particular and Linked Open Data in general) for a day of presentations and workshops. Open knowledge promises significant social and economic benefits in a wide range of areas from governance [...]
- DBpedia in ReadWriteWeb's Top 10 Semantic Web Products of 2009**: The new year is slowly approaching and people start compiling their top x lists of 2009, with x usually ranging between 10 and 365. The popular Web technology blog ReadWriteWeb has chosen x with value 10 and picked DBpedia as one of their top Semantic Web products of 2009. Its actually the only non-commercial [...]
- German government proclaims Faceted Wikipedia/DBpedia Search one of the 365 most innovative ideas in Germany**: The German federal government has proclaimed Faceted Wikipedia Search as one of the 365 most innovative ideas in Germany in the context of the Deutschland ? Land der Ideen competition. The competition showcases innovative ideas in areas such as science and technology, business, education, art and ecology. The patron of the competition is the German President Horst Köhler. Faceted [...]

The browser's taskbar at the bottom shows several open applications: start, Paola Gargiulo (Non I..., 6 Internet Explorer, bibliotime2 - Microsoft..., Posta in arrivo per m..., Microsoft PowerPoint..., IT, and a clock showing 16.06.

Gli e-journals nella **Scholarship 2.0**

- Gli e-journals non sono più il principale punto di riferimento della **Scholarship 2.0**
- Il periodico elettronico è una delle molteplici forme attraverso le quali si “**solidifica**” la comunicazione scientifica:
 - Blogs
 - Wikis
 - Forums
 - Podcasts, videocasts
 - Professional hubs

Gli e-journals nella **Scholarship 2.0**

- Continua ad avere una funzione rilevante per la carriera accademica
- Conserva la funzione di certificazione, ma ...
- l'attenzione degli *stakeholders* della comunicazione scientifica si concentra sull'**articolo**
- Editori commerciali e OA sperimentano **nuovi servizi a livello dell'articolo**
 - Inseriscono commenti, riferimenti, valutazioni
[PLoS ONE](#)
 - Incorporano i dati primari della ricerca
 - [Environmental Research Letters](#) (*Datument*, Murray-Rust, Rzepa, 2004)
 - Attivano link a video, *podcast*, mappe, immagini ecc.

Nature

Table of contents : Nature Chemical Biology - Windows Internet Explorer

http://www.nature.com/nchembio/journal/v6/n3/index.html#af

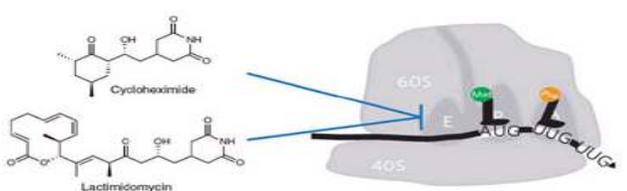
File Modifica Visualizza Preferiti Strumenti ? Converti Selezione

Table of contents : Nature Chemical Biology

Articles top ↕

Inhibition of eukaryotic translation elongation by cycloheximide and lactimidomycin pp209 - 217

Tilman Schneider-Poetsch, Jianhua Ju, Daniel E Eyler, Yongjun Dang, Shridhar Bhat, William C Merrick, Rachel Green, Ben Shen & Jun O Liu
doi:10.1038/nchembio.304



The diagram shows the chemical structures of Cycloheximide and Lactimidomycin. Cycloheximide is a cyclic hexamidine with a hydroxyl group and an amide group. Lactimidomycin is a more complex molecule with a lactam ring and a hydroxyl group. The diagram also shows a ribosome with the 60S and 40S subunits, an mRNA strand with an AUG start codon, and a tRNA with a UUG anticodon. Blue arrows point from the chemical structures to the ribosome, indicating their binding sites.

Cycloheximide is a natural product that cell biologists have used for decades as a tool to arrest protein synthesis in eukaryotes. Biochemical data now refine our mechanistic view of how cycloheximide and structurally related analogs inhibit translational elongation.

[Abstract](#) | [Full Text](#) | [PDF \(1,413 KB\)](#) | [Supplementary information](#) | [Chemical compounds](#)

The 2'-OH group at the group II intron terminus acts as a proton shuttle pp218 - 224

Michael Roitzsch, Olga Fedorova & Anna Marie Pyle
doi:10.1038/nchembio.312

start Paola Gargiulo (Non I... 7 Internet Explorer bibliotime2 - Microsoft... Posta in arrivo per m... Microsoft PowerPoint ... IT 16.25

Elsevier article of the future

Cell Beta - Article Prototype #1 - Windows Internet Explorer

http://beta.cell.com/erickson/

File Modifica Visualizza Preferiti Strumenti ? Converti Seleziona

Cell Beta - Article Prototype #1

Cell Article Prototype #1 View Prototype #2 Tell Us What You Think Share / Save

May 2, 2008 - Volume 133, Issue 3, pp. 462-474 PDF (1,758 KB)

A Dynamic Pathway for Calcium-Independent Activation of CaMKII by Methionine Oxidation

Jeffrey R. Erickson¹, Mei-ling A. Joiner¹, Xiaoqun Guan¹, William Kutschke¹, Jinying Yang¹, Carmine V. Oddis⁵, Ryan K. Bartlett⁶, John S. Lowe¹, Susan E. O'Donnell², Nukhet Aykin-Burns³, Matthew C. Zimmerman³, Kathy Zimmerman⁹, Amy-Joan L. Ham^{7,8}, Robert M. Weiss^{1,9}, Douglas R. Spitz³, Madeline A. Shea², Roger J. Colbran⁷, Peter J. Mohler^{1,4}, and Mark E. Anderson^{1,4,7} [Affiliations](#)

Abstract Introduction Results Discussion Experimental Procedures Figures (8+) References (51) Authors Comments (3) Acknowledgements

Article Highlights

- Oxidation of methionine residues activates CaMKII
- Angiotensin II induces CaMKII oxidation leading to cardiomyocyte death
- CaMKII methionine oxidation is reversed by MsrA
- Elevated CaMKII oxidation impairs heart function and worsens ischemic injury

Author Interview

Abstract

Calcium/calmodulin (Ca²⁺/CaM)-dependent protein kinase II (CaMKII) couples increases in cellular Ca²⁺ to fundamental responses in excitable cells. CaMKII was identified over 20 years ago by activation dependence on Ca²⁺/CaM, but recent evidence shows that CaMKII activity is also enhanced by pro-oxidant conditions. Here we show that oxidation of paired regulatory

The diagram shows a flowchart of the signaling pathway. At the top, 'AngII' and 'Myocardial infarction' lead to 'H₂O₂'. 'H₂O₂' leads to 'Methionine oxidation' (specifically at residues M281 and M282). This oxidation leads to 'CaMKII activation'. From 'CaMKII activation', the pathway can lead to 'Cardiomyocyte apoptosis' and 'Impaired' function. Alternatively, 'MsrA' (Methionine S-Methyltransferase) is shown as a green oval that reverses the methionine oxidation, leading to 'CaMKII reversed autoactivation'.

Internet 100%

start Paola Gargiulo (Non I... massimo trossero (No... Microsoft PowerPoint ... Cell Beta - Article Pro... IT 9.33

PLoS ONE Article level metrics

The screenshot shows a Windows Internet Explorer browser window displaying a PLoS ONE article. The address bar shows the URL: <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0000085>. The article title is "The Evolution of Mammalian Gene Families". The authors listed are Jeffery P. Demuth¹, Tijl De Bie², Jason E. Stajich³, Nello Cristianini⁴, and Matthew W. Hahn^{1*}. The article is marked as "RESEARCH ARTICLE" and "OPEN ACCESS".

Navigation tabs include "Article", "Metrics", "Related Content", and "Comments: 8". The "Metrics" section shows "Total Article Views: 18373". It also lists where the article is cited: "Cited in CrossRef (19)", "PubMed Central (21)", and "Scopus (43)". The "Average Rating" is 1/5 stars, with a link to "See all categories" and a "Rate This Article" button.

The "Abstract" section begins with: "Gene families are groups of homologous genes that are likely to have highly similar functions. Differences in family size due to lineage-specific gene duplication and gene loss may provide clues to the evolutionary forces that have shaped mammalian genomes. Here we analyze the gene families contained within the whole genomes of human, chimpanzee, mouse, rat, and dog. In total we find that more than half of the 9,990 families present in the mammalian common ancestor have either expanded or contracted along at least one lineage. Additionally, we find that a large number of families are completely lost from one or more mammalian genomes, and a similar number of gene families have arisen subsequent to the mammalian common ancestor. Along the lineage leading to modern humans we infer the gain of 689 genes and the loss of 86 genes since the split from chimpanzees, including

The browser's taskbar at the bottom shows several open applications: "start", "Paola Gargiulo (Non I...", "Posta in arrivo per m...", "Microsoft PowerPoint ...", "Scholarship 2.0: An I...", "PLoS ONE: The Evolu...", and "IT". The system clock shows "13.58".

Gli e-journals nella Scholarship 2.0

- La distinzione con altre tipologie di documento sfuma ...
 - E-journals/e-books
 - E-journals/repositories [eScholarship: University of California](#)
 - E-journals/blogs [Open Medicine Blog](#)
- L'informazione si scompone in oggetti digitali modulari

Oltre gli **e-journals**: gli oggetti digitali compositi. Il set di standard **OAI-ORE**

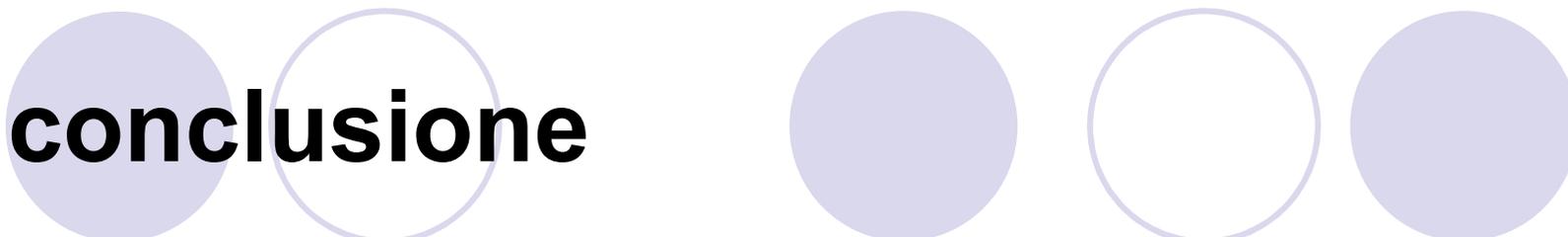
- L'informazione si scompone in oggetti digitali modulari, riutilizzabili, ricomponibili
- [OAI- Object Reuse and Exchange](#) è un set di standard, evoluzione di **OAI-PMH**

“The goal of these standards is to expose the rich content in these aggregations to applications that support authoring, deposit, exchange, visualization, reuse, and preservation”
(citazione tratta dal sito OAI-ORE)
- OAI-ORE da' origine ad “un **oggetto digitale composito** formato da un insieme di risorse distribuite nel web indipendentemente dalla loro allocazione (ovvero dai *repositories* che le contengono)”
(Pasqui, 2009)

Progetti sperimentali su **OAI-ORE**

- eSciDoc Max Planck Society
 - “Will implement an infrastructure for its researchers which combines different types of information objects in one scientific knowledge space” (Hogenaar, 2009)
- **SCOPE** (Scientific Compound Object Publishing and Editing)
 - Offers authoring tools to researchers to enable them to author, edit and publish scientific compound objects

In **con**clusione



- I documenti digitali tendono ad abbandonare la prospettiva “cartocentrica” che ha dominato fino ad oggi e si trasformano
- Gli autori potranno **comporre, aggregare, riutilizzare** a proprio piacimento oggetti digitali e parti di oggetti digitali
- Quale ruolo per gli editori?