

A Strategy for Improving the Use of mBRCs

An EMbaRC activity

European Consortium of Microbial Resource Centres

Seventh Framework Programme, Research area: INFRA-2008-1.1.2

Work package NA3: Sustainable activity of BRCs

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Outline

The issue: increased deposition of strains used in science and publications

The stakeholders

Authors

Researchers

Editors

Research granting bodies

Collection supporting bodies

Public collections

A new strategy for enhancing accessibility to Microbiological Resources

The dialog between stakeholders

The responsibilities of partners

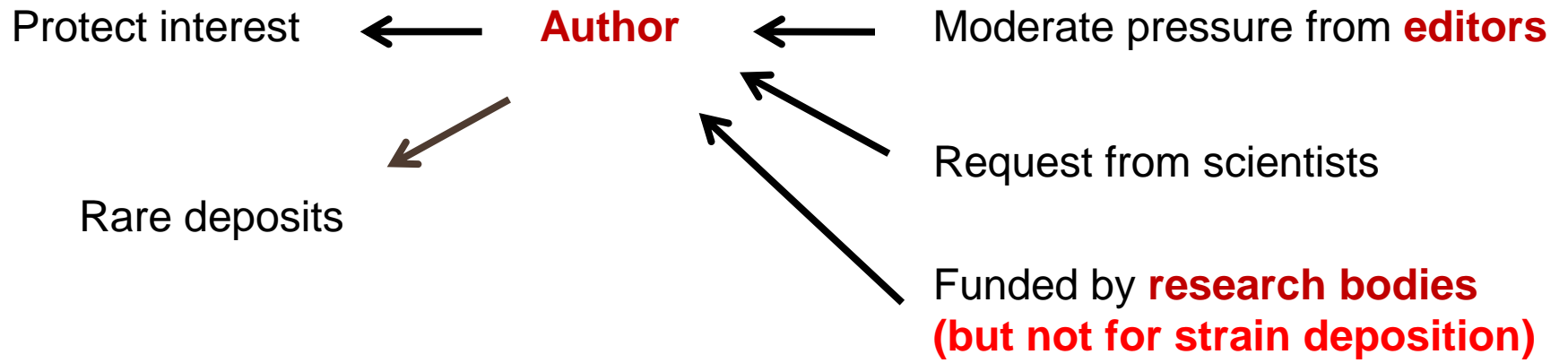
Stackebrandt, E. 2010. Diversification and focusing: strategies of microbial culture collections. Trends in Microbiology, 18, 283-287

-Towards a strategy to enhance access to microbial diversity. IJSEM, 2010 submitted

- Letter to the editor. Microbiology Today, SGM, UK, 2010, accepted

- et al. A strategy for improving the use of microbial Biological Resource Centres (mBRCs). WFCC Newsletter, online September 2010





Journals have a dissemination policy

(see Instructions to Authors):

Mandatory deposition only for type strains

400 authors were asked whether they are aware of journal's policy to make strain publicly available

70% of those who responded agreed

15% were actually asked to deposit strains

(= 0.6% of strains covered)



Authors feel no obligation to deposit non-type strains:

835 articles in 8 European journals* in 2008 included 20.200 non-type strains.

Of these only 0.9% were deposited in public collections

In an anonymous request to obtain strains from 100 randomly selected authors of these journals, **only 19% indicated their willingness to provide strains**

*Antonie van Leeuwenhoek
Archives of Microbiology
Environmental Microbiology
Extremophiles
FEMS Microbiology Letters
International Microbiology
Microbiology (Reading,UK)
Systematic and Applied Microbiology



Typical order of events

1. Positive grant evaluation
2. Preparation for a sampling trip



rainforest



seabed



desert



mountains

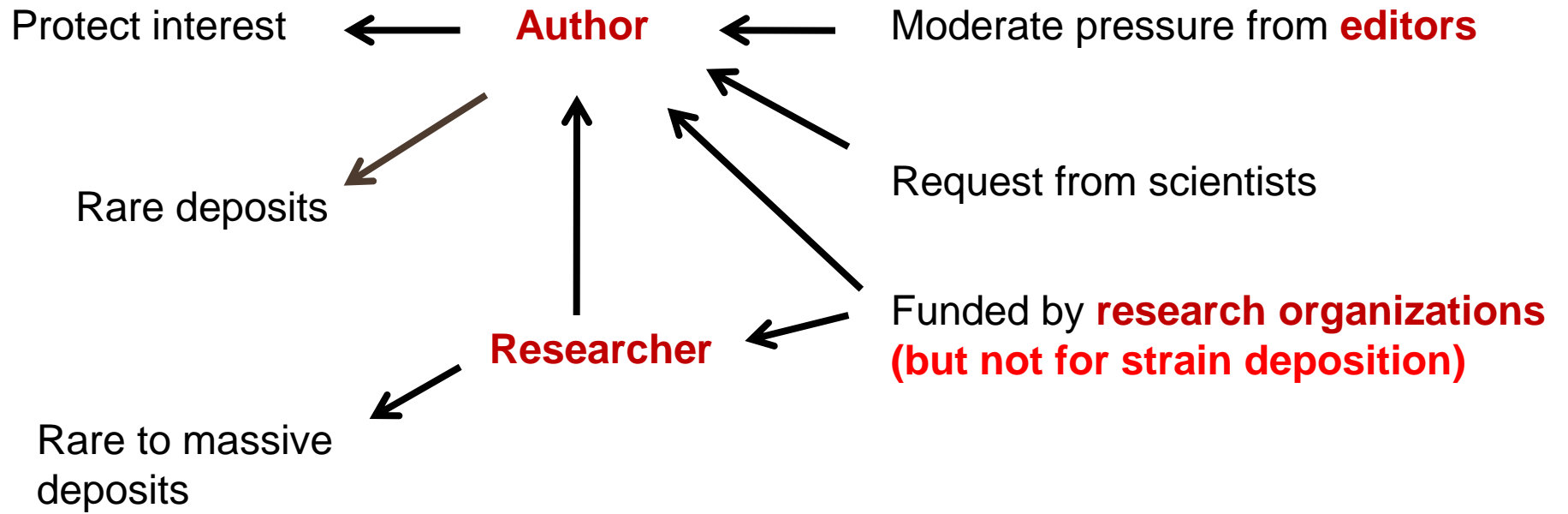


beach

3. Return with x isolates (hundreds to thousands) or environmental samples
4. Characterization attempts (morphology, molecular)
5. Concentration on a few isolates
6. Publication(s) with rare deposition of references in CCs
7. Research collection stays dormant until

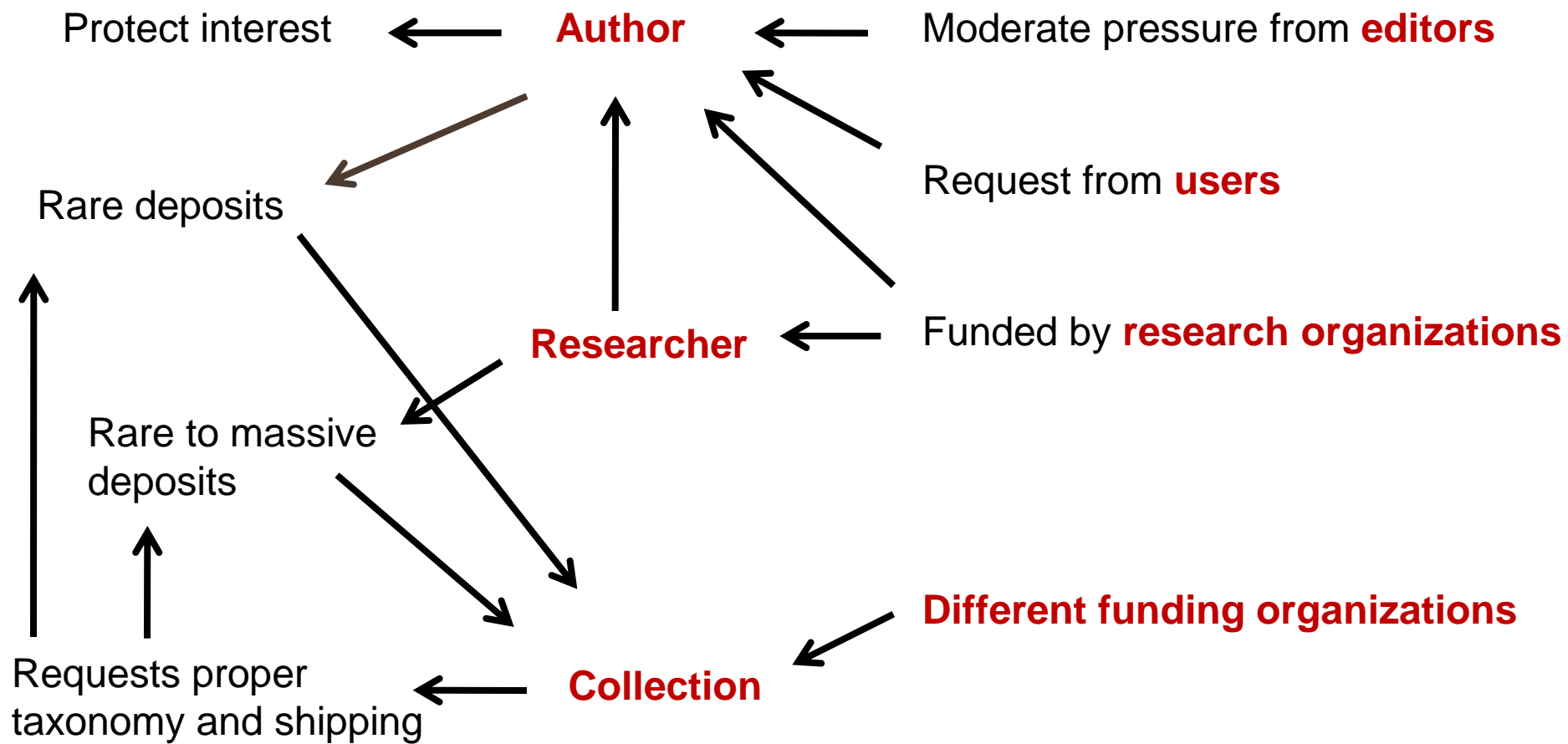
**And what happens to the rest of the isolates?
irrecoverable, high value added, high economic potential**





Public collections cover prokaryotic biodiversity from phylum to species level and individual collections even offer in-depth diversity at the strain level.

Curators are experts in maintenance, preservation and taxonomy, identification, authentication, shipping regulations, import, export and patent issues, CBD compliance...



Proposal: use of the CABRI* Minimal Dataset

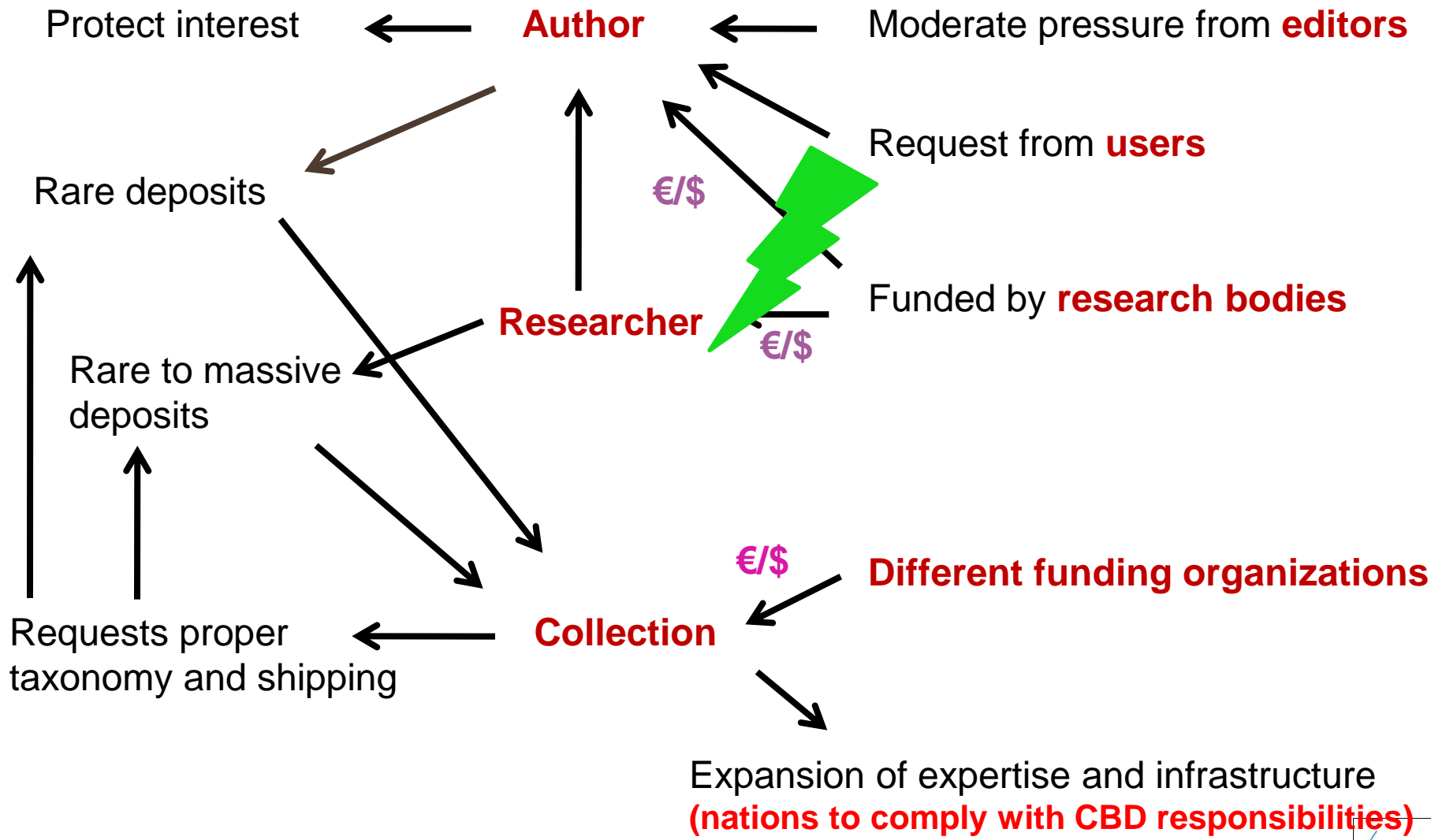
Identification	accession number, name
Origin	description, coordinates, depositor, history..
Properties (new)	genus affiliation (molecular, no guess)
Culture and maintenance conditions	medium, subculture routines, recommended long-term storage...
Restrictions	if isolated from mammalian host
Hazard	if possible
Bibliography	reference paper, links to other projects

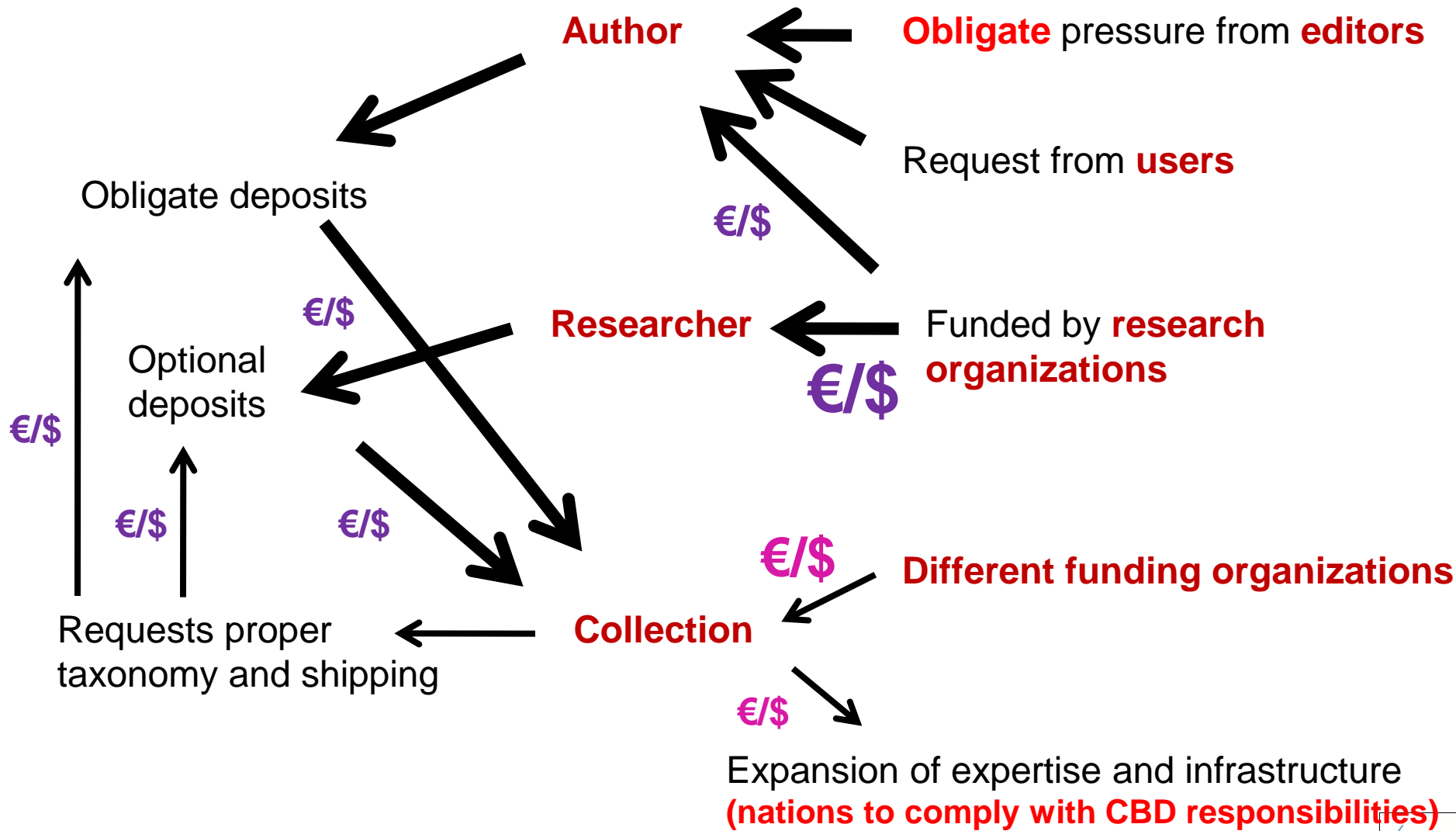
*, Demonstration Project: ERBBIO4-CT96-0231, Coordinator: Louis Réchaussat

Starting date: 01/12/96

Guidelines prepared for CABRI by BCCM, CBS, CERDIC, DSMZ, ECACC, HGMP, INRC, MSDN

<http://www.cabri.org/guidelines/catalogue/CPds.html>





Research organizations

support for maintenance, taxonomy and shipping

Funding organizations of collections

support for maintenance, expansion and expertise

Authors

obligate deposition of selected strains included in publications

Researchers

optional deposition of authenticated isolates/collections

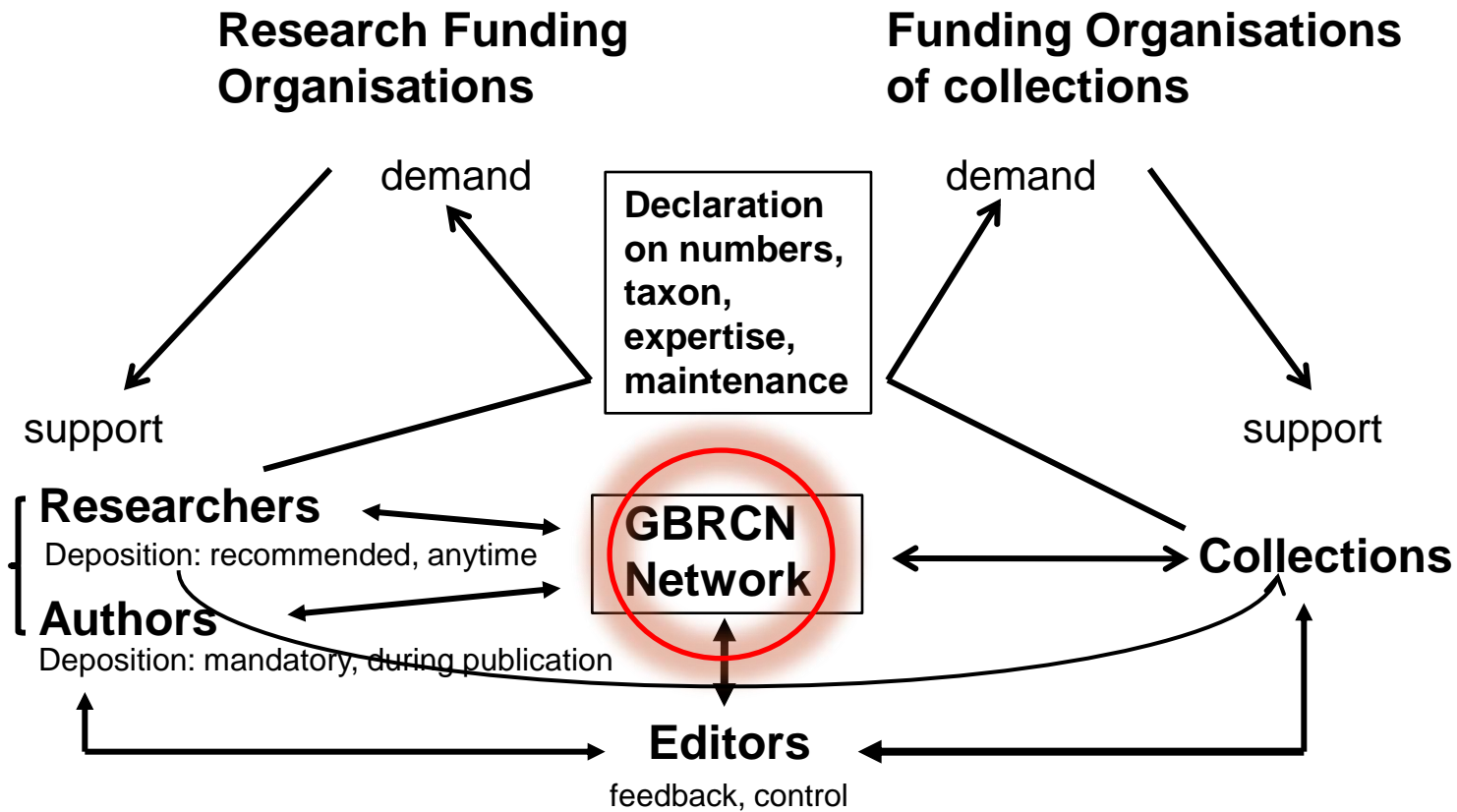
Public collections

organized in a global network (GBRCN) to describe and advertise the quality of the competencies of associated members (AmBRCA portal)

Journal editors

harmonized journal policy, pressure, and surveillance of deposit





Public access to an increased level of microbial diversity is possible

– provided all partners act together



If needed in the discussion

Summary of journal evaluation

Journal 2008	No of publications	Number and % strains investigated				Number and % reference strains included				Number and % of strains deposited of isolates in column 1	
		1				2					
		Isolates		Mutants		Total		From collections		number	%
		Numb.	%	Num.	%	Num.	%	Num.	%		
Arch Microb	98	390	76.9	117	33.1	219	81.7	49	18.3	154	39.5
Microbiology UK	234	1.336	69.8	578	31.2	2194	96.9	70	3.1	-	-
FEMS Microbiol. Letters	265	7.904	97.2	231	2.8	1967	79.6	505	20.4	9	0.1
Extremoph	48	620	98.6	9	1.4	83	66.9	41	32.1	7	1.1
Int Microbiol	16	2.695	99.6	12	0.4	116	68.2	54	31.8	-	-
Env Microbiol	100	2.477	91.8	222	8.2	253	83.0	52	27.0	4	0.2
Syst Appl Microbiology	33	2.584	99.8	5	0.2	521	56.4	402	43.6	13	0.5
Ant van Leeuw	41	2.166	51.8	2.014	48.2	629	68.4	199	31.6	3	0.14
IJSEM*	467	1.550	100	0	0	1.024	16.9	851	83.1	525	33.9
TOTAL	1.261	21.722		3.188		5.353		1.173		715	

*, Data of 1660 type strains, included in 290 comparative metabolic studies on the description of novel species, were taken from the literature