Special Article

Implementation of Adolfo Lutz Institute's Research Integrity Committee

Proposals for Promoting a Culture of Institutional Scientific Integrity

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ABSTRACT

Integrity and responsible conduct in research are essential for maintaining scientific excellence as well as public confidence in science. Education and research institutions have a duty to promote and supervise the responsible conduct on research. In recent decades, many universities and educational and research institutions, scientific societies, and national authorities have developed specific laws, regulations, guidelines, and specific procedures to direct actions regarding misconduct. Besides the personal harm caused to the authors, mainly in the emotional and professional aspects, scientific misconduct directly affects the reputation, prestige, and name of the institutions involved. The Adolfo Lutz Institute considers this issue to be extremely relevant, and all the research work related to the study on integrity in scientific research as well as the proposals for institutional action to promote a culture of scientific integrity are reported in this article.

KEYWORDS: Scientific Integrity Review; Scientific Misconduct; Plagiarism

RESUMO

A integridade e a conduta responsável na pesquisa são essenciais para manter a excelência científica bem como a confiança pública na ciência. As instituições de ensino e pesquisa têm o dever de promover e monitorar a conduta responsável na pesquisa. Nas últimas décadas, muitas universidades e instituições de ensino e pesquisa, sociedades científicas e autoridades nacionais desenvolveram leis, regulamentos, guias e procedimentos específicos para direcionar ações no combate às más condutas. Além dos danos particulares causados aos autores, principalmente nos aspectos emocional e profissional, as más condutas científicas atingem diretamente a reputação, o prestígio e o nome das instituições envolvidas. O Instituto Adolfo Lutz considera essa temática de extrema relevância, e todo o trabalho de pesquisa referente ao estudo sobre integridade na pesquisa científica assim como as propostas de atuação institucional na promoção de uma cultura de integridade científica são relatados neste artigo.

PALAVRAS-CHAVE: Revisão de Integridade Científica; Má Conduta Científica; Plágio

PREAMBLE

Research Integrity Study Group of the Adolfo Lutz Institute

Since 2015, negotiations have begun at the Adolfo Lutz Institute, with support from the General Administration, to conduct a study on the topic of Scientific Integrity. In 2016, a Working Group called Research Integrity Study Group of the Adolfo Lutz Institute (GEIPIAL) was created, which worked until the following year, leading the implementation of the Adolfo Lutz Institute's Research Integrity Committee (CIPIAL).

The final result of this study is reported below, along with the initial proposals for action and the establishment of the committee, as well as its conclusion and final considerations.

INTRODUCTION

The ethical environment is a manifest component of institutional culture and is relevant in the analysis of integrity in scientific research.[1] This atmosphere is defined as the prevalence of moral beliefs (e.g., established behaviors, convictions, and attitudes within the community and their acceptance) that provide the context for conducts.[2] Each institution has its corresponding ethical atmosphere, which differ according to the values, standards, and concerns of its members.[3]

Integrity and responsible conduct in research are essential for maintaining scientific excellence as well as public confidence in science. Education and research institutions have a duty to promote and supervise the responsible conduct on research. Therefore, they must consistently and effectively provide to researchers and their teams the necessary resources for their research projects to be responsibly conducted. These resources include leadership, encouragement of ethical conduct and integrity, training, education, development of procedure guides and institutional policies on integrity, as well as support tools and systems.[4]

Traditionally, researchers and the scientific community in general have always had the responsibility to define, safeguard, and judge the ethical conduct of research. The typical example of this statement is peer review to judge the quality and scientific merit of studies aiming at publication. The first formal regulations to ensure the responsible conduct of research were those applied to studies involving humans and laboratory animals. Many countries adopted these regulations as a reaction to the abundant number of reported cases of misconduct in the conduction of experiments involving humans worldwide, especially after World War II, and also after the increasing number of reports of animal mistreatment in research that were reported in the world's media.[5,6]

In recent decades many universities and educational and research institutions, scientific societies, and national authorities have developed specific laws, regulations, guidelines, and procedures to guide actions to combat misconduct. Several divergences have emerged in the emphasis given to the issue in the countries involved.[7]

In the United States (US), fabrication, falsification, or plagiarism concerning the planning, execution, review, and dissemination stages of research results have been defined by the federal government as misconduct in scientific research.[8] On the other hand, in Finland these same actions are classified as scientific fraud.[9] Australia's Code of Responsible Conduct in Research includes the issue of undeclared conflict of interest as research misconduct,[10] and in Japan the Science Council has developed a Code of Conduct for researchers and suggested that institutions develop their own codes and develop educational activities for researchers.[11]

Table 1. Scientific Integrity/Countries

	Countries that have a national board for dealing with "Research Integrity and Misconduct" established by law.	Countries that have a national board (or equivalent) for dealing with "Research Integrity and Misconduct" not established by law.	Countries that do not have a national board to deal with "Research Integrity and Misconduct" but have many established initiatives by the scientific community on the topic.	Countries where few initiatives from the scientific community have been established for the topic of Research Integrity.
Austria		X		
France			X	
Spain			X	
Germany		X		
Sweden		X		
Netherlands		X		
Poland			X	
Serbia				X
United Kingdom		X		
USA	X			
Brazil			X	
Australia		X		
Canada		X		

Source: Adapted from "National Guidelines for SI - Project SATORI", 2015 and "Sobre a integridade ética da pesquisa", FAPESP, 2011.[12,13]

However, it is worth emphasizing, that there is a big difference in the way that countries carry out and conduct the process of misconducts allegations investigations, as well as in the development of responses to these accusations (Table 1). In most of the countries the host institution is primarily responsible for investigating the cases.

PROMOTION AND MAINTENANCE OF RESEARCH INTEGRITY: SHARED RESPONSIBILITY

Individual scientists, research institutions, funding agencies, professional boards and editorial boards of scientific publications, and governments in some countries share responsibility for promoting and maintaining scientific integrity.[14]

There are three major reasons for educational and research institutions to adopt policies to deal with misconduct:

1. Protect the institution by establishing codes, guidelines, rules, and mechanisms to prevent, avoid, and even respond, if necessary, appropriately to possible research misconduct practices.

2. Protect research from fabrication, forgery, and plagiarism.

3. Protect public funding that is directed to research from inappropriate and unprofessional behavior that undermines the reliability of the results of studies, even endangering lives.

Responsibility

Both accountability in scientific activities and public trust in research results are perceived as part of the most relevant ethical challenges in contemporary science, especially at a time when dialogues between science and society are intensifying. Crucial aspects are considered within the scope of governance in science, technology and innovation (S,T&I). This responsibility is closely related to the promotion of scientific integrity, as already indicated in international documents such as the Singapore Declaration on Research Integrity 2010[15] and others. Nowadays, scientific integrity, research excellence, and the creative potential of institutions are among the main factors that define competitiveness in S,T&I.[16]

Potential harm to researchers, institutions, and society

Besides the particular damage caused to the plaintiffs, mainly in the emotional and professional aspects, scientific misconduct directly affects the reputation, prestige and name of the institutions

involved, which may also be affected by such misconduct. Society may suffer the direct impact and even a potential and tragic harm related to scientific fraud in many ways.

INTERNATIONAL AND NATIONAL REFERENCES AND STANDARDS, CREATED AGENCIES AND THEIR EXPERIENCES

Singapore Declaration on Research Integrity, 2010

The Singapore Declaration is considered a global landmark for encouraging responsible practices in science by highlighting the principles and responsibilities of those who work in scientific research.[15]

Principles:

- Honesty in all aspects of research
- Responsibility in the conduct of research
- Professional respect and fairness at work towards others
- Good governance of research for the benefit of others

Addressed Responsibilities:

1. Integrity
2. Rule Observance
3. Research Methods
4. Research Documentation
5. Results
6. Authorship
7. Acknowledgements in Publication
8. Peer Review
9. Conflicts of Interest
10. Public Communication

11. Notification of irresponsible research practices

12. Responding to Allegations of Irresponsible Research Practices

13. Research Environments

14. Social Considerations

CAPES and CNPq Guidelines

In early 2011, the *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - CAPES* (Coordination for the Improvement of Higher Education Person) prepared the first official document directly related to the issue of scientific integrity in Brazil - "*Orientações CAPES - Combate ao Plágio* (CAPES- Guidelines - Combating Plagiarism) - following guidance originating from a proposition of the OAB/Ceará and approved by the Federal Council of the Brazilian Bar Association.[17,18]

The Conselho Nacional de Desenvolvimento Científico e Tecnológico - CNPq (National Council for Scientific and Technological Development) established, in 2012, a commission on integrity in scientific activity with the primary responsibilities of coordinating preventive and educational actions on the integrity of research conducted and/or published by researchers linked to CNPq and to examine situations in which there are well-founded doubts about the research conducted by these researchers. This commission also prepared basic documentation containing guidelines related to integrity in scientific activities to be followed by researchers who receive financial support from the institution.[19]

Code of Good Scientific Practice (CBPC-FAPESP)

The Fundação de Amparo à Pesquisa do Estado de São Paulo - FAPESP (São Paulo State Research Support Foundation) launched, in October 2011, its "Code of Good Scientific Practices", a set of ethical guidelines for the professional activity of researchers who receive fellowships and grants from the institution. This document was the first of its kind to be elaborated, published, and disseminated by a Brazilian funding board, organizing rules that, in many cases, were already part of the foundation's routine and of many research institutions. The code sought to define standards for practices on which there may be divergent interpretations.[20]

The development of this document considered the accumulated international experience with the issue of ethical integrity in research.[20] Codes of conduct and procedure manuals adopted by agencies such as the *National Science Foundation* and the *National Institutes of Health* in the United States, the *Research Councils UK* in the United Kingdom, the *European Science Foundation*, and

Australian funding agencies were used as references.[20] To support the debate, a working paper dealing with the experience of other countries was produced under the title "*Sobre a Integridade Ética da Pesquisa*" (On the Ethical Integrity of Research) and authored by Luiz Henrique Lopes dos Santos, PhD professor of the Department of Philosophy, Literature and Human Sciences at University of São Paulo - USP and assistant coordinator of Human and Social Sciences at FAPESP, and scientific coordinator of *Revista Pesquisa FAPESP* (FAPESP Research Journal). This introductory document presented an international overview of the issue for the São Paulo scientific community.[20]

The Code of Good Scientific Practice and the responsibility of research institutions

According to FAPESP, in the CBPC (Brazilian Society of Scientific Production), in its fifth chapter, it is stated that research institutions share with individual researchers the responsibility for preserving the ethical integrity of scientific research. They are primarily responsible for promoting a culture of good scientific conduct among its researchers and students, as well as for preventing, investigating, and punishing scientific misconduct that occurs within its scope. Also, in this chapter it is required that every research institution has clearly formulated policies and procedures to deal with the issue of ethical integrity of research.

Research institutions with projects funded by FAPESP are also required to include in their organizational chart instances in charge of establishing and promoting the culture of ethical integrity, through the development and conduct of regular programs of education, dissemination, training, and multiplication accessible to all researchers associated with it. It is also recommended that they establish policies to investigate and, if necessary, punish possible misconduct and repair the scientific damage that it has caused.[13] Scientific journals linked to research institutions must also follow the rules defined for scientific publications, which are also detailed in FAPESP's CBPC.

Still on the responsibility of research institutions, FAPESP established, in June 2013, by the Deliberation of the Technical Administrative Council No. 02/2013, of June 4, 2013, and Ordinance PR 09/2013, a clause on the commitment to comply with the Code of Good Scientific Practice in the FAPESP Granting and Acceptance of Aid Term.[21] In it, the responsible researcher declares to be aware of the guidelines contained in FAPESP's CBPC and undertakes to respect them.

MISCONDUCT

A scientist's commitment to the purpose of his profession subjects him to professional duties:

- Duties concerning the scientific quality of the results of your research work.

- Duties in relation to the progress of science.
- Duties towards the scientific community within which their work is performed as collective work[22].

The actions of a researcher that intentionally or negligently contradict these assumptions constitute ethically inappropriate conduct from the standpoint of research integrity.[22] There is no unique, and global definition of scientific misconduct that has been adopted internationally.

The majority of countries most frequently and directly consider the definition of misconduct to be the three types of conduct that are consensually considered to be the most serious: *fabrication* (or outright invention) and falsification (or intentional manipulation) of data, information, procedures, and results, and plagiarism, which is the author's use of ideas, concepts, or phrases from another author (who formulated and published them) without giving due credit, without citing him as a research source. Such practices are considered the major offenses that directly affect the research (Table 2). In Brazilian legislation, plagiarism can be considered a violation of another's copyright, subject to civil and criminal penalties.[22,13,23] Scientific misconduct cannot be confused with scientific error committed in good faith, nor with honest disagreement on scientific matters.[13] According to FAPESP's "Code of Good Scientific Practice": "It is considered scientific misconduct to provide, in bad faith or through negligence, false information about the occurrence of possible scientific misconduct.

Questionable Research Practices

By definition, questionable research practices concern practices that do not directly affect the research process but affect the seriousness as well as the reliability of researchers and research institutions (Table 2). Compared to the more serious cases of research misconduct, questionable practices are much more widespread.[24, 25] Such practices violate the principles of honesty, transparency, and responsibility. They usually occur in areas such as: authorship and publication, treatment and management of research data, and conflicts of interest.[23,26]

Examples of Questionable Research Practices

- Attribution of authorship to those who did not contribute (conception, experimental part, execution and/or interpretation of results)
- Duplicate publication
- Incomplete citation of previously published work
- Conflict of interest

- Lack of transparency regarding research funding
- Publication of Sensitive Data
- Curriculum Fraud

In order to help the understanding of misconduct and questionable practices in research, we have added (in Annex 1) the most commonly used definitions on Scientific Integrity, according to CBPC-FAPESP.

Table 2. Deviations from Responsible Conduct in Research

Practices Considered Deviations from the Responsible Conduct of Research	
Major offenses → directly and severely affect research	Research Misconduct
Minor offenses → do not directly and severely affect research, but they do affect the reliability of researchers and institutions	Questionable Research Practices

*GEIPIAL

MANAGEMENT OF MISCONDUCT

According to the author Luiz Henrique Lopes dos Santos, from FAPESP, "Cabe tratar as más condutas de maneira específica, conforme seus diferentes grau de gravidade" (It is necessary to treat misconducts in a specific way, according to their different degrees of severity).[22]

In this context, misconduct that is considered serious, i.e., fabrication and falsification of data, information, procedures, and results, as well as plagiarism, is dealt with in a specific way, usually by initiating an investigation procedure. In contrast, misconduct classified as minor - namely, misattribution of authorship, self-plagiarism, concealment of potential conflicts of interest, inadequate conservation of research records, omission of data so as to hinder replication of experiments, unjustified withholding of information so as to hinder the line of research from being developed by other researchers - is normally dealt with through counseling of the researcher as well as the research group.[22]

"The characterization of a particular action as good or bad scientific conduct often depends on judgments that are properly scientific in nature and are not always trivial."[22]

Still according to Lopes dos Santos, from FAPESP,[22] it is important that scientific forensics be carried out:

1. Distinguish which data are relevant and which are not for the confirmation or not of a scientific hypothesis, when it comes to establishing whether a certain article faithfully reports all the relevant data for pondering the degree of corroboration it proposes for its hypotheses.

2. Determine if the ideas that an author exposes as his own are sufficiently similar to another author's ideas for that exposure to be considered a possible case of plagiarism.

3. Distinguish unintentional error, error due to unskillfulness, from intentional misconduct and negligent misconduct.

It also requires a lot of scientific sensitivity from the judges to:

Distinguish what is a scientifically unjustified deviation from generally accepted scientific practices and what is an innovative and scientifically valuable deviation.

Disclosure of scientific misconduct practices investigated by FAPESP

FAPESP publishes on its *site*, in the Good Scientific Practices area, the summaries of case investigations that resulted in the finding of violation of good scientific practices.

By respecting the legal principles of presumption of innocence and the need to preserve the reputation of those suspected of violating good scientific practices, FAPESP carries out the entire investigation process confidentially. However, when the investigation proves the occurrence of a good scientific practice violation, FAPESP makes its conclusion public, in the light of the possible damage to the advancement of science and to society in general. FAPESP defined all the conditions of this release in an executive order published in 2013,[28] which states:

Once the process is concluded, and FAPESP has declared the occurrence of misconduct and the responsibility of the accused researchers, the Foundation will make public, in a webpage created specifically for this purpose, a summary of the process, containing:

I. The name of the researchers declared responsible;

II. The names of the institutions that these researchers were affiliated with at the time the misconduct occurred;

III. A description of the misconduct;

IV. A summary of the research findings that informed FAPESP's decision statement;

V. A summary of that decisional statement;

VI. The description of the punitive and corrective measures taken by FAPESP as a result of this declaration (Portaria FAPESP - 05/2013).[28]

In accordance with the principle of proportionality, this summary remains on the page for a limited period, to be defined according to the nature and gravity of the verified violation.[28]

The institution needs to establishing mechanisms to deal with cases of misconduct

Author Lopes dos Santos, from FAPESP,[22] states that education is fundamental: "Educação ética é inseparável da educação científica" (Ethical education is inseparable from scientific education), therefore, the FAPESP Code proposes that all institutions conduct courses, workshops, lectures, and other activities that continuously maintain the discussion about Good Scientific Practices. With regards to prevention, it must be ensured that researchers have consultative guidance to clarify integrity concerns and that they are supported by the institution in resolving them. Allegations of misconduct should be investigated by the institution. And potential complaints should be received without the author being vulnerable to retaliation.[20]

STUDY GROUP PROPOSALS

SUGGESTIONS RELATED TO RESPONSIBLE RESEARCH CONDUCT AT THE IAL (ADOLFO LUTZ INSTITUTE).

Initial Actions

The newly created committee should:

- have as its initial focus the implementation of educational actions that aim to promote the consideration of scientific integrity and preventive actions and discouragement of misconduct (Annex 2).
- promote special orientation for professionals new to the institution on good scientific practices and responsible conduct in research.
- propose the continuous implementation of introductory and continuing education courses on "Ethics and Integrity" for the entire community of research professionals in the Institution.
- propose the production of educational material in order to clarify and promote the culture of scientific integrity.

- As a starting point, GEIPIAL prepared the document "*IAL's Guide of Recommendations for Good Scientific Practice*" with initial guidelines on the topic of Integrity in Research.

After the implementation of CIPIAL, it is suggested that subsequent documentation should be developed addressing specific issues within integrity, such as plagiarism.

It is being suggested that after the implementation of the committee's regulations, a "code of good scientific practice for the IAL" should be elaborated. This document will be a guide for researchers when dealing with this issue in the institution and will also serve as a basis to support the institution in matters concerning possible cases of misconduct.

As for disciplinary actions related to the process of ascertaining complaints/allegations and investigation with subsequent referral to the general management of the institution, aiming at the application of disciplinary actions, it will be necessary to conduct a more in-depth and detailed study with the help of legal counsel, when necessary. Thus, it is expected that this measure will help the analysis and adoption of the procedures to be taken, respecting the legal and institutional normative issues.

SUGGESTIONS REGARDING IAL'S INTEGRITY POLICY

d. Suggestions regarding definitions of misconduct

1. The "institutional scientific code of good practice" should contain clear definitions of misconduct.

2. The protections for human and animal research issues are covered by other specific institutional rules, regulations, and mechanisms, and therefore should not be considered within the scope of definitions of misconduct related to the topic of research integrity.

3. All inappropriate actions and questionable practices in the conduct and/or execution and dissemination of scientific research that do not meet the definitions of misconduct must be treated through the institution's existing mechanisms or through new intervention mechanisms that may be created by the committee for the purposes of counseling, conflict mediation, contention, and prevention of deviations.

e. Preliminary suggestions on handling processes concerning allegations of misconduct

1. The inquiry, investigation, and administrative processes concerning cases of misconduct should be handled separately.

2. The process of investigation of the allegation of misconduct should be handled by the integrity committee, which should, if there is consistency, refer it to the procedural sequence.

3. The investigation process should be conducted on a responsible basis by an institutional committee consisting of researchers not belonging to the committee and, if necessary, assisted by *ad hoc* experts, as well as legal experts. All the procedures referring to the investigation process will respect the group of policies and institutional procedures previously elaborated and approved by the Integrity Committee and by the Institution's General Management.

4. The committee should develop strict guidelines for the fact-finding processes and the procedural sequence, defining the reasonable time and expectations for each step of the work.

5. The determination of whether misconduct has occurred should be established, in both fact-finding and investigation, only if there is a preponderance of evidence.

6. If the commission concludes that misconduct has occurred, the process will move on to the last stage, the administrative-disciplinary process, which will be conducted by the institute's directors.

f. Suggestions on the performance and structure of the IAL Research Integrity Committee

1. The committee will be responsible for the institutional processes related to education in ethical integrity in research, prevention of misconduct and acting to deter it, and also for the investigation of allegations, so the institution must invest in the ongoing maintenance of this new institutional body as well as in the preparation of its members, who will perform voluntary work.

2. The committee members must be stimulated and supported by the institution's management, which must provide the best conditions for their training, facilitating their participation in courses, events, and meetings that discuss the topic of integrity in scientific research.

3. The committee must have a meeting room for its activities: ordinary and extraordinary meetings, consultative activities, investigation of misconduct, etc. It must also have space for storing official documents that must have guarantees of confidentiality and privacy, so the institution must provide an appropriate place to ensure the protection and safekeeping of these documents.

4. The committee will need at least one trained professional (secretary) who will provide administrative support and assistance.

5. It is extremely important that the committee and particularly its activities have a good visibility in the institution. The committee should have a space on the institution's website (intranet), as well as easy access to promote the dissemination of its activities and materials to the whole institutional scientific community.

6. The committee must inform the institution's management, by publication of an annual report, of its activities, as well as other matters related to the updating of norms and regulations that deal with integrity in research in the State of São Paulo and in Brazil.

Source: *Report of the Department of Health and Human Services – Review Group on Research Misconduct and Research Integrity.*[29]

RESPONSIBILITIES OF THE IAL RESEARCH INTEGRITY COMMITTEE

It is proposed that CIPIAL have the following duties:

General:

- Propose the committee's regulations and initial guidelines.
- To establish, strengthen and ensure the maintenance of a structure for the promotion of a culture of ethical integrity in scientific research at the Adolfo Lutz Institute.
- To coordinate preventive and educational actions on ethical integrity in scientific research at the Adolfo Lutz Institute.
- To act as an advisory board, examining situations where there are doubts about research integrity.
- To coordinate the actions of ascertaining and, if necessary, forwarding for the adoption of disciplinary measures by the general management, regarding the suspicion of misconduct in the institution.

Specifics:

- Propose and stimulate actions such as courses, events, research, and publications, among others, to be executed by CIPIAL or by the IAL community itself, aiming at disseminating good practices in the execution and publication of research.

- Establish within the committee the function of Ombudsman to act in a consultative/ guidance manner on the issue of scientific integrity, directly assisting those who work with research in the institution, respecting their dignity, identity, and also safeguarding the confidentiality of their information.
- Produce, publish and/or disseminate guidance material concerning good scientific practices and responsible conduct in research.
- Elaborate, publish, and disseminate the "IAL Code of Good Scientific Practices", in which the institutional policy related to accountability for misconduct will be defined.

CONCLUSION

We conclude that there was a need to implement clearly formulated scientific integrity policies and procedures at the Adolfo Lutz Institute and to establish an internal board in charge of managing issues related to this theme, with the main focus of action being the promotion of a culture of ethical integrity in research and the prevention of misconduct. It was also verified the need for the institution of this board to act, when necessary, in the treatment of the occurrence of these ethical deviations.

We conclude that the institutional scientific community will be able to maintain its high scientific-ethical standard with a better understanding of this issue, and can count on educational activities and guidance documentation, as well as an advisory board to answer questions regarding scientific integrity and misconduct.

We also conclude that the Adolfo Lutz Institute can benefit significantly from the adoption of integrity policies and responsible conduct in research, because public trust is fundamental to preserve the name of this supra octogenarian institution (1940-2022), which has a high level of scientific production and generates knowledge and direct benefits that are extremely important to the São Paulo, Brazil, and international societies.

FINAL CONSIDERATIONS

We emphasize that this was a pioneering work by GEIPIAL, through which the Adolfo Lutz Institute became the first institution among the research institutes of the State of São Paulo to take effective initiatives to intensify the study of this subject.[30]

We also emphasize that the experiences that are presented may contribute for other research institutions to adopt actions to promote a culture of integrity, and to prevent and deal with scientific

misconduct. Finally, this is a subject of fundamental importance due to the notoriety that the debate on integrity in science has achieved in scientific communities, media, and society today.

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TRANSPARENCY STATEMENT

The authors inform the editors and readers of this article that part of the content presented referring to the experience obtained with the study conducted on integrity in research by the Working Group - GEIPIAL was used as introductory support in the development of the doctoral thesis "*Promoção da Cultura de Integridade Científica nos Institutos de Pesquisa em Saúde Pública - Proposta de um Programa e de um Plano de Integridade na Pesquisa Institucional*" defended by the author Bráulio Caetano Machado in the Graduate Program in Science at CCD/SES in the year 2020.

Seven reasons why one should value integrity in research[31]

1. Integrity in research protects the foundations of science
2. Research integrity maintains public trust in researchers and research evidence
3. Integrity in research maintains continued public funding in research
4. Research integrity protects the reputation and careers of researchers
5. Integrity in research prevents the adverse impact of research on participants and society.
6. Integrity in research promotes economic advancement
7. Integrity in research avoids unnecessary spending of financial resources

"Science is based on integrity and it is the obligation of every scientist to ensure it."
Jens Ried – FAU, Nurembergue, Germany

ANNEX 1 - COMMONLY USED DEFINITIONS IN SCIENTIFIC INTEGRITY (FAPESP)

Ethical Integrity in Scientific Research

A specific field within the scientist's professional ethics, understood as the total sphere of ethical duties to which the scientist is subject when carrying out his or her scientific activities.

Responsible Conduct in Research

Consistent conduct in accordance with the principles, values, and standards of integrity in research.

MISCONDUCT

The conduct of a researcher who, by intent or negligence, transgresses the principles, values, and norms that define the ethical integrity of scientific research and of relationships among researchers.

Serious Misconduct (FFP – data Fabrication, Falsification and Plagiarism) that directly affects research and is punishable:

Fabrication

Or claiming that data, procedures, or results were obtained or conducted that really weren't.

Falsification

Or presentation of data, procedures, or research results in a relevantly modified, imprecise or incomplete manner, to the point of interfering with the evaluation of the scientific weight they actually confer to the conclusions drawn from them.

Plagiarism

Or the use of another's ideas or verbal, oral, or written formulations without expressly and clearly giving them proper credit, so as to reasonably create the perception that they are one's own ideas or formulations.

QUESTIONABLE RESEARCH PRACTICES (QRP)

Considered a minor misconduct and should be dealt with in another way, usually with counseling, for example:

Conflict of Interest

A potential conflict of interest exists in situations in which the coexistence between the researcher's interest in advancing science and interests of another nature, even if legitimate, can be reasonably perceived by him or others as conflicting and detrimental to the objectivity and impartiality of his scientific decisions, even independently of his knowledge and will.

Annex 2 - CIPIAL's Summary of Suggestions and Work Planning - Research Integrity (RI)									
Objective/Activities	**Priorities**	**Institutional Policies**	**Good Practice Recommendations**	**Consultative Board**	**Educational Activities**	**Preventive Activities**	**Misconduct investigation (MC)**	**RI Guidance Material**	**Integrity in Scientific Communication**
RI Training, Week One	Newcomers to the IAL			X	X	X			
IAL Code of Good Practice	The whole community	X							
IAL Good Practice Recommendations Guide	The whole community		X						
Ombudsman	The whole community			X	X	X			
Courses, Lectures and Events	The whole community			X	X	X			
Anti-plagiarism software, Workshop on scientific paper writing	Newcomers to the IAL and more experienced researchers				X	X			X
Institutional measures to deal with MC	The whole community	X					X		
Production, publication, and dissemination of information material related to Good Practices and RI	The whole community	X	X		X	X		X	
Course on Integrity in Scientific Publication and Communication	IAL Journal and Bulletin and community			X	X	X			X

Source: Santos, L.H.L., 2011 e CBPC – FAPESP, 2011.

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