Back to (the Article of) the Future?

4 September 2017

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Maarten Cleeren
Director of Product Management, Enriched Content
Research Products at Elsevier

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The Article of the Future

The Article of the Future project is an ongoing initiative to revolutionize the traditional format of the academic paper in regard to three key elements: presentation, content and context.

By IJsbrand Jan Aalbersberg Posted on 21 September 2012

I don’t like the idea of an ‘article-of-the future’

"Lord how this World improves as we grow older."

MARCH of INTELLECT

Pub by T. McLean 26 Haymarket London


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How is research changing?

How are expectations on researchers changing?

What are the implications of technological advancements?

How should one publish in light of these changes?

How is publishing your research changing?

ScienceDirect

How is publishing your research changing?

4 September 2017

Doing research is increasingly demanding and complex

Funding — Experiment — Manage data — Commercialize — Have impact

Collaborate & network

Analysis & synthesis

Publish & disseminate

Promote research

Publication models

Where to publish

(Social) networking

Impact of Funding needs


ROYAL
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UMSCHALTER

Doing research is increasingly demanding and complex

Funding | Experiment | Manage data | Commercialize | Have impact

Collaborate & network | Analysis & synthesis | Publish & disseminate | Promote research

AGENDA

Back to the article-of-the-future

Enriching your article

Publishing research as a cluster

‘Article’ of the future?

Wrapping up

1583
First known Elzevir publication

1638
Elzevir publishes Galileo's *Two New Sciences*

1791
Elzevir ceases publishing

1880
Elsevier founded in Rotterdam

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Elsevier begins international scientific publishing

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2015
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1997

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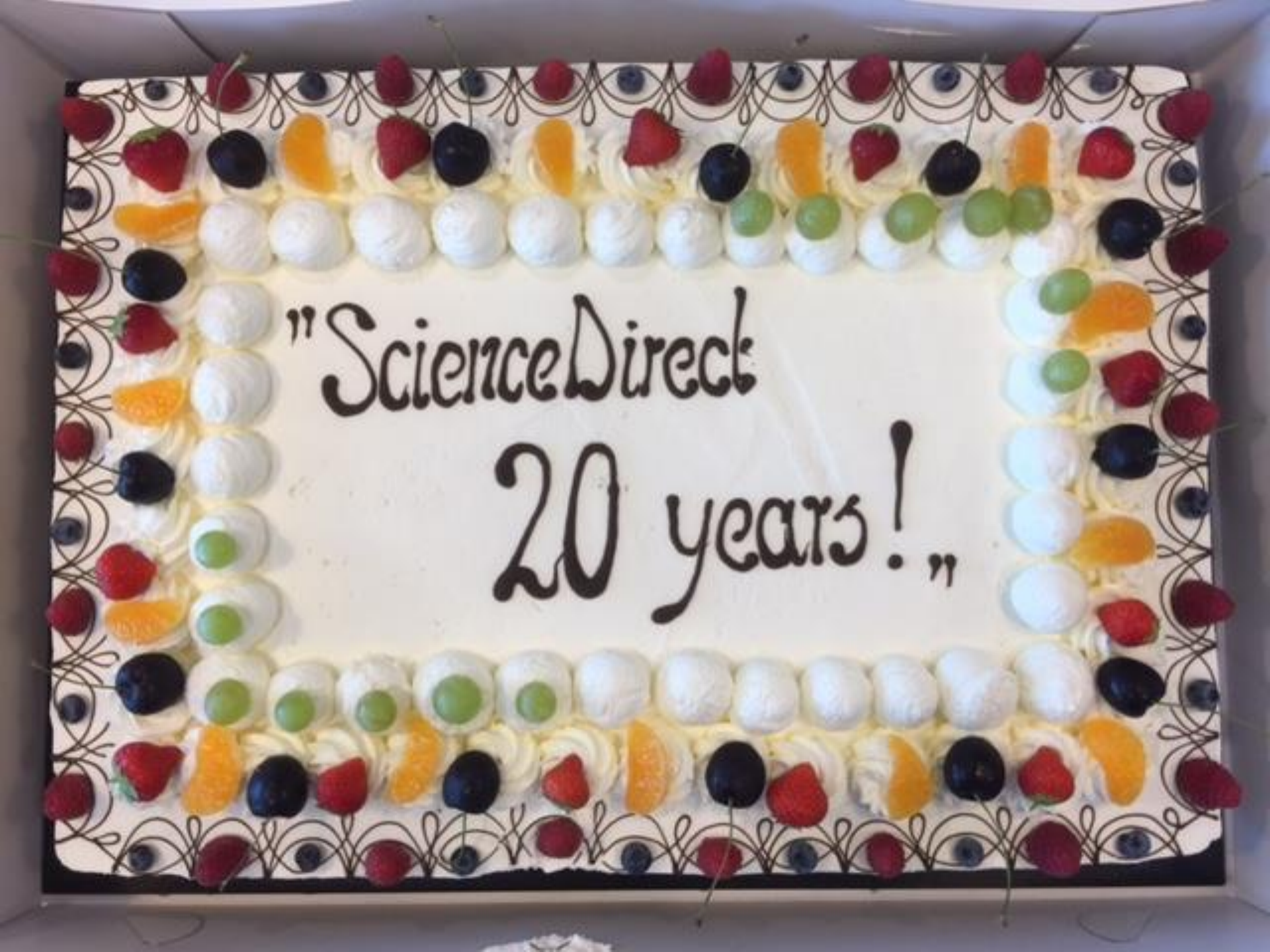
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Bruno Giussani, NY Times

Things change

Distribution and dissemination

Submission and peer review

What is consumed

Search and retrieval strategies

Futures 41 (2009) 436–445

Contents lists available at ScienceDirect

Futures

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Anticipating the future: 'Biotechnology for the poor' as unrealized promise?

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[b] Environmental Policy Group, Wageningen University, P.O. Box 8130, 6700 EW Wageningen, The Netherlands

ARTICLE INFO

Article history:
Available online 5 February 2009

ABSTRACT

This article analyses visions of the future articulated by proponents of 'biotechnology for the poor', those who claim that an embrace of transgenic technology in agriculture is critical to alleviating poverty in developing countries. Specifically, we analyse how such 'biotechnology for the poor' proponents represent a future with or without transgenic crops. Such representations include visions of a *beckoning* (*promising*) *future*, where much is to be gained from an embrace of transgenic technology in agriculture, and an *onrushing* (*threatening*) *future*, where much will be lost if the technology is not embraced. The article shows that claims about a beckoning or onrushing future by 'biotechnology for the poor' proponents are based upon unexamined or problematic assumptions about the poor and poverty. As such, poverty becomes merely a moral backdrop against which visions of a future are articulated. Furthermore, 'biotechnology for the poor' writings do not engage in dialogue with alternative voices in articulating their perspectives on the future, losing a key opportunity to democratize debate about this crucial issue. We conclude by considering the policy consequences (in regulatory and institutional terms) of 'biotechnology for the poor' depictions of the future, particularly for the global South where such consequences will be felt.

1. Introduction

In conflicts over genetic modification of food and feed crops, imageries of the future form a basic discursive arena for contrasting narratives about benefits and threats of modern biotechnology. With the future of one of the key technologies of the modern period at stake, the fate of the poor in developing countries has been introduced into the heart of the debate. The poor appear to be passive subjects drawn into the controversies between the USA and Europe (about Europe's moratorium on the approval of genetically modified organisms), and between the pro- and anti-biotechnology advocacy groups.

In referring to the potential role for transgenic crops to fight hunger and famine in Africa, United States (US) President George Bush, for example, stated that, "For the sake of a continent threatened by famine, I urge the European governments to end their opposition to biotechnology. We should encourage the spread of safe, effective biotechnology to win the fight against global hunger" [1]. This call was made in the context of the ongoing confrontation between the US and the European Union (EU) about the reluctance of the EU to open its markets to

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doi:10.1016/j.futures.2009.01.008

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2009


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Developmental Biology

Volume 419, Issue 2, 15 November 2016, Pages 229–236

Three-dimensional microCT imaging of mouse development from early post-implantation to early postnatal stages

Chih-Wei Hsu[a, b], Leeyean Wong[a], Tara L. Rasmussen[a], Sowmya Kalaga[a, b], Melissa L. McElwee[a], Lance C. Keith[a], Ritu Bohat[c], John R. Seavitt[c], Arthur L. Beaudet[c], Mary E. Dickinson[a, b, d]

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http://dx.doi.org/10.1016/j.ydbio.2016.09.011

Highlights

- MicroCT is suitable for 3D imaging of mouse development from early post-implantation to early postnatal development.
- Comparable resolution of E12.5 and E9.5 embryos acquired on microCT to OPT.
- Preserve extra-embryonic connections by imaging within yolk sac and decidua.

Abstract

In this work, we report the use of iodine-contrast microCT to perform high-throughput 3D morphological analysis of mouse embryos and neonates between embryonic day 8.5 to postnatal day 3, with high spatial resolution up to 3 μm/voxel. We show that mouse embryos at early stages can be imaged either within extra embryonic tissues such as the yolk sac or the decidua without physically disturbing the embryos. This method enables a full, undisturbed analysis of embryo turning, allantois development, vitelline vessels remodeling, yolk sac and early placenta development, which provides increased insights into early embryonic lethality in mutant lines. Moreover, these methods are inexpensive, simple to learn and do not require substantial processing time, making them ideal for high throughput analysis of mouse mutants with embryonic and early postnatal lethality.

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- Highlights
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- Keywords
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- 2. Results
- 3. Discussion
- 4. Materials and methods
- Author contributions
- Competing interest
- Funding
- Acknowledgements
- References

Figures and tables

Table 1

Movie 1
Movie 2
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Movie 5
Movie 6

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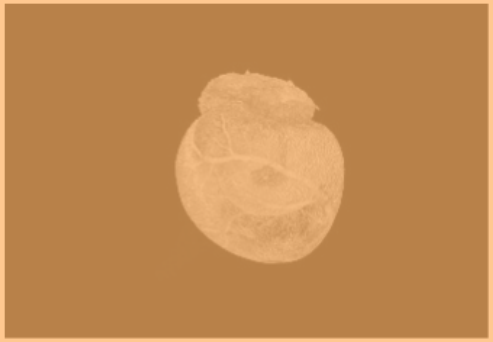
Virtual Microscope

E10.5 embryo iodine contrast microCT



Zoom 0% 33% 100%

Z stack 1 7 536

3D rendering of an E10.5 embryo within yolk sac imaged

Developmental Biology

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AGENDA

Back to the article-of-the-future

Enriching your article

Publications as clusters

‘Article’ of the future?

Wrapping up

In-Article Enrichments

Tip 1

Consult the journal's Guide for Authors and follow the instructions for article enrichments.

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https://www.elsevier.com/authors/author-services/enrichments

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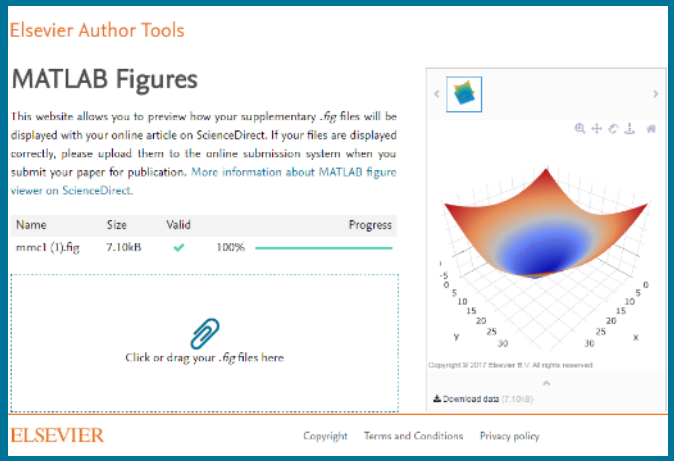

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2 Prepare

3 Preview

4 Position

5 Publish

Road to Enrichment

5 Publish

4 Position *'File1.nii here'.*

3 Preview

2 Prepare

1 Pick

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1 Pick

2 Prepare

3 Preview

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5 Publish

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Peer reviewed

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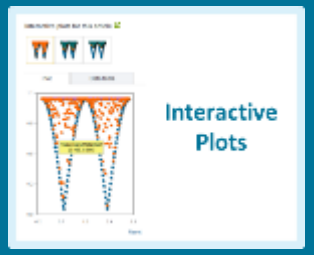
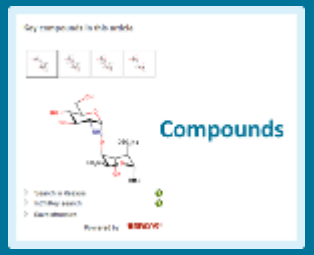
Interactive Data Visualization



Context & Reference



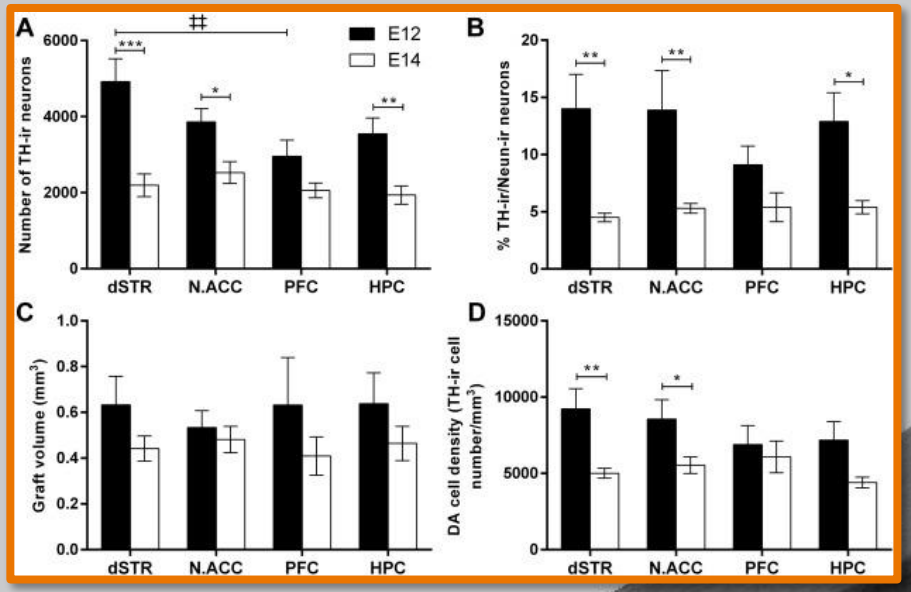
Article Promotion & Multimedia

- *3D Radiological Data*
- *3D Molecular Models and Crystallographic Data*
- *3D Neuroimaging*
- *3D Geometric Shapes and Models*
- *Interactive MATLAB Figures*
- *Interactive Phylogenetic Trees*
- *Interactive Plots*
- *Interactive U3D models*
- *Geospatial Data*
- *Virtual Microscope*

Data Visualization

‘The purpose of visualization is insight, not pictures.’

Ben Shneiderman


A
Number of TH-ir neurons
6000
4000
2000
0
dSTR
N.ACC
PFC
HPC
E12
E14
B
% TH-ir/Neun-ir neurons
20
15
10
5
0
C
Graft volume (mm³)
1.0
0.8
0.6
0.4
0.2
0.0
D
DA cell density (TH-ir cell number/mm³)
15000
10000
5000

3D Viewers

3D Geometric Shapes and Models

OBJ, PLY, MTL, JPG, PNG

3D Molecular Models and Crystallographic Data

PDB, PS, MOL, MOL2, CIF

3D Neuroimaging

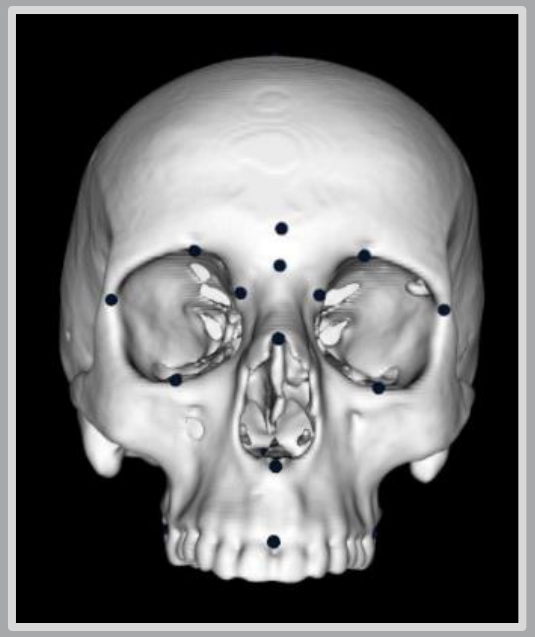
HDR, IMG, NII

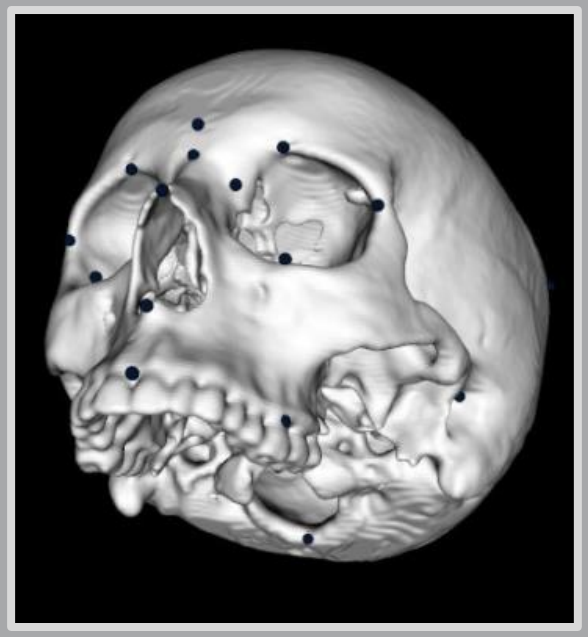
3D Radiological Data

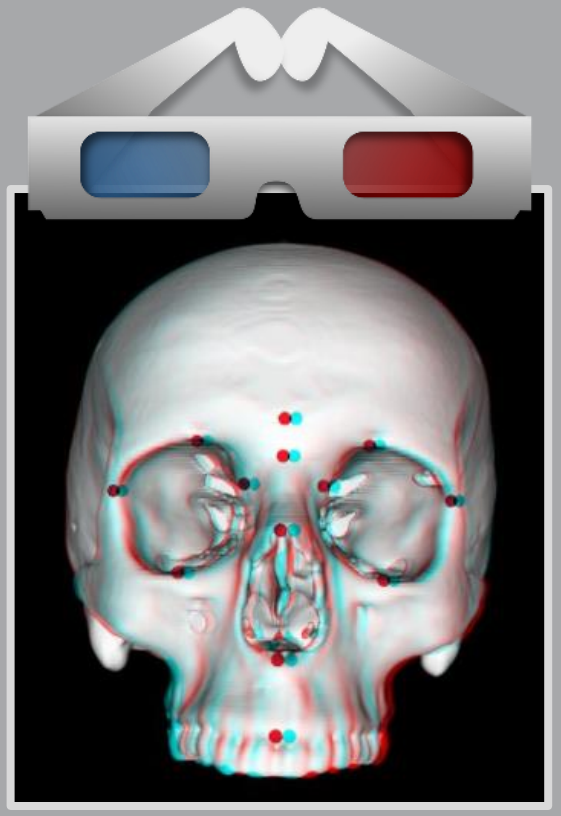
DICOM, DICM, CDRZIP, DCM, IMA

Interactive U3D models

U3D, PLY, OBJ, STL, VTK, JPG, TIFF, BMP, MTL







Geospatial Data

.kml Files

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Environmental Science & Policy

Volume 69, March 2017, Pages 124-135

Informing watershed planning and policy in the Truckee River basin through stakeholder engagement, scenario development, and impact evaluation

Kristen Podolak [a], Erik Lowe [b], Stacie Wolny [c], Barry Nickel [b], Rodd Kelsey [a]

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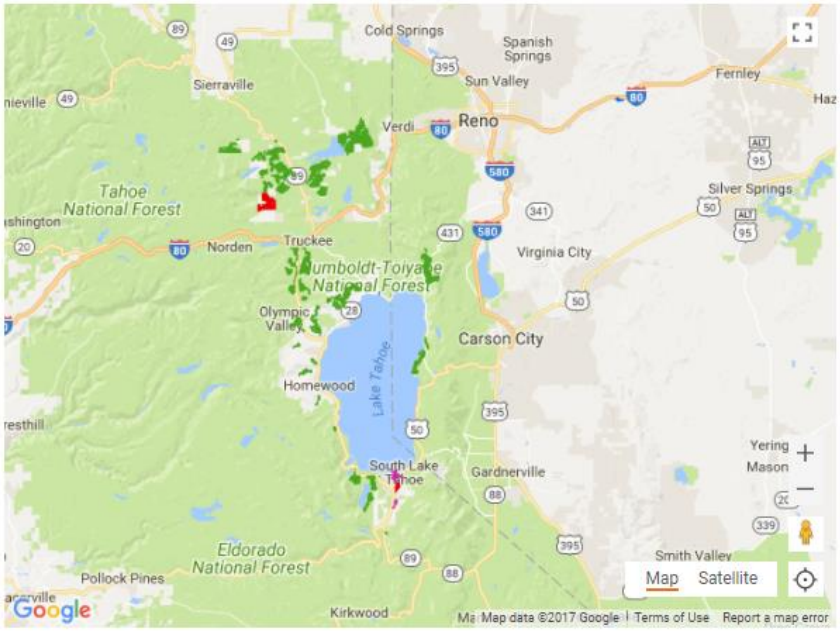
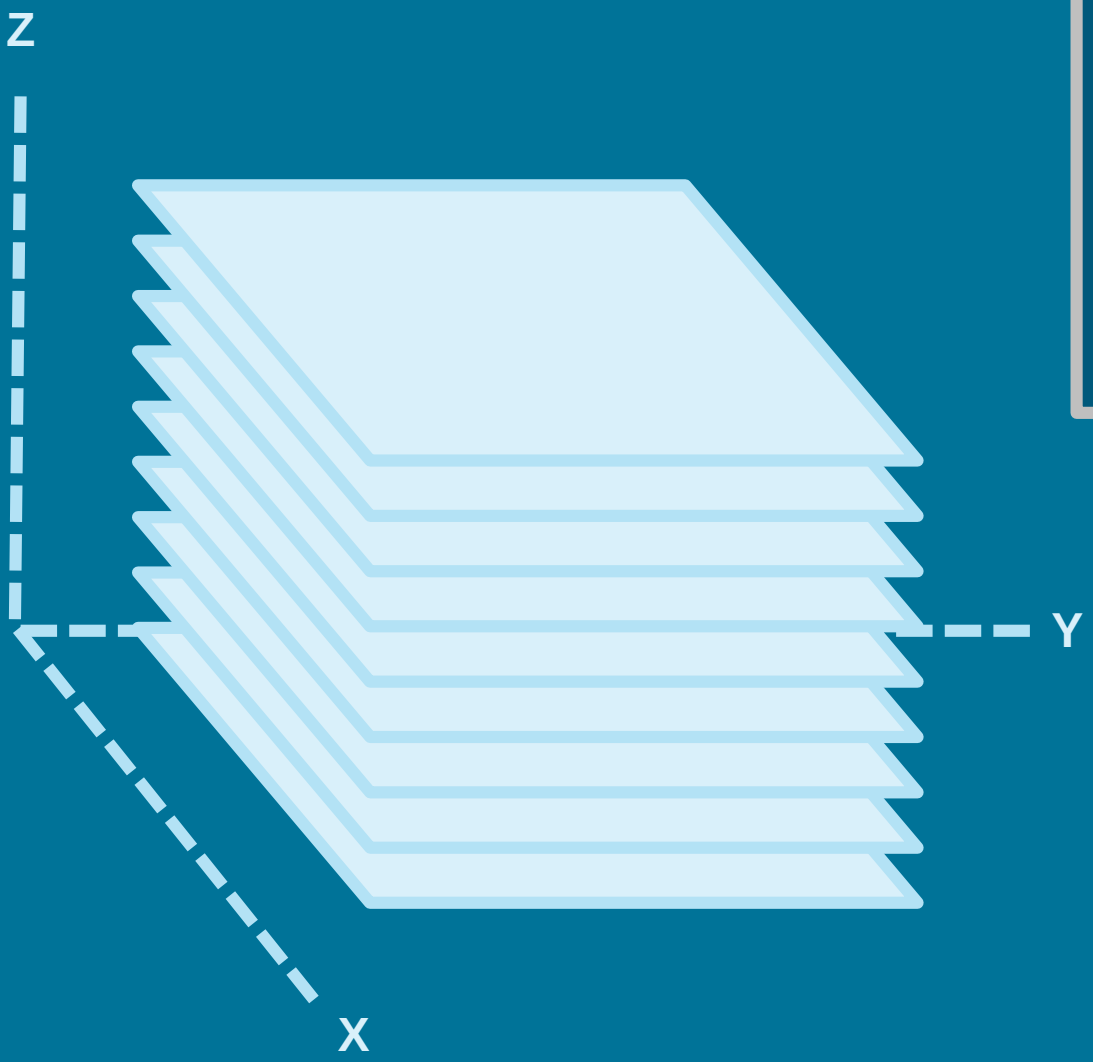
Geospatial data 1 of 4



Download data

3D rendering of an E10.5 embryo within yolk sac imaged by iodine contrast microCT

Virtual Microscope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Y
X

Instructions for Authors

Enriching your article is simple, just follow the manuscript submission process. In some cases we've built easy-to-use tools to help you bring your research to life. Most data visualization tools rely on data files which you upload with your paper. These are listed below, for others please check out the website.

Article Enrichments	File type
3D for Radiological Data	DICOM, DICM, CDRZIP, DCM, IMA (Make sure to anonymize your data)
Interactive 3D models	U3D, PLY, OBJ, STL, VTK, STL, JPG, TIF, BMP, MTL
3D Viewer for Molecular Models and Crystallographic Data	PDB, PSE, MOL, MOL2, CIF
3D Neuroimaging	HDR, IMG, NII
Interactive Phylogenetic Trees	NEX, NWK, NEW
R	R (packed into a ZIP file with any supporting data files)
Cytoscape Interactive Networks	JSON, CYJS (packed into a single ZIP file)
Reaxys Chemical Compound	MOL
Interactive Map	KML, KMZ
Interactive MATLAB Figure	FIG
Interactive Plot	CSV
Virtual Microscope	JPG, PNG, GIF, TIFF, NDPI, LIF, SCN, ND2, OIF, ETS, VSI or SVS

Tip 2

How you visualize your research (results) can be as personal as your style of writing. If a capability is missing, please tell us!

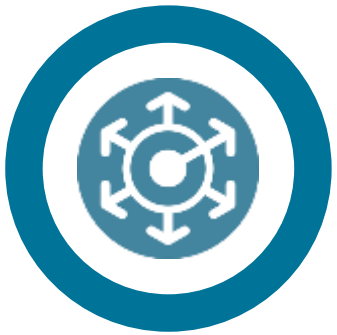
Antibody Data

Chemical Compounds

Lipid Structures Viewer

Gene Expression Omnibus Linked Data

Genome Data



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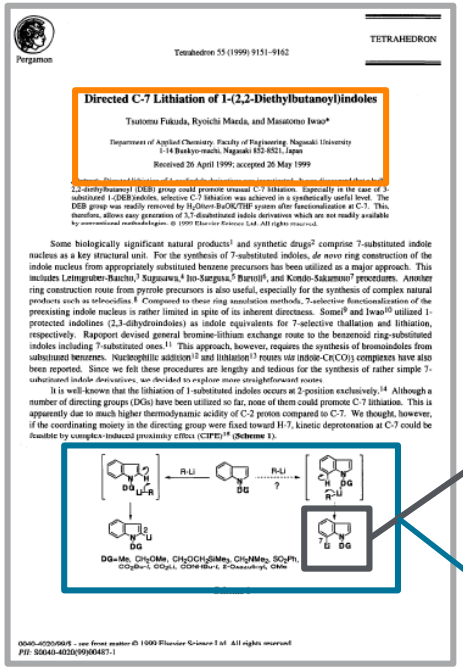

Pergamon

TETRAHEDRON

Tetrahedron 55 (1999) 9151–9162

Directed C-7 Lithiation of 1-(2,2-Diethylbutanoyl)indoles

Tsutomu Fukuda, Ryoichi Maeda, and Masatomo Iwao*

Department of Applied Chemistry, Faculty of Engineering, Nagasaki University
1-14 Bunkyo-machi, Nagasaki 852-8521, Japan

Received 26 April 1999; accepted 26 May 1999

2,2-diethylbutanoyl (DEB) group could promote unusual C-7 lithiation. Especially in the case of 3-substituted 1-(DEB)indoles, selective C-7 lithiation was achieved in a synthetically useful level. The DEB group was readily removed by H_2O/*tert*-BuOK/THF system after functionalization at C-7. This, therefore, allows easy generation of 3,7-disubstituted indole derivatives which are not readily available by conventional methodologies. © 1999 Elsevier Science Ltd. All rights reserved.

Some biologically significant natural products[1] and synthetic drugs[2] comprise 7-substituted indole nucleus as a key structural unit. For the synthesis of 7-substituted indoles, *de novo* ring construction of the indole nucleus from appropriately substituted benzene precursors has been utilized as a major approach. This includes Leimgruber-Batchu,[3] Sugasawa,[4] Iuo-Sargusa,[5] Bartoli[6], and Kondo-Sakamoto[7] procedures. Another ring construction route from pyrrole precursors is also useful, especially for the synthesis of complex natural products such as teleocidins.[8] Compared to these ring annulation methods, 7-selective functionalization of the preexisting indole nucleus is rather limited in spite of its inherent directness. Somei[9] and Iwao[10] utilized 1-protected indolines (2,3-dihydroindoles) as indole equivalents for 7-selective thallation and lithiation, respectively. Rapoport devised general bromine-lithium exchange route to the benzenoid ring-substituted indoles including 7-substituted ones.[11] This approach, however, requires the synthesis of bromoindoles from substituted benzenes. Nucleophilic addition[12] and lithiation[13] routes *via* indole-Cr(CO)$_3$ complexes have also been reported. Since we felt these procedures are lengthy and tedious for the synthesis of rather simple 7-substituted indole derivatives, we decided to explore more straightforward routes.

It is well-known that the lithiation of 1-substituted indoles occurs at 2-position exclusively.[14] Although a number of directing groups (DGs) have been utilized so far, none of them could promote C-7 lithiation. This is apparently due to much higher thermodynamic acidity of C-2 proton compared to C-7. We thought, however, if the coordinating moiety in the directing group were fixed toward H-7, kinetic deprotonation at C-7 could be feasible by complex-induced proximity effect (CIPE)[15] (**Scheme 1**).

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PII: S0040-4020(99)00487-1

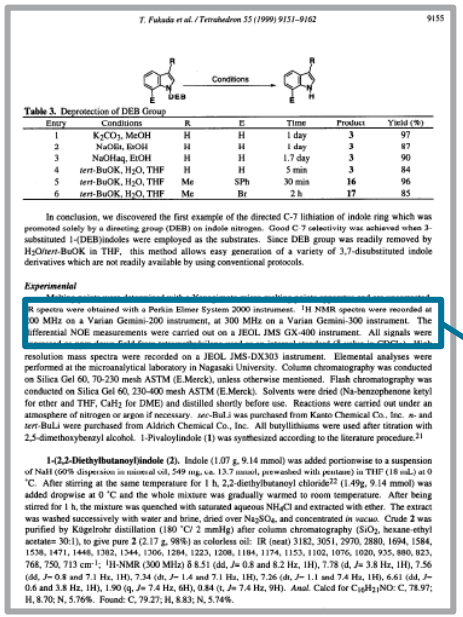

Table 3. Deprotection of DEB Group

Entry	Conditions	R	E	Time	Product	Yield (%)
1	K_2CO_3, MeOH	H	H	1 day	**3**	97
2	NaOEt, EtOH	H	H	1 day	**3**	87
3	NaOHaq, EtOH	H	H	1.7 day	**3**	90
4	*tert*-BuOK, H_2O, THF	H	H	5 min	**3**	84
5	*tert*-BuOK, H_2O, THF	Me	SPh	30 min	**16**	96
6	*tert*-BuOK, H_2O, THF	Me	Br	2 h	**17**	85

In conclusion, we discovered the first example of the directed C-7 lithiation of indole ring which was promoted solely by a directing group (DEB) on indole nitrogen. Good C-7 selectivity was achieved when 3-substituted 1-(DEB)indoles were employed as the substrates. Since DEB group was readily removed by H_2O/*tert*-BuOK in THF, this method allows easy generation of a variety of 3,7-disubstituted indole derivatives which are not readily available by using conventional protocols.

Experimental

IR spectra were obtained with a Perkin Elmer System 2000 instrument. ^{1}H NMR spectra were recorded at 300 MHz on a Varian Gemini-200 instrument, at 300 MHz on a Varian Gemini-300 instrument. The differential NOE measurements were carried out on a JEOL JMS GX-400 instrument. All signals were

resolution mass spectra were recorded on a JEOL JMS-DX303 instrument. Elemental analyses were performed at the microanalytical laboratory in Nagasaki University. Column chromatography was conducted on Silica Gel 60, 70-230 mesh ASTM (E.Merck), unless otherwise mentioned. Flash chromatography was conducted on Silica Gel 60, 230-400 mesh ASTM (E.Merck). Solvents were dried (Na-benzophenone ketyl for ether and THF, CaH_2 for DME) and distilled shortly before use. Reactions were carried out under an atmosphere of nitrogen or argon if necessary. *sec*-BuLi was purchased from Kanto Chemical Co., Inc. *n*- and *tert*-BuLi were purchased from Aldrich Chemical Co., Inc. All butyllithiums were used after titration with 2,5-dimethoxybenzyl alcohol. 1-Pivaloylindole (**1**) was synthesized according to the literature procedure.[21]

1-(2,2-Diethylbutanoyl)indole (2). Indole (1.07 g, 9.14 mmol) was added portionwise to a suspension of NaH (60% dispersion in mineral oil, 549 mg, ca. 13.7 mmol, prewashed with pentane) in THF (18 mL) at 0 °C. After stirring at the same temperature for 1 h, 2,2-diethylbutanoyl chloride[22] (1.49g, 9.14 mmol) was added dropwise at 0 °C and the whole mixture was gradually warmed to room temperature. After being stirred for 1 h, the mixture was quenched with saturated aqueous NH_4Cl and extracted with ether. The extract was washed successively with water and brine, dried over Na_2SO_4, and concentrated *in vacuo*. Crude **2** was purified by Kügelrohr distillation (180 °C/ 2 mmHg) after column chromatography (SiO_2, hexane-ethyl acetate= 30:1), to give pure **2** (2.17 g, 98%) as colorless oil: IR (neat) 3182, 3051, 2970, 2880, 1694, 1584, 1538, 1471, 1448, 1382, 1344, 1306, 1284, 1223, 1208, 1184, 1174, 1153, 1102, 1076, 1020, 935, 880, 823, 768, 750, 713 cm^{-1}; ^{1}H-NMR (300 MHz) δ 8.51 (dd, *J*= 0.8 and 8.2 Hz, 1H), 7.78 (d, *J*= 3.8 Hz, 1H), 7.56 (dd, *J*= 0.8 and 7.1 Hz, 1H), 7.34 (dt, *J*= 1.4 and 7.1 Hz, 1H), 7.26 (dt, *J*= 1.1 and 7.4 Hz, 1H), 6.61 (dd, *J*= 0.6 and 3.8 Hz, 1H), 1.90 (q, *J*= 7.4 Hz, 4H), 0.84 (t, *J*= 7.4 Hz, 9H). *Anal.* Calcd for $C_{16}H_{21}NO$: C, 78.97; H, 8.70; N, 5.76%. Found: C, 79.27; H, 8.83; N, 5.74%.

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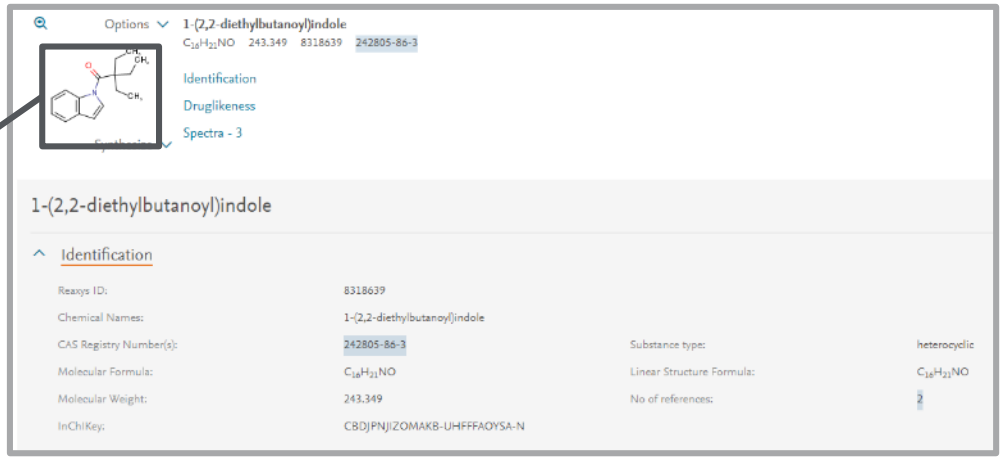

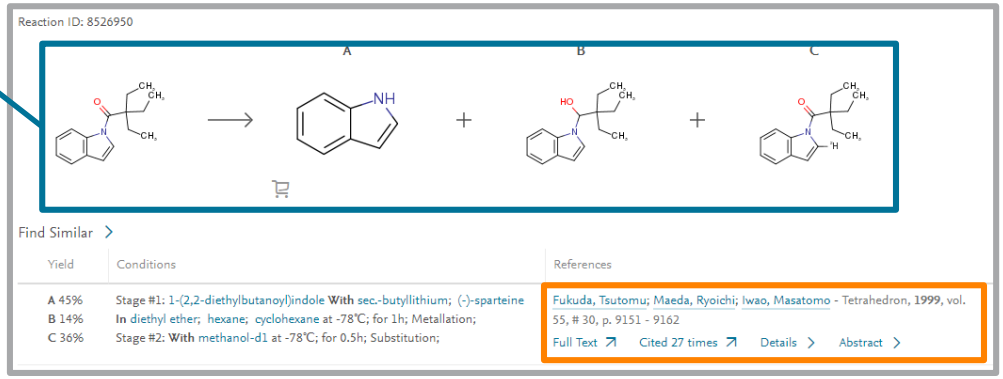

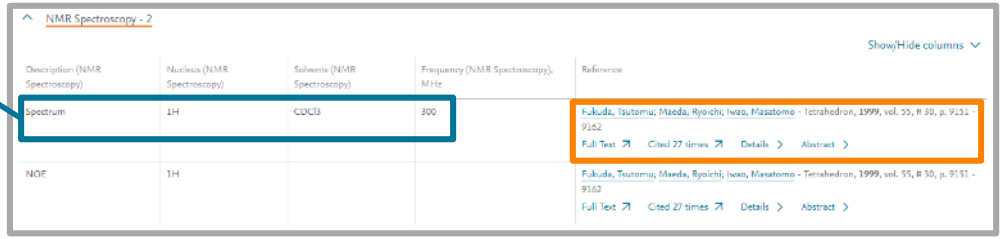

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Tetrahedron

Volume 71, Issue 52, 30 December 2015, Pages 9626–9629

Total synthesis of splenocin B, a potent inhibitor of the pro-inflammatory cytokine from marine-derived *Streptomyces* sp.

Ken-ichi Yoshida, Minako Ijiri, Hideo Iio, Yoshinosuke Usuki

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http://dx.doi.org/10.1016/j.tet.2015.10.075

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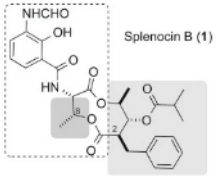
Abstract

The first total synthesis of splenocin B (**1**), a new potent anti-inflammatory antimycin-class antibiotic, has been described. The synthesis of **1** has been accomplished in 8 linear steps, starting from commercially available *N*-Boc-L-threonine benzyl ester **4** and 3,4-dihydroxypentanoic acid derivative **2**. Kita–Trost lactonization via an ethoxyvinyl ester intermediate was utilized for the construction of the 9-membered dilactone core.

Graphical abstract



Splenocin B (1)

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Keywords

Splenocin B; 9-Membered dilactone; Anti-inflammatory; Kita–Trost lactonization; Antimycin-class antibiotics

InChIKeys

POEKVQXERPXKAO-NIBHENIISA-N; IMBDECLJLUNDHN-DNGOPSCFSA-N

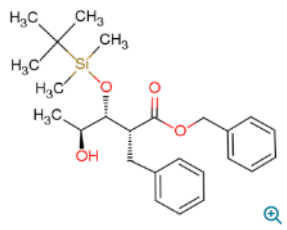
1 Introduction

Splenocins were isolated from an organic extract of marine-derived *Streptomyces* strain CNQ431 as potent anti-inflammatory antibiotics in 2009, which displayed low nanomolar activity in the suppression of cytokine production by OVA-stimulated splenocytes.[1 and 1(a)] Splenocins exhibit inhibitory activities toward not only the production of TH2 cytokines IL-5 and IL-13 but also the production of the dendritic cell-associated cytokins IL-1 and TNF-α, which provide great benefits in the treatment of asthma. The structures of splenocins are similar to those of antimycin A_3 (AA)[2 and 3] and UK-2A, another antibiotic in the antimycin class, which was first isolated in 1996 from a soil sample collected at our campus.[4] These consist of 9-membered dilactone rings linked via an amide bond to an aromatic acid moiety (Fig. 1); splenocins and AAs have 3-

Back to all compounds

4 of 14 Compounds in this article

butyldimethylsilanyloxy-4-hydroxypentanoic acid benzyl ester



Reaxys RN	8118964
CAS Number	210300-08-6
PubChem CID:	6590
Mol. Formula	$C_{25}H_{36}O_4Si$
Mol. Weight	428.644

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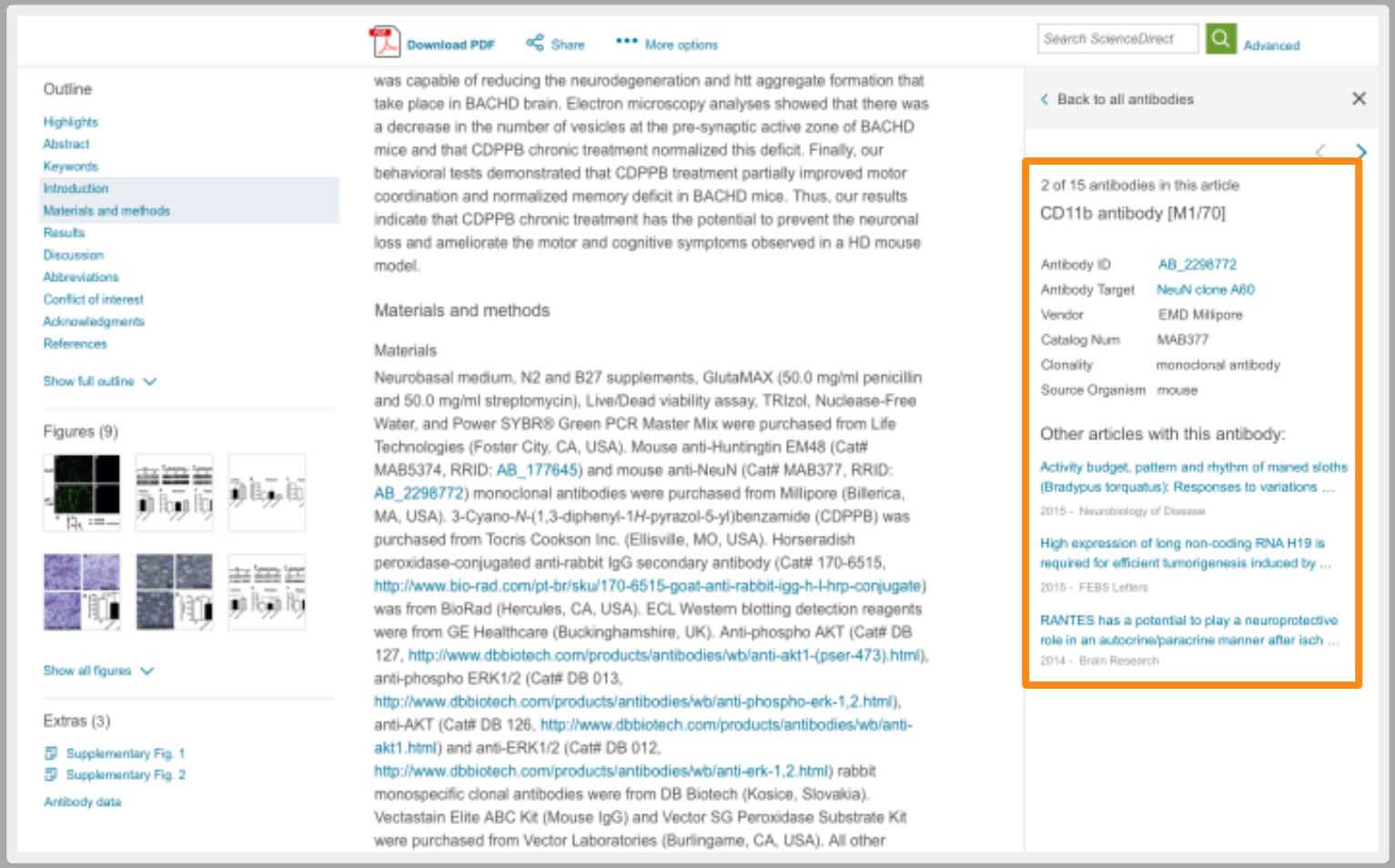
Antibodies

NIF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Extras (3)
Supplementary Fig. 1
Supplementary Fig. 2
Antibody data
was capable of reducing the neurodegeneration and htt aggregate formation that take place in BACHD brain. Electron microscopy analyses showed that there was a decrease in the number of vesicles at the pre-synaptic active zone of BACHD mice and that CDPPB chronic treatment normalized this deficit. Finally, our behavioral tests demonstrated that CDPPB treatment partially improved motor coordination and normalized memory deficit in BACHD mice. Thus, our results indicate that CDPPB chronic treatment has the potential to prevent the neuronal loss and ameliorate the motor and cognitive symptoms observed in a HD mouse model.
Materials and methods
Materials
Neurobasal medium, N2 and B27 supplements, GlutaMAX (50.0 mg/ml penicillin and 50.0 mg/ml streptomycin), Live/Dead viability assay, TRIzol, Nuclease-Free Water, and Power SYBR® Green PCR Master Mix were purchased from Life Technologies (Foster City, CA, USA). Mouse anti-Huntingtin EM48 (Cat# MAB5374, RRID: AB_177645) and mouse anti-NeuN (Cat# MAB377, RRID: AB_2298772) monoclonal antibodies were purchased from Millipore (Billerica, MA, USA). 3-Cyano-N-(1,3-diphenyl-1H-pyrazol-5-yl)benzamide (CDPPB) was purchased from Tocris Cookson Inc. (Ellisville, MO, USA). Horseradish peroxidase-conjugated anti-rabbit IgG secondary antibody (Cat# 170-6515, http://www.bio-rad.com/pt-br/sku/170-6515-goat-anti-rabbit-igg-h-l-hrp-conjugate) was from BioRad (Hercules, CA, USA). ECL Western blotting detection reagents were from GE Healthcare (Buckinghamshire, UK). Anti-phospho AKT (Cat# DB 127, http://www.dbbiotech.com/products/antibodies/wb/anti-akt1-(pser-473).html), anti-phospho ERK1/2 (Cat# DB 013, http://www.dbbiotech.com/products/antibodies/wb/anti-phospho-erk-1,2.html), anti-AKT (Cat# DB 126, http://www.dbbiotech.com/products/antibodies/wb/anti-akt1.html) and anti-ERK1/2 (Cat# DB 012, http://www.dbbiotech.com/products/antibodies/wb/anti-erk-1,2.html) rabbit monospecific clonal antibodies were from DB Biotech (Kosice, Slovakia). Vectastain Elite ABC Kit (Mouse IgG) and Vector SG Peroxidase Substrate Kit were purchased from Vector Laboratories (Burlingame, CA, USA). All other
Back to all antibodies
2 of 15 antibodies in this article
CD11b antibody [M1/70]
Antibody ID AB_2298772
Antibody Target NeuN clone A60
Vendor EMD Millipore
Catalog Num MAB377
Clonality monoclonal antibody
Source Organism mouse
Other articles with this antibody:
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Tip 3

Check which accession numbers or other identifiers a journal allows for the key concepts in your article – and include them!

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- *Featured Author Videos*
- *Interactive Questions*

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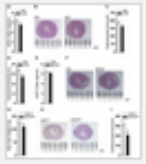
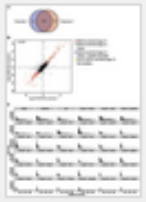
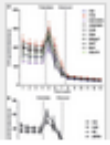
Figures and tables



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Molecular Metabolism

Volume 5, Issue 2, February 2016, Pages 67–78

Original article

Ataxin-10 is part of a cachexokine cocktail triggering cardiac metabolic dysfunction in cancer cachexia

Michaela Schäfer[1, 2, 4, 13], Christian U. Oeing[3, 4, 14], Maria Rohm[1, 2, 13], Ezgi Baysal-Temel[3, 4, 14], Lorenz H. Lehmann[3, 4, 14], Ralf Bauer[3, 4], H. Christian Volz[7, 4], Michael Boutros[7, 4], Daniela Sohn[1, 2, 13], Carsten Sticht[5], Norbert Gretz[5], Katrin Eichelbaum[12], Tessa Werner[10, 11], Marc N. Hirt[10, 11], Thomas Eschenhagen[10, 11], Karin Müller-Decker[8], Oliver Strobel[9], Thilo Hackert[9], Jeroen Krijgsveld[6], Hugo A. Katus[3, 4], Mauricio Berriel Diaz[1, 2, 13], Johannes Backs[3, 4, 14], Stephan Herzig[1, 2, 4, 13]

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http://dx.doi.org/10.1016/j.molmet.2015.11.004

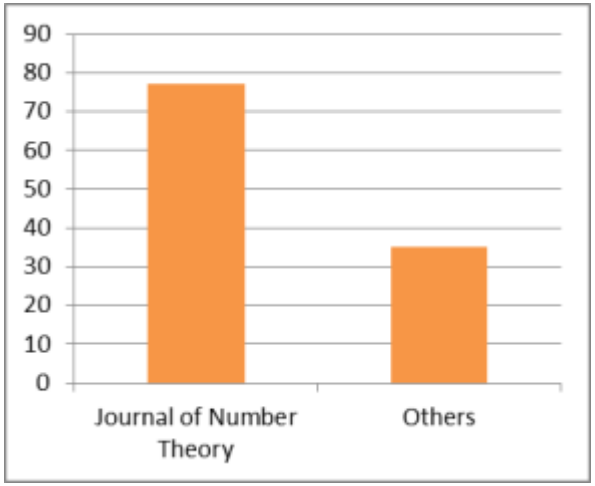
Highlights

- Cancer cachexia induces remodeling of the heart.
- Tumor-borne secreted factors mediate cardiomyocyte atrophy.
- Selective cachexokines, including Bin1, Stx7, Minpp1, Gaa, Ccl2, Adamtsl4, and Atxn10 provoke aberrant cardiac FA metabolism.
- Ataxin-10 levels are elevated under cachectic conditions in mice and tumor patients.

Abstract

Objectives

Cancer cachexia affects the majority of tumor patients and significantly contributes to high mortality rates in these subjects. Despite its clinical importance, the identity of tumor-borne signals and their impact on specific peripheral organ systems, particularly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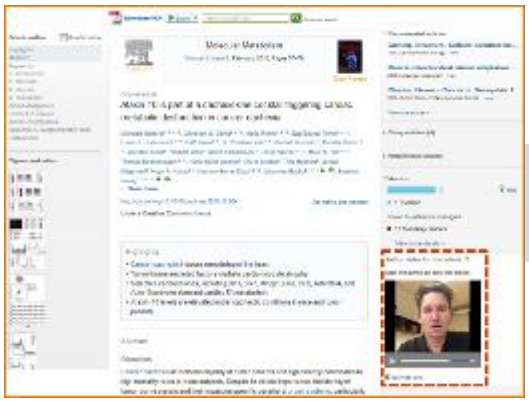

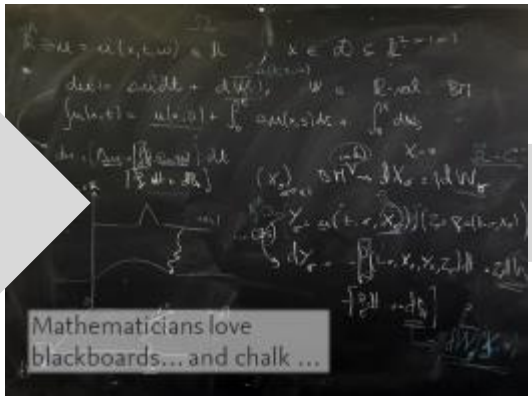

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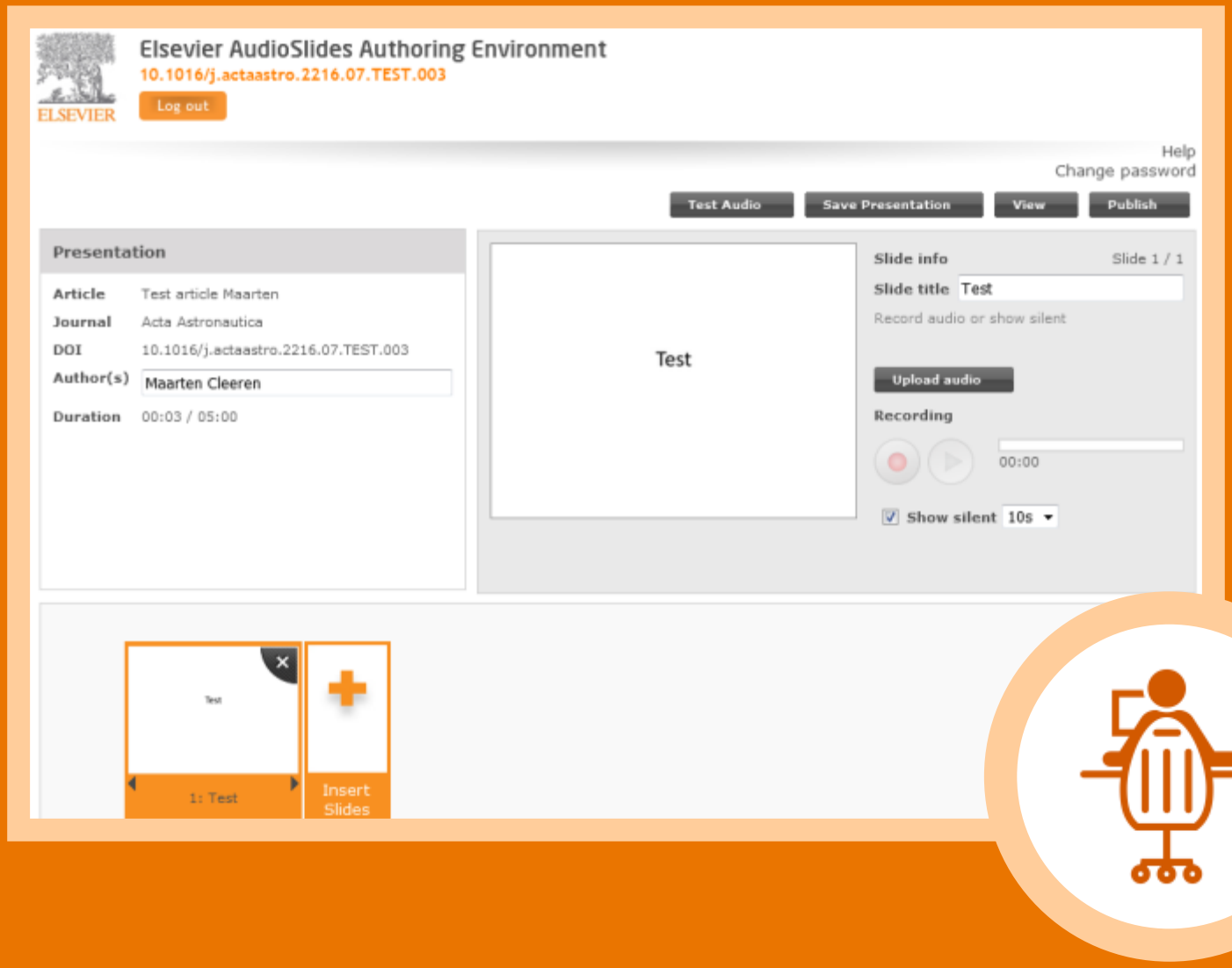
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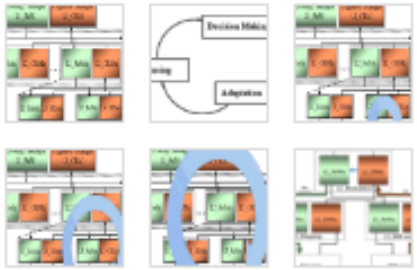

Application of Hierarchical and Distributed Cognitive Architecture Management for the Smart Grid

Jacques Palicot, Christophe Moy, Benoit Résimont, Rémi Bonnefoi

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http://dx.doi.org/10.1016/j.adhoc.2015.12.002

Abstract

Moving from the current power grid to the Smart Grid (SG) requires decentralizing management. This should be done by distributing intelligence over the entire grid, thereby, the intermittent production of renewable energy, customer consumption and electricity storage in electrical vehicles (EVs) could be managed in real time. In this paper, the Hierarchical and Distributed Cognitive Radio Architecture Management (HDCRAM), initially proposed to manage Cognitive Radio systems, is proposed for the management of the SG. This architecture can both be applied to the whole SG and to any sub-part (distribution network, production network, microgrid). In this paper we focus on the distribution network and the hierarchical position of each element is identified. As an example, HDCRAM is used for smart home management and multi-agent based modeling shows benefits of such an architecture. In the simulated scenario, without any management the peak power consumption is 5500 W and the hierarchical and distributed management allows to reduce it to 900 W. This diminution allows to reduce the pressure on the grid and can decrease the risk of failure.

Keywords

Smart Grid (SG); Smart home management; Hierarchical and Distributed Cognitive Radio Architecture Management (HDCRAM); Multi-agent systems; JADE

Tip 4

Invest time in sharing your research on social or other media – using your existing research article or such a tool as a video abstract/AudioSlide.

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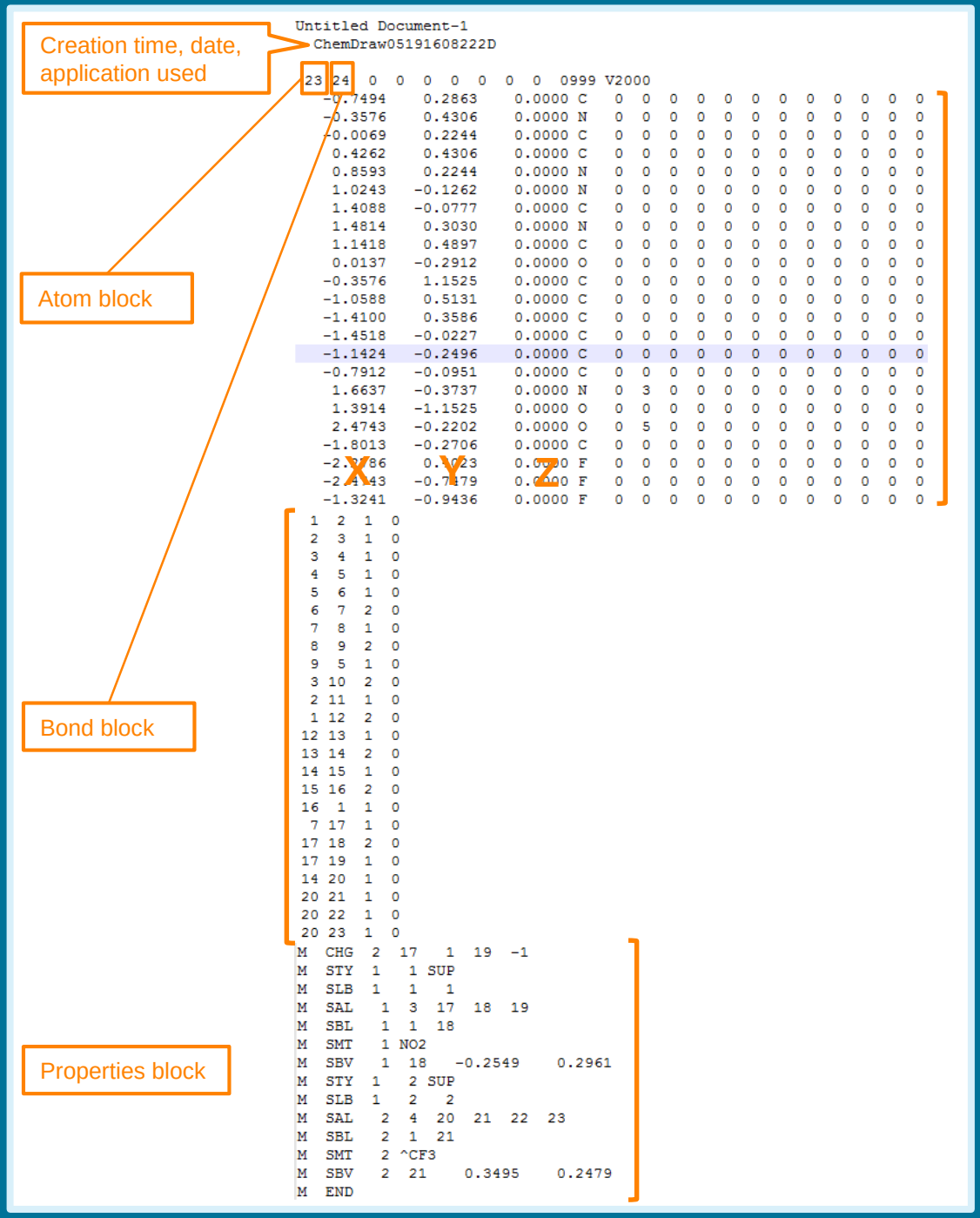


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M  SBL   1  1  18
M  SMT   1 NO2
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AGENDA

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Enriching your article

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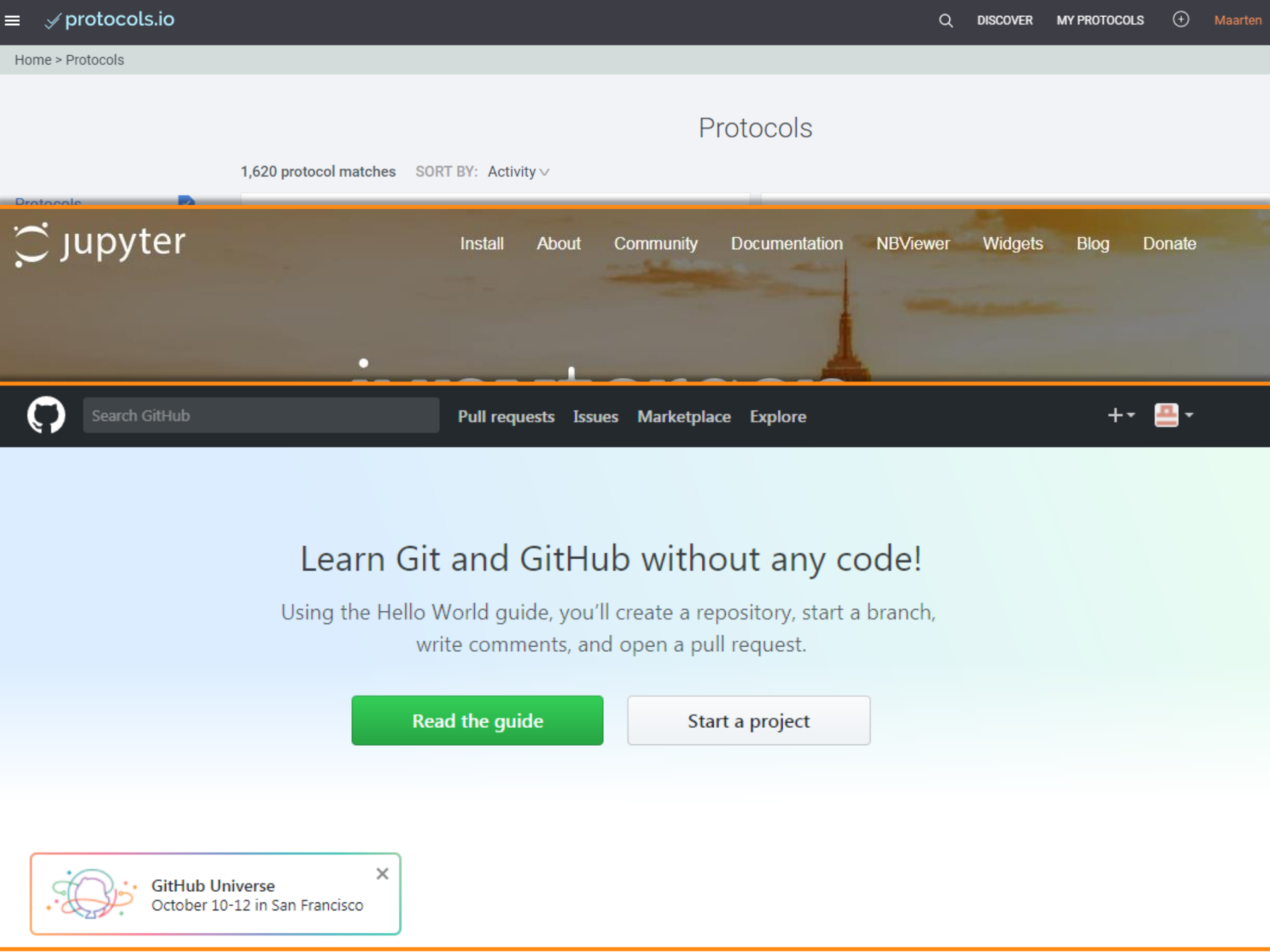
Wrapping up

Changing modes of scientific output

Getting the highest publication value out of your research

Research Data, reproducibility and being a good citizen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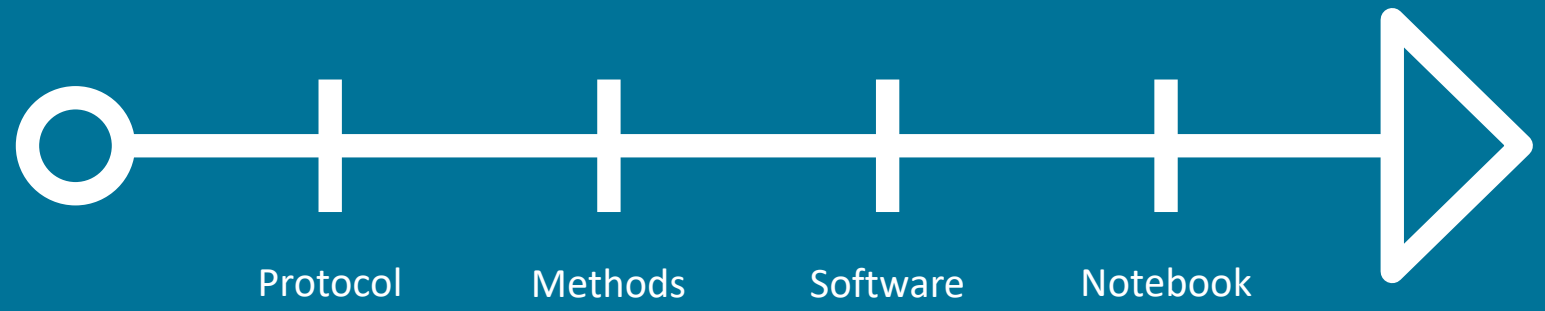
Learn Git and GitHub without any code!
Using the Hello World guide, you'll create a repository, start a branch, write comments, and open a pull request.
Read the guide
Start a project
GitHub Universe
October 10-12 in San Francisco


Start
Project
Research
Publish


Protocol
Methods
Software
Notebook

HardwareX promotes free and open source designing, building and customizing of scientific infrastructure (hardware). It recognizes researchers for the time and effort in developing scientific and is open to input from all scientific, technological and medical disciplines.

SoftwareX aims to acknowledge the impact of software on today's research practice, and on new scientific discoveries in almost all research domains. *SoftwareX* also aims to stress the importance of the software developers who are, in part, responsible for this impact.

MethodsX publishes the small but important customizations made to methods every day. By releasing the hidden gems from your lab book, you can get credit for the time, effort and money put in to making methods work for you.

Tip 7

Create a publication strategy: how many things in your research can you publish?

Reproducibility

the ability of a researcher to duplicate the results of a prior study using the same materials as were used by the original investigator

Store

Upload to Mendeley Data – *a certified, free-to-use repository that hosts open data in all formats and from all disciplines. Upload and store your data (including raw and processed data, tables, code and software) in the repository and your data will receive a DOI, making it independently citable and discoverable*

Link

Create bidirectional links between repositories relevant to your research your article on ScienceDirect. Readers get one-click access to that data helping them to validate your research or drive further investigations.

Enrich

When publishing your research online, you are no longer confined to static visuals; you can explore a set of in-article interactive visualization tools that will help you share insights with your readers.

Publish

Publish a data article - brief, peer-reviewed publications about research data. Sharing data enables others to gain new insights and make interpretations for their own research. Thanks to a detailed dataset description, the data published in data articles can be reused, re-analyzed.

Declare

To encourage transparency, we encourage authors to state the availability of their data. This allows authors unable to share data to indicate why data is not available to access or appropriate to post. Authors can specify why data is not available. The statement will appear with the article on ScienceDirect.

Cite

Get credit for your work by citing your research data in your article and adding a data reference to the reference list. This ensures you get the recognition for the data you shared and/or applied for your research.

Tip 8

Store, link, enrich, publish, declare, cite (your) research data

Research data for this article

Open Data

for download under the CC BY licence

application 1

(PDF, 490KB)

Download data

References

[1] A.F. Littke, G.C. Fu

Palladium-catalyzed coupling reactions of aryl chlorides

Angew. Chem. Int. Ed., 41 (2002), pp. 4176-4211

ORCID

Connecting Research
and Researchers

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3 **USE YOUR ORCID ID** Include your ORCID identifier on your Webpage, when you submit publications, apply for grants, and in any research workflow to ensure you get credit for your work.

Research Assessment

Tip 9

Make sure you get the credit! Create your own research profile – attributed to a unique ORCID.

AGENDA

Back to the article-of-the-future

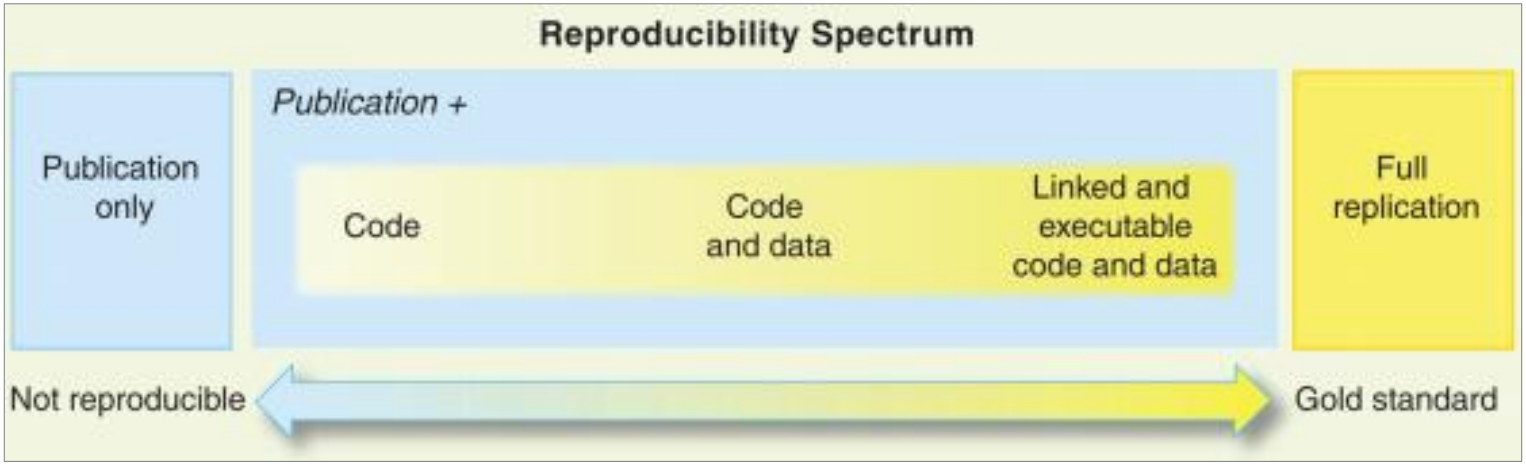
Enriching your article

Publications as clusters

‘Article’ of the future?

Wrapping up

Death of the long-form article?



Peng, Roger D. “Reproducible Research in Computational Science.” *Science (New York, N.y.)* 334.6060 (2011): 1226–1227. *PMC*. Web. 25 Aug. 2017.

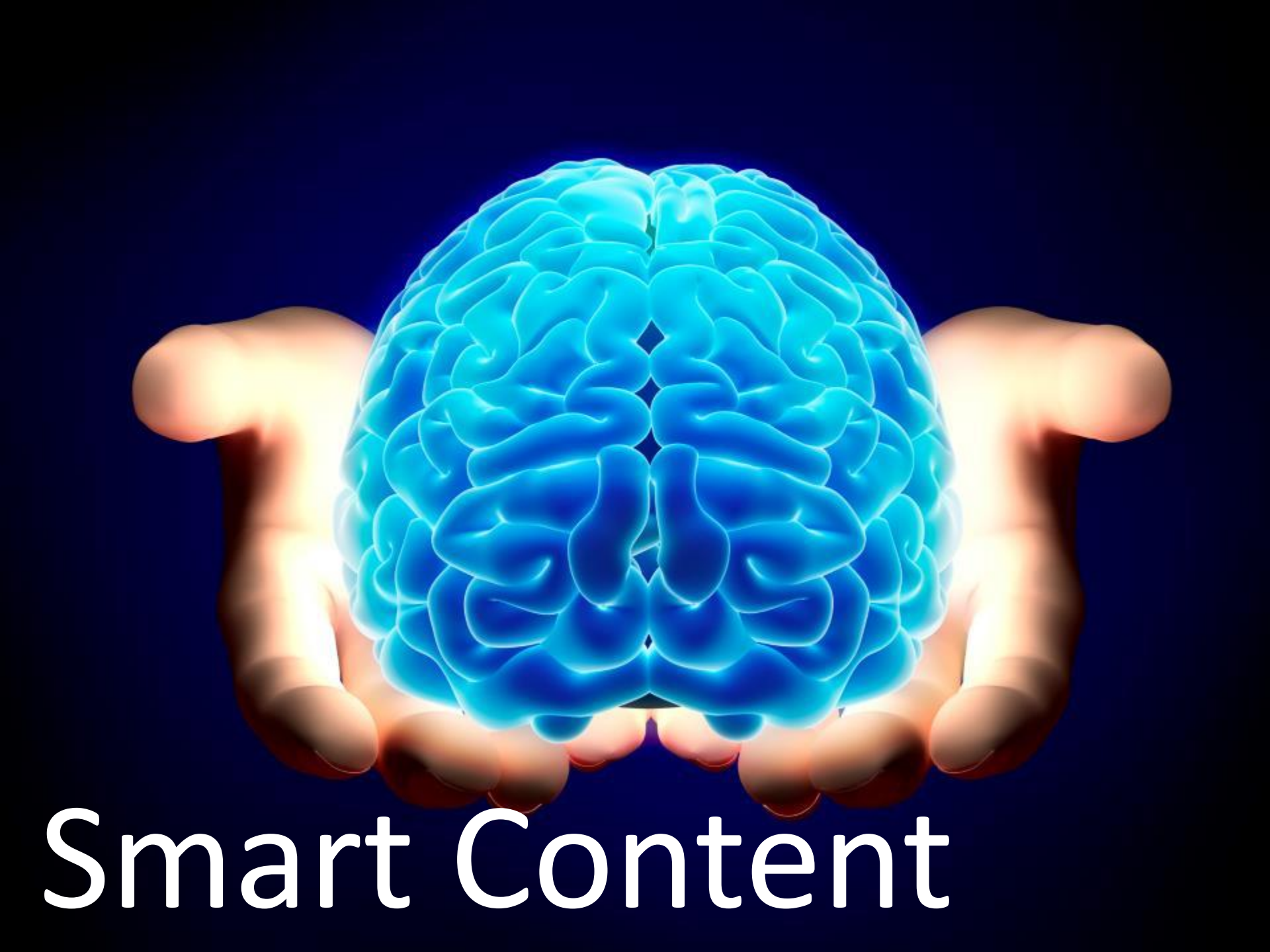
Human Consumption

“Machines are our most avid Readers”

Search Engine Optimization

Tip 10

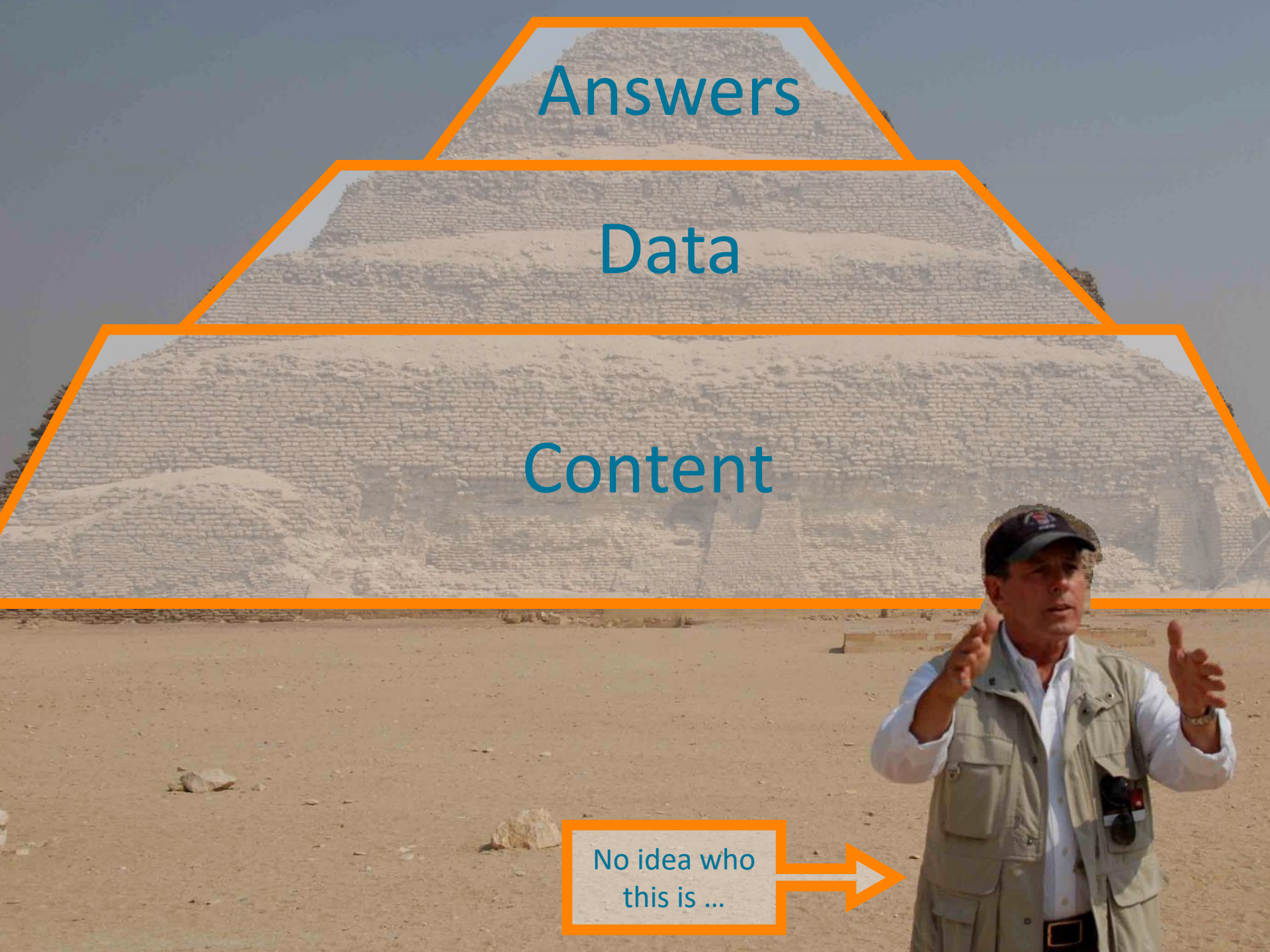
Your abstract, title and key words are prime sources for SEO. Make sure they include concepts that are highly relevant to your research


Smart Content

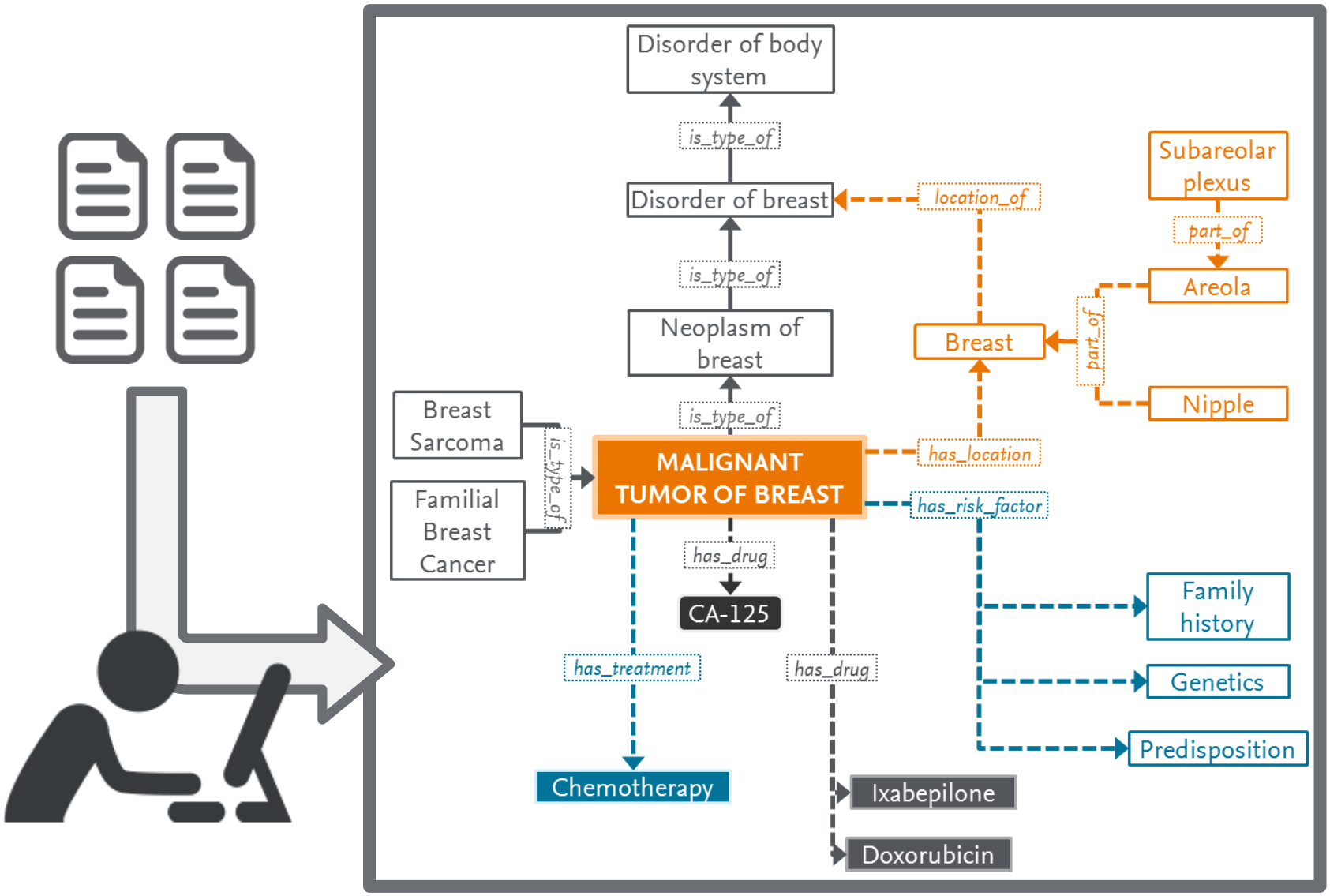
Smart Content is information, typically originating in "unstructured" formats, that is findable, reusable, more profitable for the producer, and more useful for the consumer.

Seth Grimes

www.linkedin.com/in/grimes


Answers
Data
Content
No idea who this is …

Cross-Article Enrichment


Disorder of body system
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Disorder of breast
location_of
Subareolar plexus
part_of
Areola
is_type_of
Neoplasm of breast
Breast
part_of
Nipple
Breast Sarcoma
is_type_of
Familial Breast Cancer
is_type_of
MALIGNANT TUMOR OF BREAST
has_location
has_risk_factor
has_drug
CA-125
Family history
Genetics
Predisposition
has_treatment
has_drug
Chemotherapy
Ixabepilone
Doxorubicin

Ontology

Knowledge Graph

AGENDA

Back to the article-of-the-future

Enriching your article

Publications as clusters

‘Article’ of the future?

Wrapping up

We are committed in-article enrichments

It’s all about author choice

Research is diversifying

Machines are your most avid readers

Future of the article?

Tip 11

If you disagree, agree, or have any questions: please come and find me at the conference, or …

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