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A Tool Proposed for Tracing and Promoting the Access
and Use of Bioresources in Publications



Anne Cambon-Thomsen (*leader*), Laurence Mabile (*project manager*)
Paola De Castro, Federica Napolitani, Anna Maria Rossi and Elena Bravo
on behalf of the BRIF working group

Inserm and Université Toulouse III Paul Sabatier, UMR 1027, Toulouse, France





The **Bioresource Research Impact Factor** initiative is a work in progress

Online discussion forum/ GEN2PHEN knowledge centre:

<http://www.gen2phen.org/groups/brif-bio-resource-impact-factor>

Contacts: mabile@cict.fr

anne.cambon-thomsen@univ-tlse3.fr



What are bioresources?

- collections of biological samples with associated data [biobanks] (medical/epidemiological, social),
- databases independent of physical samples
- and other biomolecular and bioinformatics research tools.

Why are bioresources important?

- Much biomedical research is based on using bioresources
- Their access to all researchers is essential
- Promoting their sharing is crucial
- There are today no incentive to that.



Objective: increase sharing
Purpose: recognition of the effort involved in establishing, maintaining and sharing resources
Challenge: how to overcome the feeling of loss that may prevail

The BRIF initiative is a work in progress, currently developing a framework for:

- creating a tool for calculating research impact of bioresources based on a metric (algorithm) and a unique digital resource identifier (cf Journal IF)
- assessing requirements for citation/acknowledgement of bioresources in order to trace their use in research

Idea: Transforming a loss into an advantage.
« The more it is shared, the more it contributes to science, the more it is recognised »
Virtuous circle!

Why a BRIF?

There is no standardised tool to quantify the use of bioresources in order to:

- Promote sharing of data and biological samples
- Recognise the work of setting up and maintaining a valid bioresource
- Reward the efforts involved in making the bioresources available to others

Guidelines and tools are needed !

What is BRIF for?

- Creating a tool as a metrics to measure the use and the impact of bioresources in scientific / academic work
- Assessing a better follow up of the use of bioresources at the international level

Who would benefit from BRIF?

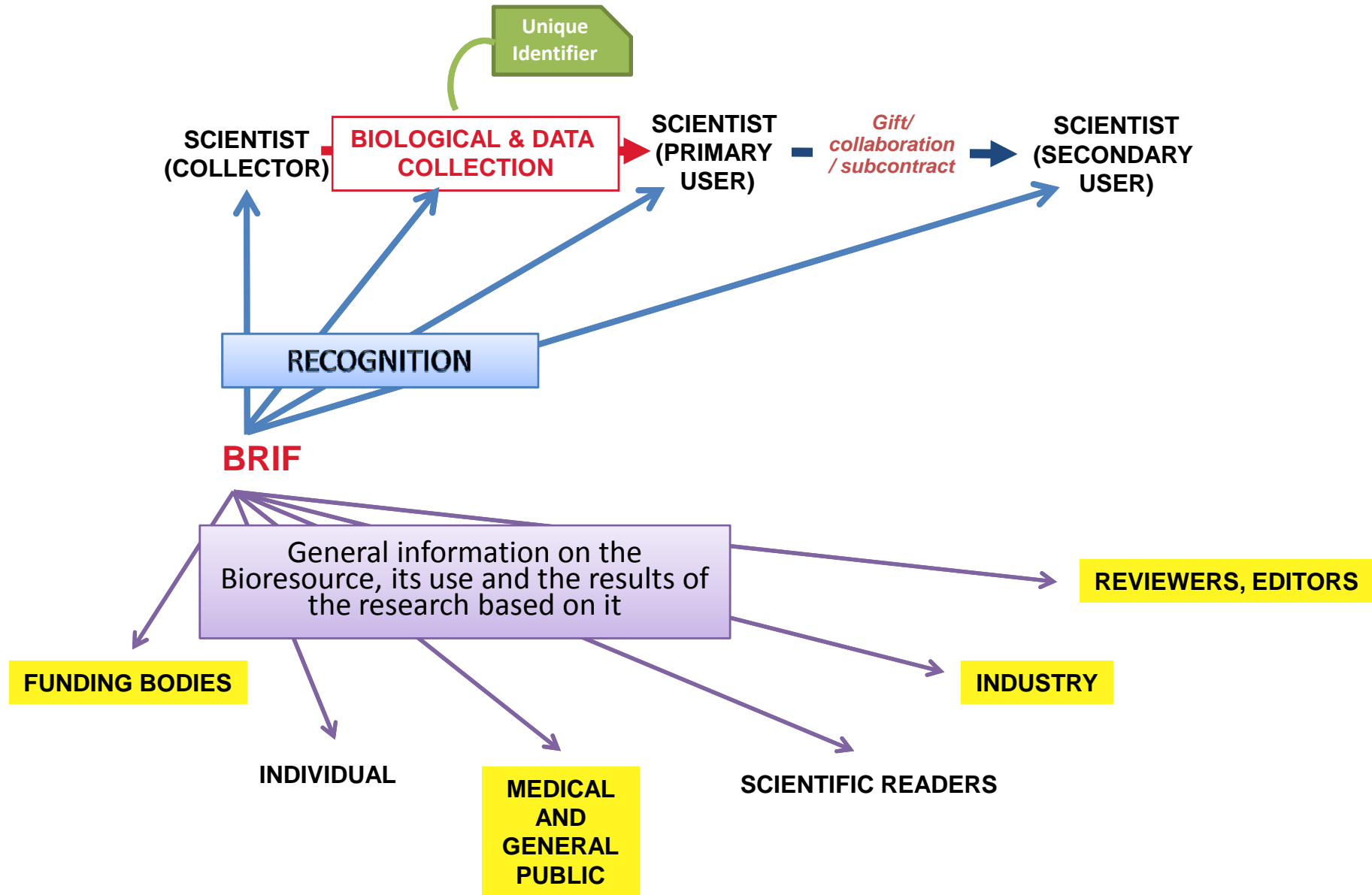
All actors involved :

users, managers, initiators, contributors/annotators, their institutions, patients and research participants

Slide 5

MSOffice3 , 13.09.2010

BRIF in the complex world of bioresources



An international active working group

- **Jul/Sep 2010: creation of the online BRIF discussion group**
(/gen2phen knowledge centre)

<http://www.gen2phen.org/groups/brif-bio-resource-impact-factor>

- Documents on BRIF (initial publications; [Cambon-Thomsen, Nat Genet, 2003, 34, \(1\) : 25-26; Assessing the impact of biobanks](#))
- Discussion posts
- Chart

- **Jan 2011: BRIF workshop**, Toulouse, FR

- **Feb/Mar 2011: constitution of 4 working subgroups, ongoing**

- **From June 2011: publications** on behalf of the BRIF working group

Cambon-Thomsen et al. **The role of a bioresource research impact factor as an incentive to share human bioresources.** *Nature Genetics*, 2011; **43**:6, 503-4.

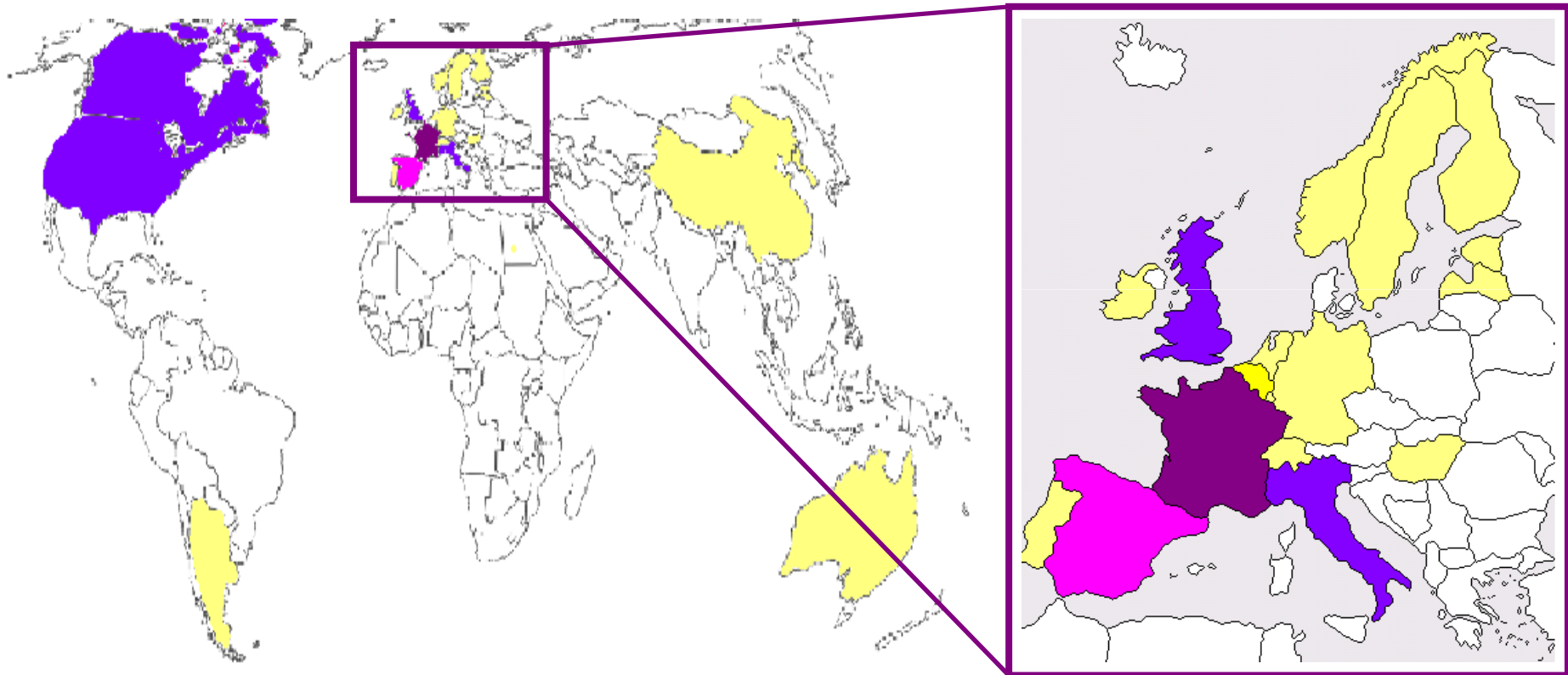
Murtagh et al. **Navigating the perfect [data] storm.** *Norsk Epidemiologi* 2012; **21** (2): 203-209

Mabile, et al. **The BRIF (Bioresource Research Impact Factor) as a tool for improving bioresource sharing in biomedical research** (*submitted*).

Communications in various forums and communities.

Participants characteristics

jul/10 - apr/12: **135 members, 21 countries, >95 institutions**



Legend:

Yellow <5

5 ≤ Magenta >10

10 ≤ Blue >20

20 ≤ Dark Purple >30

Represented competences/parties

Biobank partners
Computational
biologists
Computer scientists
Genome/genetics
scientists
Epidemiologists

Jurists, lawyers
Ethicists
Experts in impact factors
Bibliometricists
Journal Editors
Researchers/users

BRIF working subgroups

➤ BRIF & Digital Identifiers

co-chaired by **G. A. Thorisson**, University of Leicester, UK and
P.A. Gourraud, University of California SF, USA

gt50@leicester.ac.uk, Pierreantoine.Gourraud@ucsf.edu

➤ BRIF Parameters

chaired by **B. Parodi**, National Inst. Cancer Res. Genoa, IT

barbara.parodi@istge.it

➤ BRIF in Access & Sharing Policies

chaired by **E. Rial-Sebbag**, Inserm UMR1027, FR

emmanuelle.rial@univ-tlse3.fr

➤ BRIF and Journal Editors

chaired by **A. Cambon-Thomsen**, Inserm UMR1027, FR

anne.cambon-thomsen@univ-tlse3.fr

Key steps towards BRIF

- Creating a bioresource unique identifier, or digital ID
- Standardizing bioresource acknowledgement in papers using this identifier
- Identifying parameters to take into account when creating the BRIF metrics
 - Bioresource parameters (ex: size; age...)
 - Bioresource policy parameters (analysing bioresource data access and sharing policies and classifying their impact on usability)
 - Parameters reflecting the use of the bioresource (ex: nb of projects supported /year; nb of MTA or DTA)
- Creating a BRIF metrics and test it

'BRIF and digital identifiers' subgroup

As a first step, biosources need to be assigned actionable unique and persistent **digital identifiers** (IDs)

Points to address:

- assessing several **technical solutions** existing (ex: Digital Object Identifier)
- what to **identify** (biobank projects, sample collections, databases, datasets)
- which **body** or bodies should be responsible for **assigning biosource ID**.

'BRIF parameters' subgroup

Points to address:

What are the parameters to take into account when calculating the BRIF?

-two types of entities : i) **biobanks** of human biomaterials and ii) **databases** of related information

-range of parameters considered : **indicators of bioresource value, efficiency and research productivity.**

A list of parameters is being worked out

'BRIF in sharing policies' subgroup

Access, sharing and publication policies of bioresources play a major role in facilitating or hindering their use.

Points to address:

to study and develop an appropriate set of tools that could eventually be integrated in the overall access and sharing policies of the bioresources.

➤ Present work:

- analysing and cataloguing various sharing policies in order to pinpoint the elements that influence the use
- Exploring how to take them into account in BRIF calculation/interpretation.

‘BRIF and journal editors’ subgroup

Points to address:

the necessity for journal editors to recognise the need to properly **acknowledge and cite the bioresources** used, using proper terminology and/or identifiers and agreeing on standards of citation (format/marker paper, location(s), institutions, people, *etc.*)



How to raise awareness of journal editors to BRIF issues and adapt their editorial guidelines accordingly

‘BRIF and journal editors’ subgroup

- A **proposal** has been sent for inclusion in the Uniform Requirements for Manuscripts of the *International Committee of Medical Journal Editors*.
- The *Committee on Publication Ethics* (COPE) has been also approached to address this in their guidelines.
- The same issues will be also discussed within the European Association of Science Editors (EASE)...

Present situation

Current key elements impeding proper tracking of bioresources use in scientific literature.

Difficulties related to identification and acknowledgement of bioresources:

- *multiplicity of sections where bioresources can be acknowledged (Material & Methods, Acknowledgements, References...)*
- *bioresource acknowledgement or citation placed outside the title or abstract in the main paper (or in online supplementary materials) and can therefore only be detected via full-text mining and is not indexed in Pubmed or Web of Science*
- *typing errors or approximation of the bioresource name/identification*
- *multiplicity of names for a given bioresource*
- *acknowledgement of persons instead of the bioresource itself*
- *absence of acknowledgement for the bioresource used (negligence)*
- *no standardized way to incentivise researchers to acknowledge properly the bioresource used*
- *....*

Difficulties encountered with marker papers:

- *Suitable to refer to one type of bioresource but not for any derived, or secondary bioresources*

'BRIF and journal editors' subgroup

Preliminary elements:

- Standardisation is necessary, but could be combined with existing referencing standards and conventions such as:
 - citing marker papers,
 - standardised sentences in Materials & Methods or acknowledgements section of papers,
 - co-authorship when justified,
 - including resource name in paper title.
- In order to enable automated tracking of bioresource use, the bioresource ID should ideally appear in or under the abstract section in order to be visible even without access to the full text of articles.
- It should also be accessible to search engines in the on line additional material.
- Specific requirements for citing bioresources do lack in the 'Uniform Requirements for Manuscripts submitted to Biomedical Journals' and should be added: **a first proposal has been sent.**

‘BRIF and journal editors’ subgroup

-Ideas to be discussed:

- A specific field for bioresources used in an article analogue to the field for authors or contributors?
- A specific field for bioresources used like a key word field?

‘BRIF and journal editors’ subgroup

-A first pilot study to test the feasibility of standardising bioresource citation is being prepared

- within a restricted community (a consortium)
- using a limited number of well identified bioresources

A pilot study design necessary

- Studying the various ways bio-resources will be cited and acknowledged is a complex process;
- Harmonisation of citation and traceability of use are two related but independent processes;
- A feasibility study will allow to identify the key and weighing parameters to eventually, construct a meaningful BRIF framework.

Conclusion and perspectives

- Much work needs to be done
- The spirit of BRIF is in line with the open access movement although different in scope
- The input of various communities is needed
- Embedding BRIF in other initiatives is necessary (e.g. ORCID = Open Researcher & contributor ID)
- Thanks in advance for your contribution to discussion

Acknowledgements:

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- R. Hewitt, ESBB
- M.A. Muñoz-Fernàndes, HIV Spanish Biobank, SP
- G.A. Thorisson, University of Leicester, UK



You are welcome to participate
in the **BRIF** working group



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Thank you