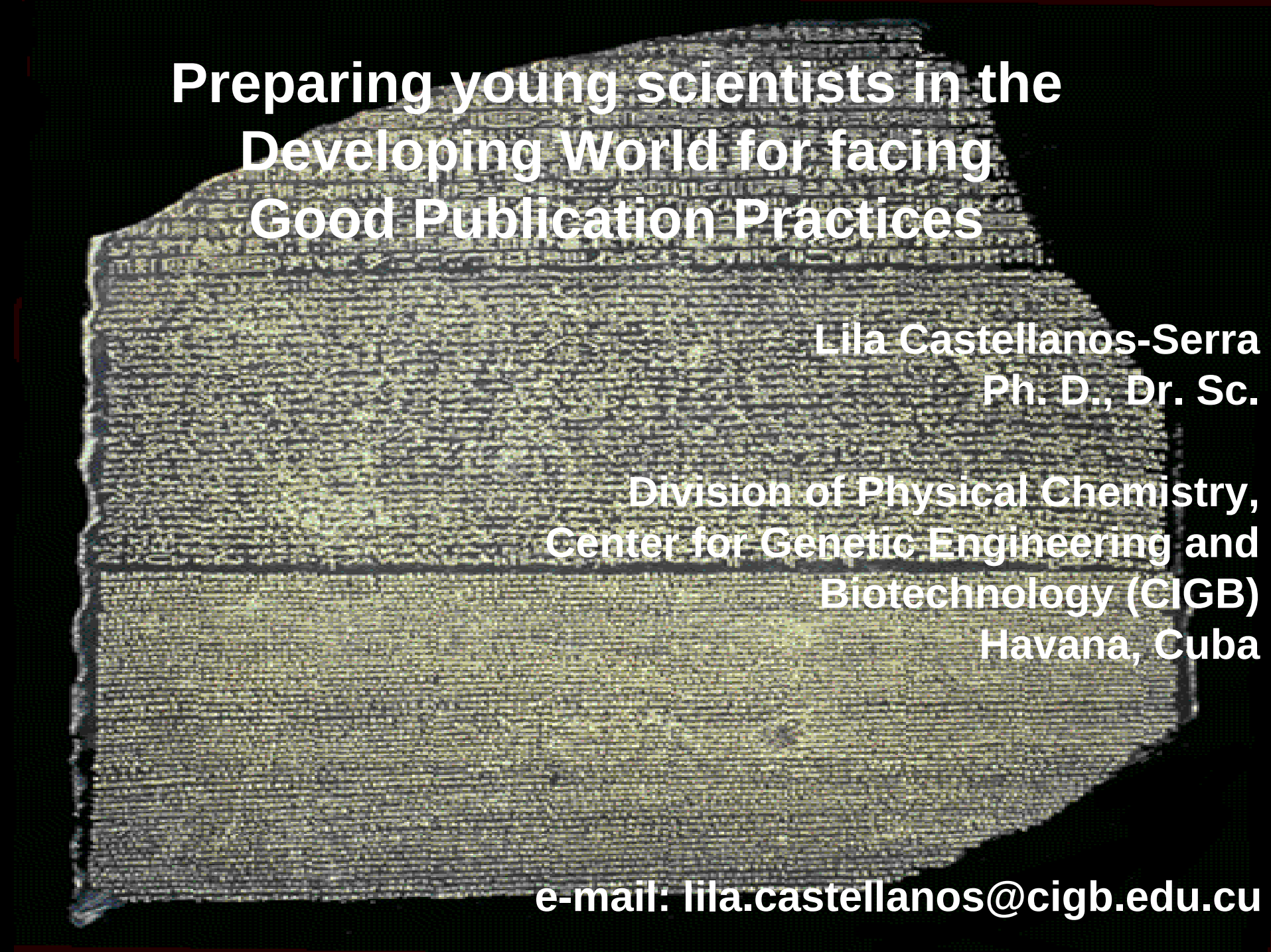

Preparing young scientists in the Developing World for facing Good Publication Practices

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THE MAP OF THIS LECTURE:

- A brief review of “Good Practices”
- Good Publication Practice: an emerging concept
- Two examples of what is being done: EQUATOR and MIBBI
- The challenge for scientists in developing countries working in biological sciences
- What can be done: some ideas

What are Good Practices (GP's)?

A brief review of the concept

GP's are guidelines that define:

- **How things should be done (specifications and standard operating procedures)**
- **How to demonstrate their implementation (registries)**

GP's generally begin as guidelines …and become compulsory as they get approved and introduced.

"Good Practices" in the pharmaceutical industry: a one slide history

Source: Barbara Immel, The BioPharm Guide to GMP History, 2002.

Laboratory Research ← **Good Laboratory Practices, GLP (1979)**

↓

The Industry ← **Good Manufacturing Practices, GMP (1963)**

↓

Clinical trials ← **Good Clinical Practices, GCP (1996)**

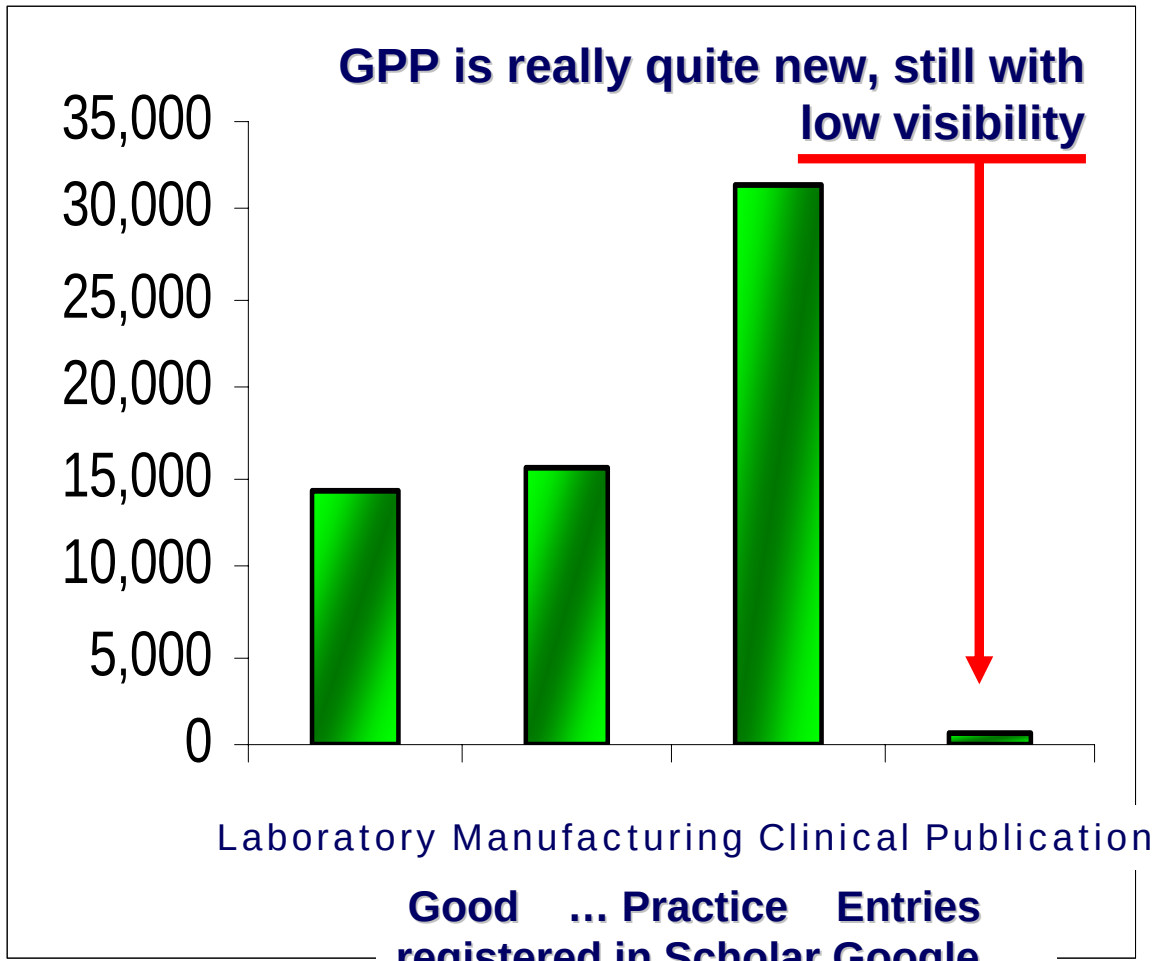
"Good Publication Practice for pharmaceutical companies"

Current Medical Research & Opinion 2003;19(3):149-154

The Int. Soc. for Medical Publication Professionals

"…designed for use by pharmaceutical companies and other commercial organizations that sponsor clinical trials"

Updated in: BMJ, Dec. 2009, vol 339: "GPP2 Guidelines"



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Both articles establishing Good Publication Practice addressed mainly ethical aspects in medical publications
Now, there is the need for widening the concept, to include all aspects related to quality when publishing biological, medical, and biomedical research
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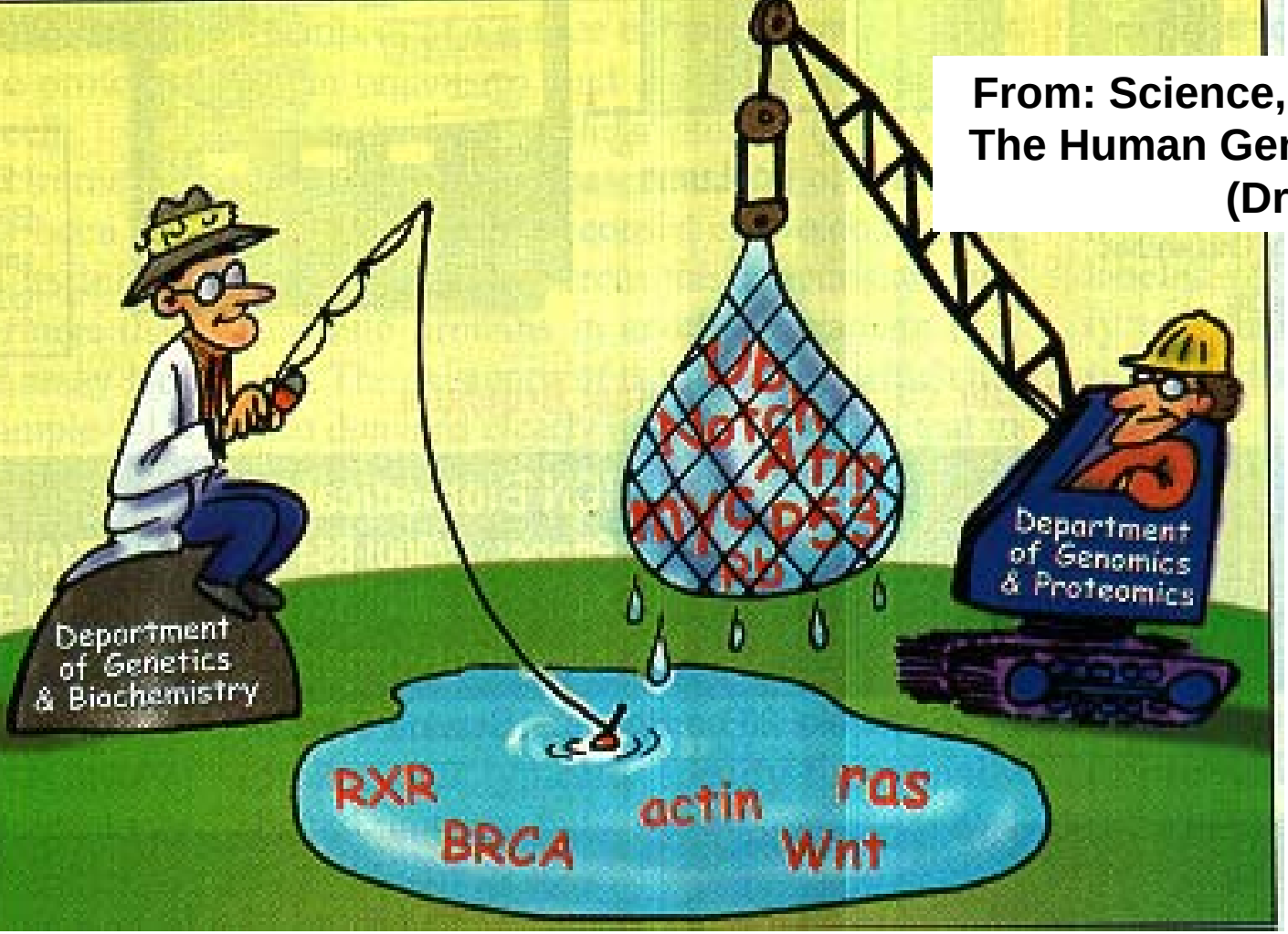

In biomedical sciences there is concern about the volume of published data and the degree attained in their validation (and interpretation)

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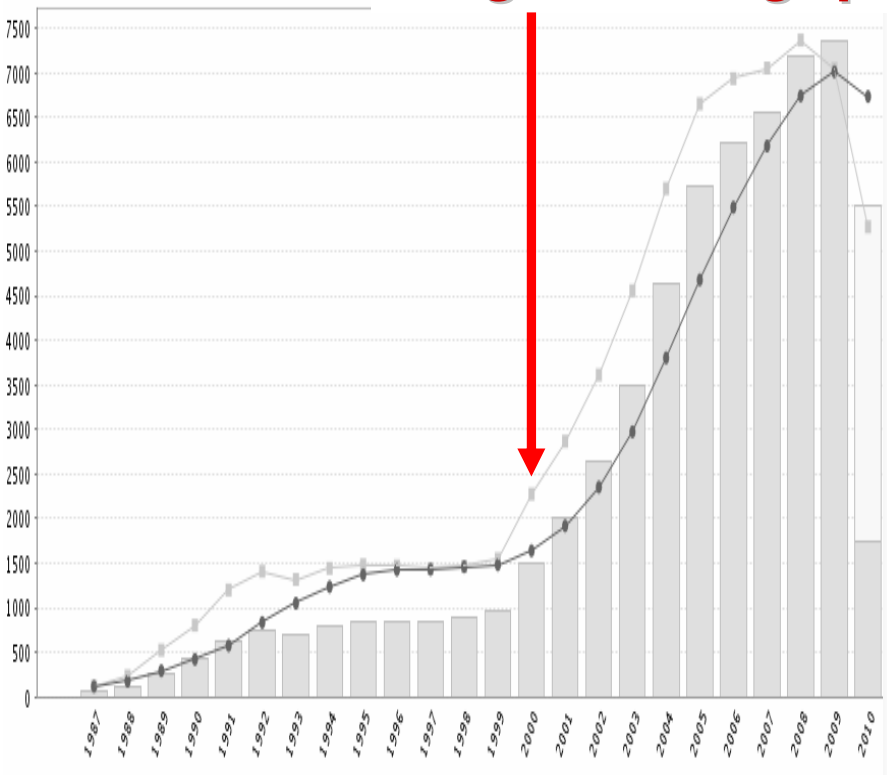
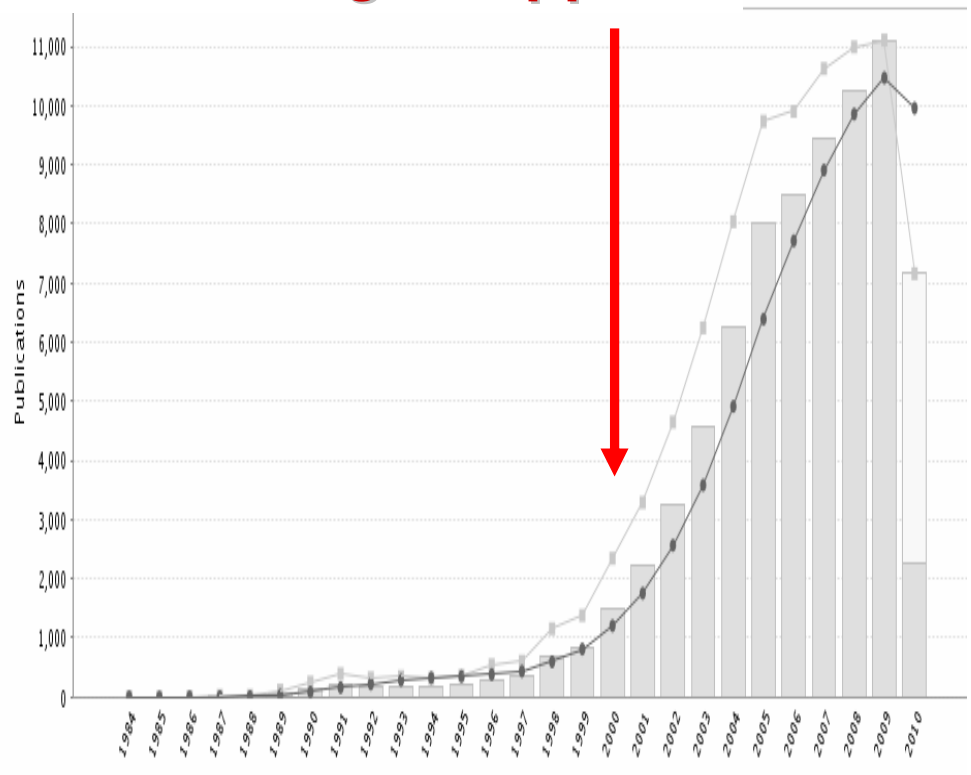
High Throughput Technologies appear





GoPubMed Search for: Genomics

GoPubMed Search for: Bioinformatics

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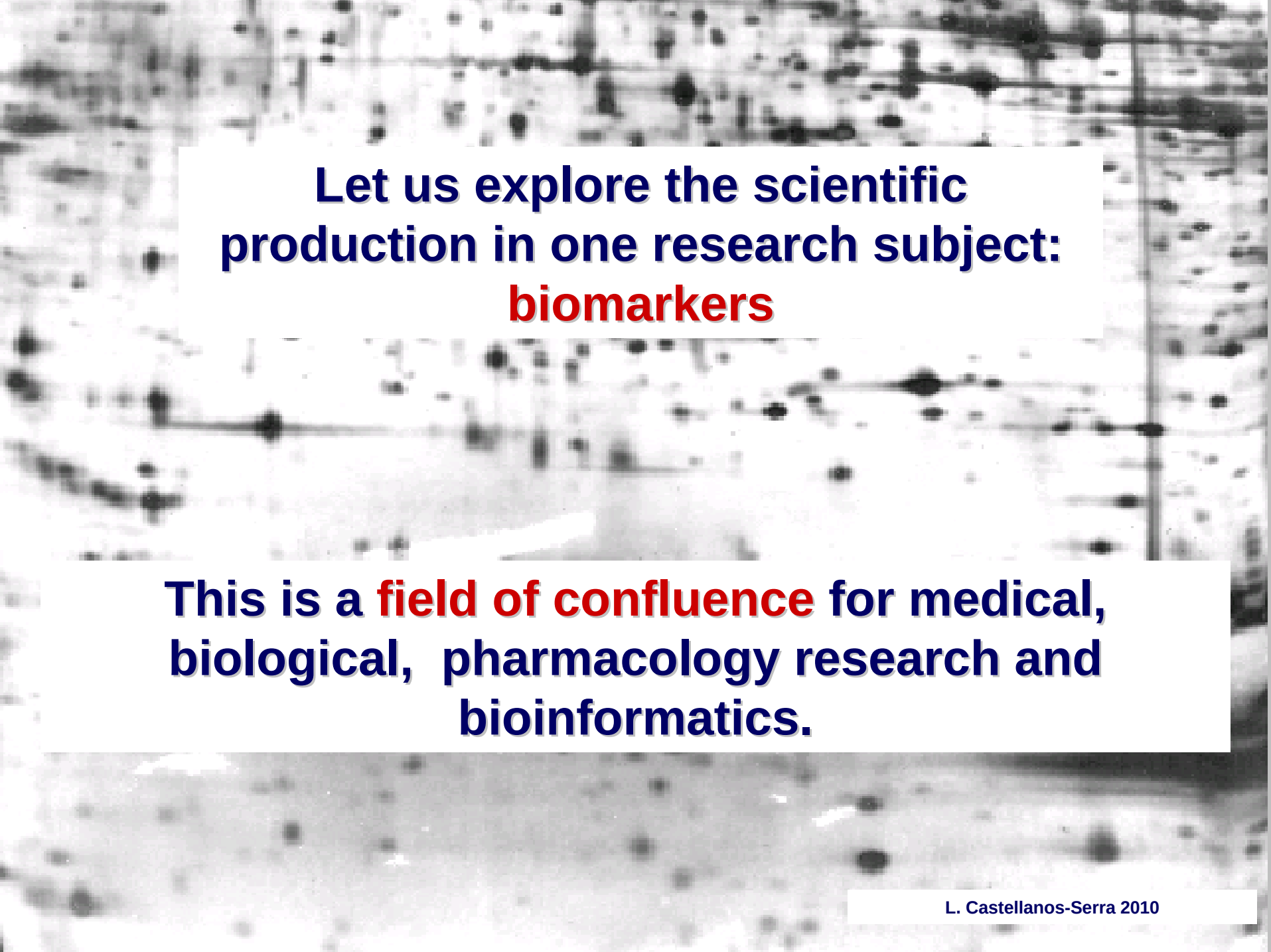
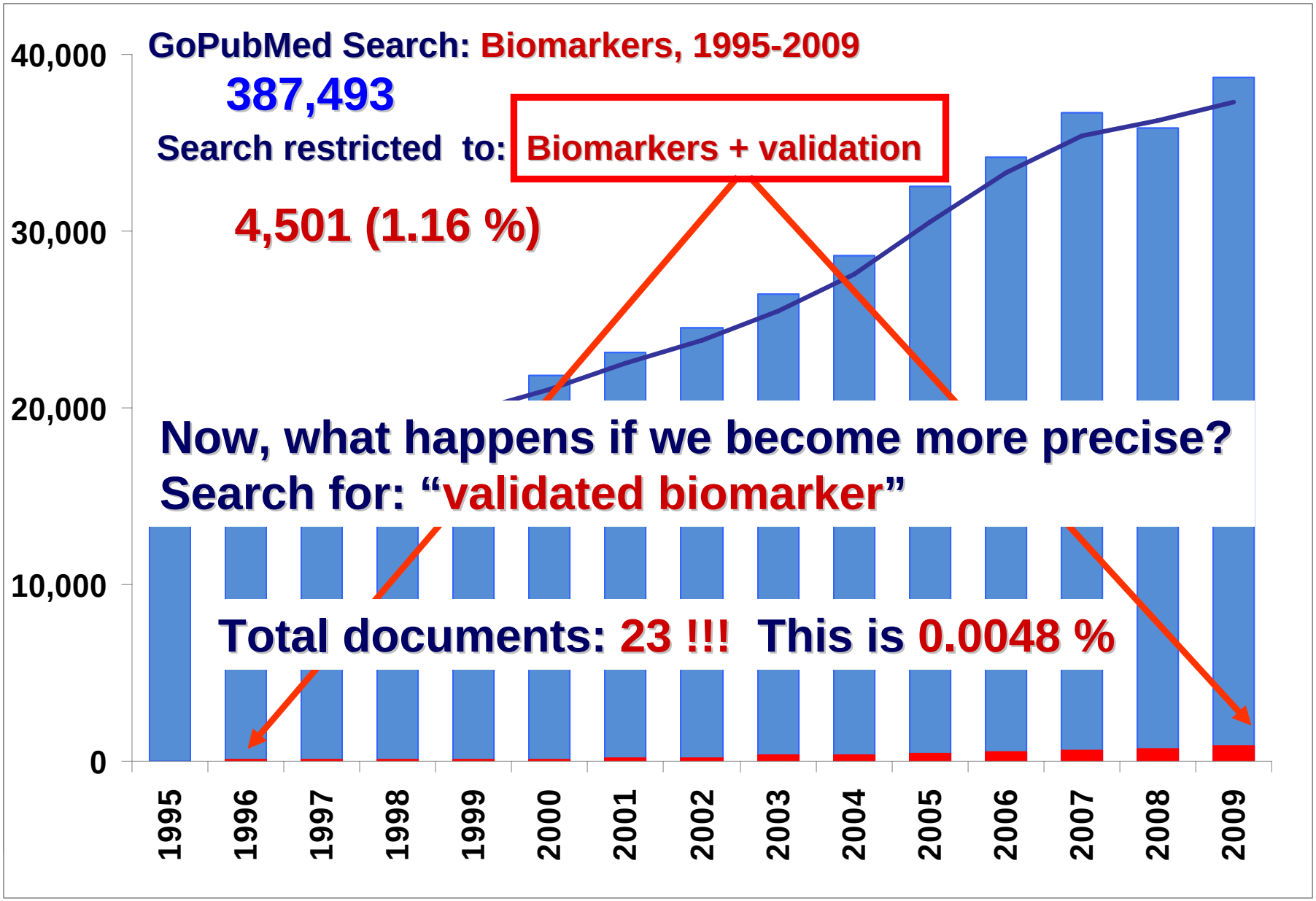


Let us explore the scientific production in one research subject: biomarkers

This is a field of confluence for medical, biological, pharmacology research and bioinformatics.



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In biological and biomedical research,

high throughput technologies are generating information at an "industrial scale"

…but data validation requires "lab scale" research, and is going slowly.

There is the need for an "external pressure" that imposes data validation as a requirement for publication …and editors from biological journals are working on.

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DOI 10.1002/pmic.200500856 *Proteomics* 2006, *6*, 4–8

VIEWPOINT

Guidelines for the next 10 years of proteomics

Marc R. Wilkins[1], Ron D. Appel[2], Angelika Görg[5], Michael Hecke[6], Young-Ki Paik[10], Scott D. Patter[11], Richard J. Simpson[14], Walter W

[1] Department of Biotechnology and B
[2] Swiss Institute of Bioinformatics and
[3] Departments of Medicine, Biologica
Baltimore, MD, USA
[4] Department of Biochemistry, Nation
[5] Department of Proteomics, Technisc
[6] Institut fur Mikrobiologie, Ernst-Mor
[7] Biocenter, Div. Cell Biology, Medical
[8] Roche Center for Medical Genomics
[9] Department of Microbiology and Im
[10] Yonsei Proteome Research Center a
[11] Amgen, Molecular Sciences, Thousa
[12] Proteome Research Centre, UCD Co
University College Dublin Belfield, D
[13] Laboratoire d'immunochimie, DRDC
[14] Ludwig Institute for Cancer Researc
Parkville, Victoria, Australia

Molecular & Cellular Proteomics
electronic submission

Guidelines for Preparing Manuscripts Describing Research in Clinical Proteomics

The purpose of these guidelines is to provide sufficient information from which the reviewers/readers can evaluate, interpret, compare, and, reproduce the reported study. They contain both mandatory and recommended information. The former are underlined and marked with asterisks (*).

Ethics Approvals

- * It is required to provide a statement
approval for use of human/animal biol
study including details of informed cor
participation and/or primary cell line d
employed to protect human subject co
identification and coding of biospecim

Study Goals and Design

A comprehensive description of the study desi
study, with specific attention to the following

- * The stage/phase of the study, e.g. d
stage/phase that a candidate (biomark
preclinical validation; etc.).

- * the flow of subjects/samples throug
number included in each stage of the a
complex/larger studies) and reasons fo

DOI 10.1002/prca.200600771 *Proteomics Clin. Appl.* 2007, *1*, 148–156

VIEWPOINT

Clinical proteomics: A need to define the field and to begin to set adequate standards

Harald Mischak[1], Rolf Apweiler[2], Rosamonde E. Banks[3], Mark Conaway[4], Joshua Coon[5], Anna Dominiczak[6], Jochen H. H. Ehrich[7], Danilo Fliser[8], Mark Girolami[9], Henning Hermjakob[2], Denis Hochstrasser[10, 11], Joachim Jankowski[12], Bruce A. Julian[13], Walter Kolch[14], Ziad A. Massy[15], Christian Neususess[16], Jan Novak[17], Karlheinz Peter[18], Kasper Rossing[19], Joost Schanstra[20], O. John Semmes[21], Dan Theodorescu[22], Visith Thongboonkerd[23], Eva M. Weissinger[24], Jennifer E. Van Eyk[25] and Tadashi Yamamoto[26]

[1] Mosaiques Diagnostics, Hannover, Germany*

The aim of this manuscript is to initiate a constructive discussion about the definition of clinical proteomics, study requirements, pitfalls and (potential) use. Furthermore, we hope to stimulate proposals for the optimal use of future opportunities and seek unification of the approaches in clinical proteomic studies. We have outlined our collective views about the basic principles that should be considered in clinical proteomic studies, including sample selection, choice of technology and appropriate quality control, and the need for collaborative interdisciplinary efforts involving clinicians and scientists. Furthermore, we propose guidelines for the critical aspects

Received: October 11, 2006
Revised: December 3, 2006
Accepted: December 5, 2006

There is a concerted effort of publishers and experts for enhancing the quality, transparency and confidence of published results. Here are two examples:

Medical research:

- **EQUATOR** (Web launched June 2008)

Biomedical and Biological research:

- **M I B B I** (Web launched August 2008)

http://www.equator-network.org

Login

equator network

Search: Go

Enhancing the QUAlity and Transparency Of health Research

Home | About EQUATOR | Resource Centre | Courses Events | Research Projects | Contact | News | Forum

Welcome to the EQUATOR Network website – the resource centre for good reporting of health research studies

Too often, good research evidence is undermined by poor quality reporting.

The EQUATOR Network is an international initiative that seeks to improve reliability of medical research literature by promoting transparent and accurate reporting of research studies.

Find out how, or get involved.

Highlights

EQUATOR Network at the Peer Review Congress 2009

Wednesday 9th September, Vancouver, Canada.

Prior to the main congress, the EQUATOR Network will run a

Reporting guidelines

Go straight to our 'Library for Health Research Reporting'

Authors

Information for authors of research reports

Editors

Resources for journal editors and peer reviewers

Developers

Resources

Latest news

more news

Research protocols in the Lancet journals

This new initiative will contribute to greater

Minimum Information for Biological and Biomedical Investigations (MIBBI):

http://mibbi.org

"To promote transparency in experimental reporting, enhance accessibility to data and support effective quality assessment, increasing the general value of a body of work"

From: Nature Biotechnology volume 26 number 8 AUGUST 2008

Main Page - MIBBI

Log in / create account

article | discussion | view source | history

MIBBI

links
- Home
- The MIBBI Portal
- The MIBBI Foundry
- Foundry modules
- Related resources
- About us
- Project news
- Discussion
- MIBBI search

search

Go | Search

toolbox
- What links here
- Related changes
- Upload file
- Special pages
- Printable version
- Permanent link

MIBBI: Minimum Information for Biological and Biomedical Investigations

Project News Highlights

- **OMICS: A journal of Integrative Biology recommends MIBBI use** in an editorial
- **BMC journals recommend MIBBI** in their 'Instructions to Authors' (example)
- **Free download:** The MIBBI paper (*Nature Biotechnology*) & supplement

On April 4th 2010, 31 projects registered

Site navigation

The MIBBI Portal

Access to Minimum Information guidelines for diverse bioscience domains

Project news

Announcements relating to the project, such as new registrations, meetings, *etc.*

The MIBBI Foundry

Towards the next generation of MI guidelines for the biosciences

MIBBI search

A Google™ Custom Search Engine covering a range of relevant web sites.

Related resources

Links to other cross-domain projects, policy statements and sundry useful material

Discussion

How to post to the MIBBI discussion forum, or join the Foundry developers' mailing list

About us

A contextualisation of the

MICheckout

Coming soon: browse and

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Good Publication Practice in its wider significance is an emerging concept
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THE LANGUAGE: Open Biomedical Ontology

Defining controlled vocabulary for biosciences

THE DATA: WEB Accessibility of Experimental Raw Data

Spectra, images, DB identifications…

THE REPORT: EQUATOR / MIBBI

Guidelines for experimental reports

THE CONFIDENCE: Data Validation by confirmatory experiments

GGP2

Ethical aspects of clinical / biological research

Quality and transparency standards for publishing biomedicine

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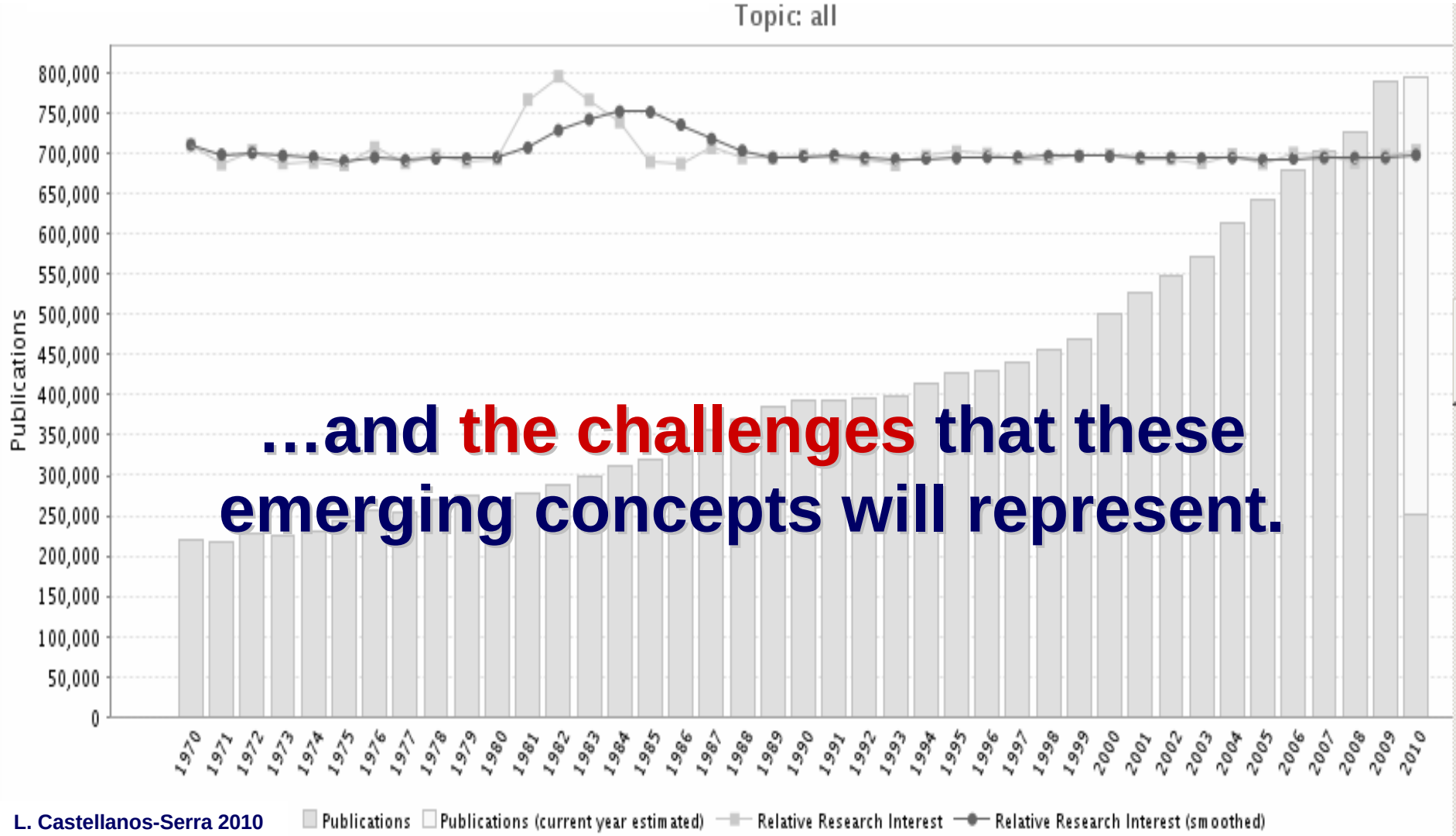
Publishing Biological, Biomedical and Medical Research is changing.

Are we prepared in developing countries?

Now, a comment about the low presence of developing countries in high impact journals



...and the challenges that these emerging concepts will represent.

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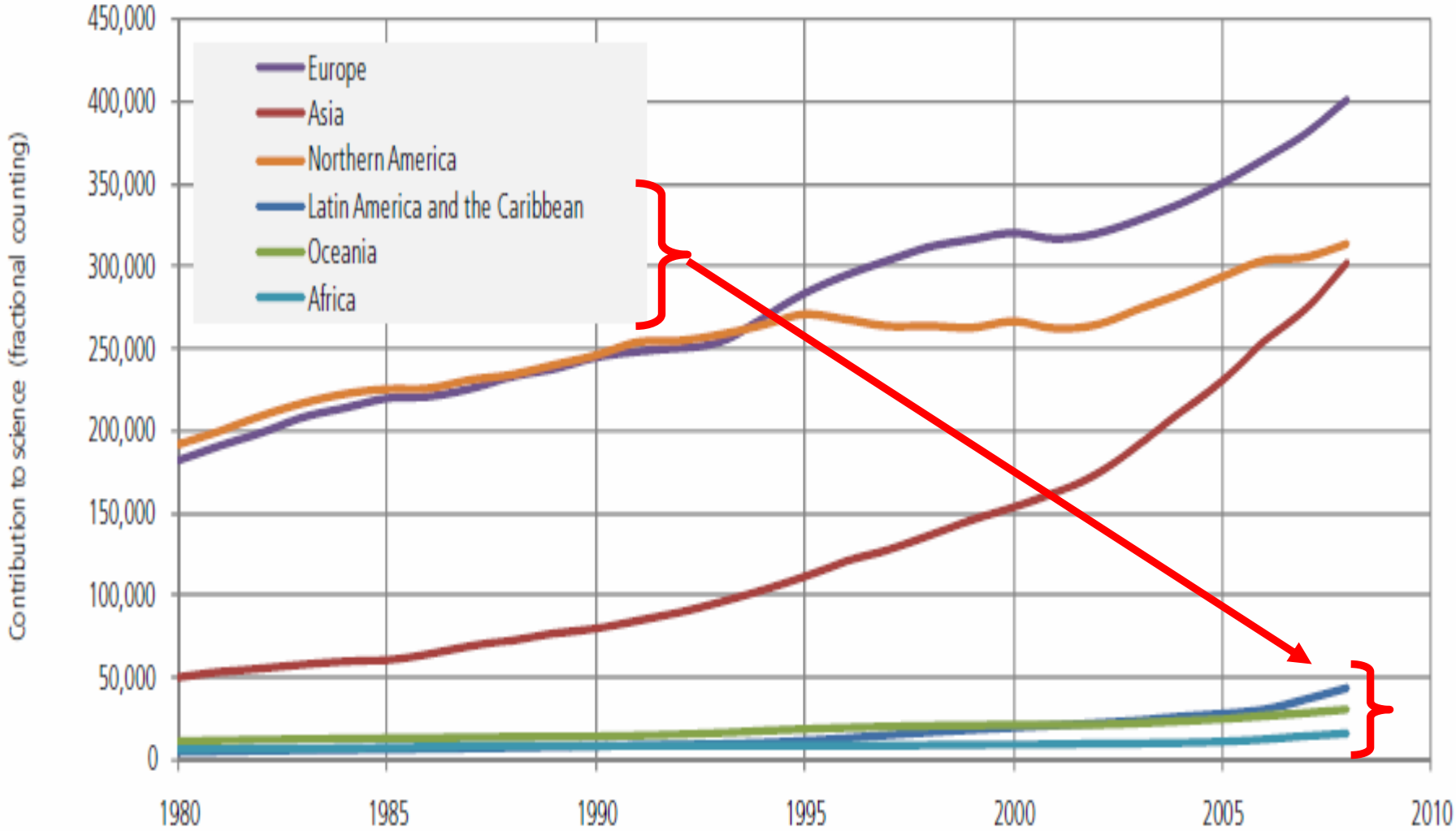

Figure 9 Contribution to world science by region, in number of papers, 1980–2008

Source: Calculated by Science-Metrix using the Web of Science (Thomson Reuters)

Source: Science-Metrix, 30 Years of Science report.

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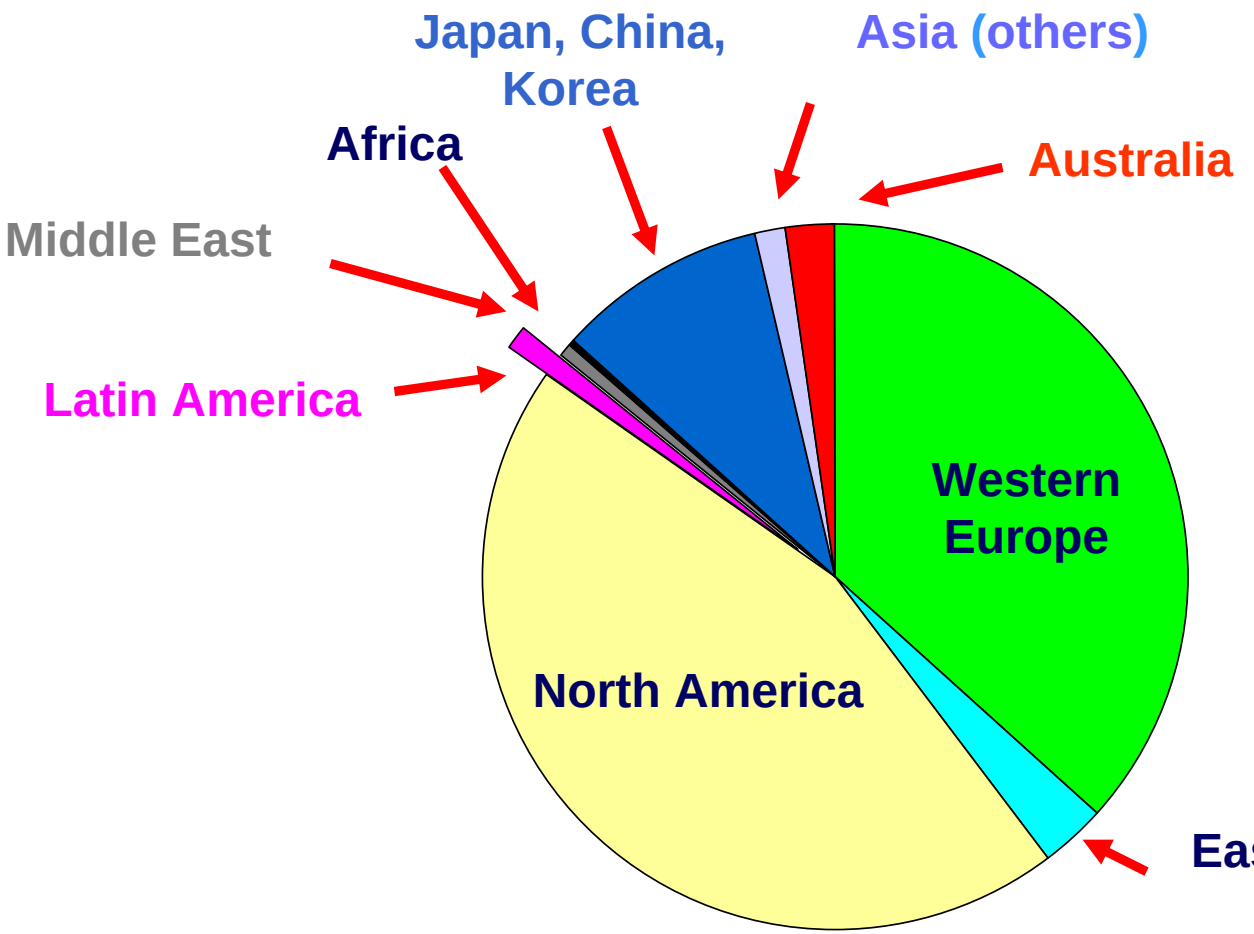
The low presence in main stream journals of papers originated in developing countries has several (and complex) reasons.



Data set: Biomedical publications

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Some are *economical* and *social*:

- Limited resources for science
- No innovative industry catalyzing national research
- Scientific agenda set mainly by academia in developed countries

Consequences:

In many countries, science is mainly an exercise for a Bs. or M. Sc. degree

In fact, scientists are not socially demanded (no local consumption) … and are not socially integrated

Drain of clever minds from poor countries to developed countries reinforces the problem

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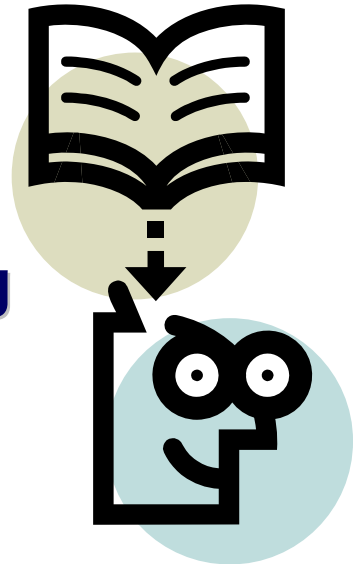
…And there are deficiencies in professional education. Here we can influence.



There is lack of training in writing / publishing skills, and there are linguistic barriers……

but: frequently, there are other problems:

- **The Question (the Hypothesis): unclear, irrelevant or can not be experimentally addressed**
- **A poor experimental design**
- **Lack of rigorous controls**
- **Poor analysis / interpretation of results**

Our education programs may help by developing skills for:

asking (formulating) the important question

organizing minds (as experimentalists)

critically reading published information

Briefly, preparing undergraduates and graduates as producers of knowledge.

For preparing Knowledge-producers (not only consumers), high education should play a key role.

Yes, Knowledge as a finished product (the paradigms, the state of the art)

….but also,

presenting Knowledge as a building-up process

Teaching the dynamics of knowledge is:

- **How knowledge is built from the bench (the key experiments and their interpretation)**
- **The conflicts, the unclear zones of knowledge, the borders….**

Our experience in helping young scientist for publishing

Starting on 2004, as a component of graduate formation

Communicating biomedical, biological and medical information: from research design to research report

- Critical analysis of own research project
- Elements of cognitive psychology: understanding the mechanisms for information perception
- Learning to write through writing
- Getting prepared for Good Publication Practices

Communicating biomedical, biological and medical information: from research design to research report

An interactive workshop

- It is not conducted by an specialist in (only) scientific writing, but by a scientist working on the field, with experience as editor and reviewer
- Flexible design: yearly update of contents
- Participants work on their research project, optimizing daily the document
- Certificate of approval: when a paper in a main stream journal is accepted

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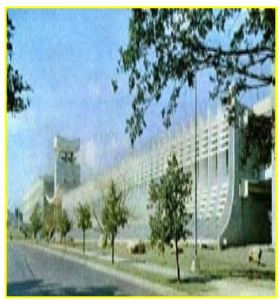




Four points that may contribute to increase developing countries publications

1. Persuade young researchers that the main benefit from publishing is their own professional formation
2. Increase local (national) recognition for scientists that publish
3. Incorporate in under-graduate and graduate formation Research Methodology and basic elements for scientific publishing
4. Create an efficient publication support for scientists, accessible all over the country

From: Rojas Ochoa, MEDICC Review Dec. 2009

FIVE "TAKE-HOME" MESSAGES

- As bioinfo producers, we are living in a rapidly changing environment.
- The standards for publishing biomedical sciences are becoming more exigent.
- With more stringent standards, the presence of developing countries in main stream journals risks to even decrease. This is a trend to be stopped.
- Young scientists in developing countries can be prepared and should be prepared.
- This is a challenge for academic education and for experienced scientists, working all together.