



## **GUIDELINES FOR RESEARCH INTEGRITY<sup>1</sup>**

By Research Integrity we intend the body of principles and ethical values, deontological obligations and professional standards that form the basis of the responsible and correct conduct of those who carry out, finance or evaluate scientific research, as well as the institutions that promote and perform it. The application of principles and values, and the respect for deontology and standards of professional ethics guarantee the quality of research and enhance the reputation and public image of science, greatly contributing to its advancements and to progress in society. The following principles are fundamental to research integrity:

1. Dignity
2. Accountability
3. Fairness
4. Rectitude
5. Diligence.

These main principles contain, are inherent to, or correlate with, a number of other principles and ethical values. Some of these are: scientific freedom; reputation of individuals and loyalty towards others and towards institutions; honesty, rigor, reliability and objectivity in the conduct of research; independent judgement, transparency, an open and impartial attitude, assigning value to merit, reciprocity and cooperation with others in the performance of one's duties; impartiality, pertinence, conscientious vigilance and efficiency in the use of resources; social responsibility and responsibility towards future generations, including the duty of care towards animals and the biosphere more broadly.

### **APPLICATION OF FUNDAMENTAL PRINCIPLES**

The fundamental principles of research integrity are applied in all the phases of a research project. This includes the planning, organising and conducting of research; the publication and dissemination of results; the evaluation of individuals, projects and publications; relationships between colleagues, collaborating institutions and funding agencies; as well as cases where misconduct, or questionable or irresponsible research practices are suspected.

However, behaviours which are subject to civil or criminal law, or to the judgement of international juridical bodies, are outside the purview of these Guidelines.

Also outside the scope of these Guidelines are behaviours that cannot be clearly classified, but that infringe on the principles of fair play, that is, the sum of behaviours that promote the peaceful co-existence and productive collaboration of researchers, and which constitute the highest, hence desirable, expression of an internalised integrity.

Between these two extremes, represented, on the one hand, by behaviours that are already governed by official regulations and, on the other hand, by behaviours that express what may be rather loosely

---

<sup>1</sup> See "Note to the text, workgroup and authors," in the appendix.

characterized as professional fairness, exists a broad category of behaviours that include more or less serious infractions to principles of research ethics and integrity. Such behaviours – which often precede illicit conduct and can be prevented – are still the subject of international discussion and have definitions and regulations that vary significantly from country to country. This broad category is the subject of these Guidelines for Research Integrity. The following text offers a list of such conducts, predominantly pertaining to researchers<sup>2</sup>, each described in reference to the different phases of a research project. It must be noted that this list is purely illustrative and not exhaustive.

## PART I

### CONDUCT THAT PROMOTES RESEARCH INTEGRITY

Examples of ethically and professionally correct conduct that supports, fosters and encourages research integrity are:

#### ***A. In the planning and designing of research:***

1. Agree on the project objectives: Researchers discuss and agree upon the aims and objectives of the project, as well as upon its planning in terms of scheduling, identifying a funding agency and the overall expected outcomes, before a grant is submitted to a funding institution, and in any case before the start of the research activities. The person in charge of coordinating the project also transparently discusses and agrees upon any subsequent changes to the plan with the research participants. Participation in a research group as well as, more generally, research conducted collaboratively, is to be considered a value in itself.
2. Define researchers roles and duties: the roles and specific duties of each individual researcher, as well as of the research institutes involved in the project, are defined with clarity and impartiality, respecting everyone's qualifications and expertise, including those of junior researchers, and are promptly communicated to the research group. The role and functions of the project's scientific advisor(s) are formalised before its start.
3. Agree on the choice, procedures and responsibilities for the management of funding sources: the choice of funding sources and the procedures to manage allocated funding are established and reported with diligence and in a transparent and collaborative way. This includes procedures for appointing the person who manages the funds and specifying his or her level of autonomy in decision making.
4. Define procedures and roles and assign duties for the processing and storage of material and data: researchers identify and formally appoint individuals in charge of the use, management and storage of material and data produced by the research. Similarly, the roles of the individual participants are established, as well as any access to data by third parties. Measures, tools and methods for the optimal conservation of raw data are specified.
5. Be familiar with and respect rules and regulations: it is the duty of all researchers to keep diligently updated on policies and regulations – international as well as national ones – in their research field as well as in their research institution. In this sense, it is the duty of research

---

<sup>2</sup> The definition of "researcher" is to be interpreted in a comprehensive manner. "Researcher" means anyone who is employed at the CNR (and in general at a research institution) or collaborates with it for the purposes of scientific research, in any form, with any qualification and in any role, provided that she/he has a work contract / appointment / official role.

institutions to provide updated, complete and easily accessible information, and organise continuous research training on such issues.

6. Evaluate the feasibility, potential impacts and ethical implications of the project: researchers and research institutes involved in the project evaluate its concrete feasibility and ethical issues. Furthermore, they responsibly evaluate its potential impacts on people, society and the biosphere, including those having to do with economic issues or issues of technological transfer and translatability of results. Ideally, an account of such evaluations is provided as part of the project's documentation.
7. Assign responsibilities and procedures for data processing: the person in charge of data processing at the research institute where the project is being conducted formally designates one or more person(s) authorised to process any personal data collected in the course of the research activities. These authorised persons should preferably include the Principal Investigator. The authorised persons communicate to the person in charge of data processing: the type of data to be collected; the project aims in relation to the data processing; the legal basis for processing; the regulations regarding processing that have been provided to the interested parties; who amongst the project staff will have access to the data; what safety measures (structural, technical and organisational) for data processing and storage have been put in place; the results of preliminary evaluations of the impact of data processing on the rights of the interested parties, as required by current regulations; and all relevant information for the updating of the Register for personal data processing of the research institute.
8. Clarify and manage potential or actual conflicts of interest: researchers avoid circumstances in which their work can be exposed to conflicts of interest that might significantly influence their objectivity. In any case, the nature of any conflicts of interest that may arise must be communicated explicitly, in full, to all the relevant parties and using the procedures foreseen for such cases, so as to allow third parties to appreciate the influence or biases that these interests may introduce in the research. Conflicts of interest can be direct or indirect, and of a professional, institutional or personal nature (such as personal relationships, conflicts or rivalries).

#### ***B. In conducting research***

1. Use adequate material and pertinent methods: research must be conducted correctly and must follow appropriate methodologies. It must be carried out professionally, rigorously and carefully, systematically verifying its ethical, social and environmental impact, and estimating its financial sustainability. It must use resources efficiently, safeguard the safety of researchers and follow the procedures agreed during the planning phase of the project, to the extent that this is appropriate.
2. Provide research documentation: documentation that relates to the objectives, methods, activities and progress made – including preliminary results – must be truthful, complete and detailed, in order to permit the critical examination and possible replication by third parties. Any substantial change to the design of the study must be noted and justified.
3. Store material and primary data: the evaluation of the project's soundness and of the importance and authenticity of its results may require, post-publication, the analysis of raw data, registers, material and information relating to the research itself. Therefore, the following elements should be stored in an accessible form for 5 years, or 10 years if they are in electronic form:

- a. Laboratory notebooks and work notes;
- b. Documents, lists and registers containing collected and processed data, even if they have been anonymized during publication, in compliance with existing regulations (for example, sensitive patient data, sample characteristics, etc.);
- c. Audio and video recordings, interview transcriptions or questionnaires filled out by the participants, in the original;
- d. The original image files of gels,<sup>3</sup> blots, chromatograms,<sup>4</sup> cell cultures, etc.;
- e. Electronic files containing raw data and the results of instrumental surveys;
- f. Biological samples and their derivatives (for example, slides and preserved tissues);
- g. Any primary data whose analysis led to published results, in any format.

Any requests to access this material by those authorised to it must be granted promptly and unreservedly. Moreover, researchers must promptly report the loss or theft of material and raw data to the appropriate offices of their institute and, if required by specific agreements or publication rules, to the editors-in-chief of the journals in which the research was published.

4. Respect data protection regulations: patients and, more generally, people recruited in research, are safeguarded in terms of the protection of their personal data. Such data is only to be published anonymously, in compliance with specific regulations regarding their processing. Those authorised to process personal data shall render themselves available to those whose data has been collected so as to allow them to concretely exercise their rights. They must also make sure that the safety measures for data processing are followed properly – including limitations to their access and their storage format – and immediately inform the person in charge of data processing at the research institute in case of a breach of those measures. On the basis of the information provided by the people authorised to conduct data processing, the person in charge of processing will update the personal data processing Register of the research institute.
5. Communicate internally with the research group and with the institution: researchers who collaborate on a project communicate between them and with institutional advisors frequently, with regularity, honesty and transparency, allowing all individuals involved to be updated on the progress of experiments and the attainment of results during all stages of research.
6. Compare and verify each other's work: scientific criticism that is reciprocal, honest, disinterested and transparent is essential to the process of scientific self-correction. Consequently, to the extent that it is possible, researchers involved in a project cooperate in the verification and eventual correction of work done by their collaborators, within the limits of their competences. Such action is taken while respecting the professional reputation of all those involved, both personal and interpersonal.
7. Report any cases of misconduct, questionable and/or irresponsible practices: a researcher who has well-founded reasons, which are adequately supported by evidence, for suspecting misconduct, questionable and/or irresponsible practices on the part of colleagues or collaborators, must communicate those reasons in detail to the designated individuals, offices or commissions/committees within his or her institution. Alternatively, the researcher may

---

<sup>3</sup> Electrophoresis on polyacrylamide gel is a technique for DNA sequencing or for the separation and study of proteins taken from biological samples.

<sup>4</sup> A biochemical technique that allows the identification of a specific molecule in a mixture, through its recognition by specific antibodies.

contact his or her legal representatives. More serious cases of alleged misconduct are to be reported to the relevant authorities.

8. Safeguard the dignity and health of people and the welfare of animals: researchers operate with the utmost respect towards all people involved in the research, without compromising the health and wellbeing of the community or the maintenance of a safe and healthy research environment. Researchers also safeguard responsibly the wellbeing of animals used for scientific purposes.
9. Follow bioethics policies and rules of good practices: researchers diligently observe bioethics regulations and recommended practices, including: obtaining informed consent; equity in dealing with people involved in experiments; safeguarding, with particular care, minors and vulnerable individuals and their psychophysical integrity; protecting the privacy of individuals involved in research; communicating incidental findings<sup>5</sup>; protecting the safety of researchers during scientific activities. Researchers will ensure that these norms and good practices are encouraged and observed.

### ***C. In the publication of results<sup>6</sup>***

1. Publish promptly: every researcher shares the data, methodologies and results of any study with the scientific community promptly, that is, in the right time, and in full. The need to verify and integrate data, or to claim authorship of a new discovery and ownership of any potential intellectual property resulting from its application, can have varying effects on the timeframe and mode of publication of results, depending on the case. Any delay that does not result from these necessities constitutes an obstacle to scientific progress and is therefore to be avoided.
2. Disseminate results: research results bring collective benefits. Therefore, researchers and those in charge of financing, supporting, publishing and disseminating research operate in such a way as to ensure that scientific publications are freely accessible to the international scientific community, to any extent that this is compatible with their resources and interests, and following the principle of fairness<sup>7</sup>.
3. Safeguard the quality of publications: researchers publish their results regularly and promptly. Publishing quickly or aspiring to a high number of publications in one's curriculum should not come at the expense of the originality, accuracy, soundness and relevance of research results. When choosing where to publish, researchers evaluate the reputation of the journal and make every effort possible to identify and avoid predatory publishing.
4. Avoid surreptitiously inflating the number of publications: every publication must communicate the results of a study in a complete, coherent, and consistent manner. Researchers must not engage in "salami-slicing", that is, they must not surreptitiously inflate the number of publications through the redundant and artificial subdivision of results. In fact,

---

<sup>5</sup> Unexpected or accidental information not included in the primary or secondary objectives of the research project.

<sup>6</sup> In the Guidelines, the concept of scientific publication is intended in a broad sense and includes: scientific articles, also circulating in temporary versions (e.g. working papers), under peer review or already published in scientific or educational journals; research projects and plans submitted in support of (or produced as part of an examination for) a request for funds, a call for proposals or a competition; oral presentations at workshops and conferences and related proceedings in written form; books, book chapters, essays and articles in collective volumes; doctoral theses and degree theses; scientific or technical reports; personal pages on institutional or academic websites. The following are not included in the category of scientific publication: informally circulated texts and drafts or general texts published in private form (for example, texts published on blogs, social networks, e-mails, etc.); meetings or seminars of an informal and local nature including the relative reports.

<sup>7</sup> For more information, see the scientific and research policy debate on Open Access and Open Science.

such conduct risks compromising the ability of the scientific community to access the entirety of a project's results and to evaluate their meaning and relevance.

5. Communicate with objectivity and responsibility: to the extent that it is allowed by the form and mode of publication, researchers should provide the greatest amount of information possible, in a meticulous, objective and impartial manner, on the following aspects:
  - a. background scientific literature and current knowledge;
  - b. the research objectives and methods that were established before the start of the research;
  - c. any modifications made to the objectives and methodologies after the start of the research;
  - d. important results obtained, including negative or invalid ones;
  - e. all possible interpretations of the results, as well as the range of applicability and limitations of those results.
6. Share costs and benefits: both the costs of the production and publication of results, as well as the benefits accrued through their publication are shared up fairly amongst the researchers participating in the project, proportionately to the contribution of each one.
7. Respect the right to be recognised as authors of a publication: the identity of the authors of a publication and the order in which their names appear on it are agreed upon beforehand, if possible already during the planning or the earliest stages of research. In addition to the requirements of copyright and the rights attached to the exercise of copyright, legitimate authors of a scientific publication are all and only those who have contributed significantly to it. A "significant contribution" is defined as having collaborated on at least two of the following activities:
  - a. the formulation of the hypothesis that underlies the research;
  - b. research planning and methodology;
  - c. data collection;
  - d. data interpretation and analysis;
  - e. interpretation of results;
  - f. drafting a significant part of the text.

It is furthermore important to clarify, in the publication itself if possible, the specific contribution made by each co-author. Nevertheless, every co-author of a publication is scientifically and ethically co-responsible for the entirety of its content and, before submission for publication to a journal or publishing house, must scrupulously inspect every element of the publication, that is, the text, figures, images, tables, author list and any other parts.

8. Make explicit acknowledgments where needed: if the contribution of a researcher is not sufficient to justify the status of co-author on the basis of the above definition, such a contribution must nevertheless always be mentioned in the publication under the form of an explicit acknowledgment. In this case too, the specifics of that contribution should be described whenever possible. Similarly, all those who offered financial or material support must be thanked, as must those who provided equipment or infrastructure.
9. Correct and retract erroneous or fraudulent publications: if, after the publication of one of their articles, researchers discover errors, or suspect misconduct regarding the soundness of the data or the originality of the text, they must quickly evaluate – whenever possible together with all the co-authors – the need to correct or retract the publication. As soon as the erroneous or fraudulent nature of a publication – or part of a publication – is established, or in the case of founded suspicion, researchers – and in particular the Corresponding Author – must promptly involve the editors-in-chief and the persons in charge of such matters within



their own institutions, and must make sure to send a correction note or request for retraction. It is part of the duties of researchers who co-authored a publication and are aware of scientific misconduct by one of their co-authors – relating to any fabrications/falsifications/plagiarism of data/images/text present in the publication – to report this fact, in the first instance to the Corresponding Author, or if necessary to other authorities.

10. **Manage conflicts of interest:** any conflicts of interest that can, in principle, compromise the objectivity of the researcher, either during the research activities, the publication of results, or in the evaluation of other people's work, must be avoided whenever possible and must, in any case, be made explicit in a way that is appropriate to the context and unreserved.

#### ***D. In the evaluation of people, projects, or publications***

1. **Evaluate the researchers in one's research unit with impartiality and fairness:** those with responsibilities/ directorial roles must lead their research group in a diligent and unbiased way, evaluating everyone's work impartially and transparently, acting in compliance with the principles of good administration and management and according to best practices.
2. **Contribute to peer review:** with the aim of promoting the progress of their disciplinary field, researchers should make themselves available to activities of peer review with care and at an appropriate frequency, for scientific journals as well as conferences, job and career selection, and allocation of research funding. Such activity is performed in the interest of the community, respecting the principle of privacy, and only if the researchers possess the particular expertise required. In no case is a reviewer to gain scientific or personal advantages due to becoming aware of research results before their publication.
3. **Guarantee reliable and high-quality peer review:** the same principles as above should guide the conduct of researchers who find themselves occupying the role of editor-in-chief of a scientific journal. In particular, a researcher/editor-in-chief should guarantee serious and careful peer review processes, an accurate and transparent evaluation of the methodologies used in the research, the quality, originality and integrity of results and text – also by using technical analyses for the verification of any fabrication/falsification/plagiarism of data/images/text – as well as the clarification of any conflicts of interest on the part of the authors and the reviewers themselves. Moreover, a researcher/editor-in-chief must guarantee that the selection of reviewers is made exclusively on the basis of their reputation and scientific experience. Special care must be taken when the research under evaluation for publication presents a risk of dual use<sup>8</sup>.

#### ***E. In professional relations within research institutes, relations with colleagues, and when organizing and managing research***

1. **Create an environment that fosters research integrity:** scientific institutions and those within them who act as coordinators, scientific directors or administrative directors, should actively promote the values and principles of research integrity and nurture a work environment that lends itself to the concrete application of those principles. In particular, in addition to organizing and managing research activities, they should guarantee the scientific freedom of researchers, safeguarding them from the risk of coercion and discrimination and encouraging a responsible attitude and cooperation between colleagues.

2. Prevent misconduct: scientific institutions and those within them who act as coordinators, scientific or administrative directors work to reduce the risk of misconduct, and in general of questionable or irresponsible practices, promoting merit and encouraging frequent, honest and transparent communication amongst colleagues. They make sure the behaviour of staff is inspired by the principles of research integrity, particularly regarding the registration and preservation of material and data, the traceability of procedures and protocols employed and the originality of publications. The effectiveness with which a research structure or institution prevents misconduct constitutes a criterion for its evaluation.
3. Research integrity training: scientific institutions and those who occupy roles of coordination, scientific and administrative direction contribute, each in their own capacity, to training researchers on the principles of research integrity and in general on the social responsibilities inherent in experimentation. Moreover, when projects involve research groups that are external to the research institute – also on an international level – the signing of preventive agreements on research integrity is encouraged.
4. Receive allegations of irregularities: scientific institutions should set up internal independent committees, possibly permanent ones, constituted in their majority by members external to the institution itself, and by members of technical/scientific structures dedicated to this purpose. They are also to establish coded procedures to facilitate the detection of potential cases of misconduct, and through which allegations can be reported<sup>9</sup>, excluding allegations that are not in written form and anonymous allegations, and guaranteeing the fairness of the process and the possibility of appeal. The aim of the evaluation activities of the committee are twofold: verify the alleged research misconduct and any related personal responsibility, and safeguard the accuracy of the published scientific record, where applicable, and the trust in research and science. During their activities, the committees collaborate transparently with the institutions, with the editors and editors-in-chief, and any other relevant bodies, also on an international level. During the investigation of a case, the process of evaluation of a case of alleged research misconduct always keeps the accused researcher involved. He or she is made aware of and made to understand the charges brought forth. It is made possible for him or her to supply any rebuttals or explanations that might help with the evaluation itself and to make use of the testimony of collaborators or colleagues. Moreover, at this stage, if appropriate, the opinion of technical experts is consulted. Furthermore, the evaluation of cases of alleged misconduct normally involves the examination of the last five years of scientific production of the alleged researcher. Within the remits of the law, the anonymity of both the person who reports the allegations as well as the person whose alleged misconduct has been reported are safeguarded and guaranteed, for the entire duration of the investigations and following them, according to formal procedures. Furthermore, every form of prejudice, stigmatisation, discrimination, blackmail or unwanted interference is actively impeded. In the evaluation of a case, any element that mitigates responsibility is taken into account, as is the assumption that errors are made in good faith.
5. Prevent irresponsible practices and research misconduct: all those who take part in the scientific community must actively safeguard research integrity. In the face of scientific fraud or any other infraction of the principles and provisions relating to research integrity, there must be no allowing of support, direct or indirect, or connivance or silence, or demonstration

---

<sup>9</sup> To this end, the institutions shall proceed by means of their own internal acts.



of tolerance or indulgence. Moreover, any provisions must be aimed first and foremost and primarily towards avoiding future misconduct or conduct that is irresponsible.

***F. In the communication and dissemination of results***

1. Express yourself appropriately: Researchers shall limit their contribution and public statements exclusively to the fields of their professional competence. A clear and open distinction is made between the communication of personal opinions and the communication of professional opinions that is based on publications that have already been peer-reviewed and/or on data obtained by methods generally accepted by the scientific community, codified by documented and documentable criteria, and whose effectiveness, reliability and margin of error have been established experimentally.
2. Communicating in a balanced manner: in addition to guaranteeing a clear distinction between personal opinions and scientific evidence, whenever they address the general public, researchers shall base their style of expression on clarity, honesty, objectivity, rigour and transparency.
3. Mentioning participants and their research institutions: the researchers participating in a project shall agree on who, within the framework of the collaboration, is preferably to speak on behalf of the research group. The contents of the communication must be shared by the group, including acknowledgements of the participants' institutional affiliations, of the co-authors of a publication or of the colleagues involved in the project that is illustrated. Professional qualifications are reported in a truthful and not misleading way, in order not to induce confusion in the users of the communication.

## **PART II**

### **CONDUCT THAT UNDERMINES RESEARCH INTEGRITY**

Ethical and professional misconduct<sup>10</sup> and questionable and/or irresponsible practices<sup>11</sup> that conflict with research integrity should be prevented and/or sanctioned. Irrespective of the eventual civil or criminal relevance of the behaviours described below, the following are examples of such conduct:

***A. In the planning and designing of research***

**MISCONDUCT:**

1. Plagiarism:
  - appropriating, intentionally or as a result of negligence, the project proposals of others and presenting them, in their entirety or partially, as the work of a different person;
  - using full or partial translations of a project proposal from others, without mentioning its source;

---

<sup>10</sup> Research Misconduct is intended as a deliberate and serious breach of the ethical standards on which scientific research is based. The Committee's website states that: "Violations of the ethical principles and values, as well as the ethical duties and professional standards on which responsible and correct conduct is based by those who carry out, finance or evaluate scientific research and by the institutions that promote and perform that research" ([www.cnr.it/en/research-misconduct](http://www.cnr.it/en/research-misconduct)).

<sup>11</sup> Questionable or irresponsible research practices are, respectively, behaviours that may or may not constitute research misconduct depending on the circumstances and subjective attitude of the researcher and behaviours that are undoubtedly detrimental to moral and scientific progress, but not identified with typical forms of misconduct.

- appropriating, intentionally or as a result of negligent conduct, the ideas, data or results of others in cases where their attribution to other researchers is documented and demonstrable;
- not verifying the consent of co-authors before submitting a project proposal to a funding entity.

2. Mismanagement of conflicts of interest:

- hiding, partially or completely, existing or potential conflicts of interest in cases where their disclosure is expected and indicated;
- hiding, even partially, the contribution of a financial entity to the research;
- hiding, even partially, direct financial interests;
- accepting sources of funding or professional roles that are ethically incompatible with the role of researcher according to the criteria and rules that govern the institution of affiliation and the correct functioning of Public Administration.

**QUESTIONABLE AND/OR IRRESPONSIBLE PRACTICES**

- planning research activities inadequately or superficially;
- evaluating the feasibility of research in a superficial manner;
- emphasizing the potential scientific value of research by including in the project proposal inconsistent preliminary data;
- managing potential conflicts of interest in a non-transparent way, even if their disclosure is not required;
- imposing or accepting agreements which do not guarantee the researcher's independence of judgement and which restrict or inappropriately control the freedom to publish the results of the research.

***B. In conducting research***

**MISCONDUCT:**

1. Fabrication of data or results:

- inventing data or research results, or publish data or results which have not actually been obtained or which have not been obtained using the methods described in the publication.

2. Falsification of data or results:

- modifying, selecting, manipulating or transforming data or results using techniques not justified by typical methodologies used in the relevant field of research and which are not presented in a transparent manner in the publication. Such practices are deemed as falsification wherever it is demonstrated that they have been adopted with the aim of presenting research results in a misleading manner. Also included in this category are omissions in the publication of substantial parts of the results or details relating to the research methods wherever such omissions are aimed at deliberately distorting the results and the conclusions of the publication;
- falsification of data or results constitutes a disqualification regardless of the persisting scientific value of the published results.

3. Negligence and misuse of data:

- incomplete collection of materials, data, registries and information relating to one's own research;
- declaring the false possession, particularly in publications, of original data and material;
- destroying data, registries and information relating to research before the deadline established by the institution of affiliation;

- impeding access to material, data, registries, and information before the deadline specified as the minimum time limit for their retention, in response to a request for verification by an authorised third party.
- 4. Data theft:
  - appropriating or using primary research data without the consent of the authors and, in general, of the entitled parties;
  - giving third parties access to results, discoveries, ideas, theories and unpublished research methods before they are published or without the consent of the authors and, in general, the entitled parties.

#### **QUESTIONABLE AND/OR IRRESPONSIBLE PRACTICES:**

- being responsible for serious and persistent negligence that repeatedly, even unintentionally, distorts the results and conclusions of research. Such negligence also includes poor maintenance of laboratory equipment and any other research equipment or facilities, and inadequate storage of materials, data, records, and information relating to one's research;
- working negligently and inadequately, committing repeated and serious errors, including methodological inaccuracies, in the design and conduct of research;
- working systematically with bias and distortion in the conduct of research and in the publication of results, but not in such a way as to indicate a case of misconduct.

#### ***C. In the publication of results***

##### **MISCONDUCT:**

1. Plagiarism:
  - appropriating, intentionally or as a result of negligence, the publications of others and presenting them, in their entirety or partially, as the work of a different person;
  - using, directly, parts of someone else's text without referencing the source and/or representing it as a quotation;
  - publishing a full translation of someone else's text, or the essential parts of it, without mentioning the original source;
  - publishing, intentionally or as a result of negligence, the ideas, data or results obtained by others in cases where their attribution to other researchers is documented and demonstrable;
2. Multiple publications:
  - Publishing identical, or substantially equivalent, results in multiple, simultaneous or time-delayed articles, without specifying in each case that the article is a re-publication or without mentioning other publications with the same results. This category also includes translations or new versions of articles previously published in different languages. The dissemination of research results in several languages is to be encouraged, but any translation, re-editing and recycling of already published data must be clearly specified.
3. Submitting multiple proposals:
  - submitting the same research results to more than one scientific journal, with making the fact known, in order to increase the odds of publication.
4. Negligence and abuse of authorship:
  - granting or offering the status of co-author of a publication to someone who does not satisfy the co-authorship requirements specified in Part I, Section C, point 7 ("Respect the right to be recognised as authors of a publication");

- accepting the status of co-author of a publication without satisfying the requirements specified in Part I, Section C, point 7;
  - denying the status of co-author of a publication to anyone who satisfies the requirements specified in Part I, Section C, point 7;
  - imposing the status of co-author of a publication on someone who does not satisfy the requirements specified in Part I, Section C, point 7;
  - denying, concealing or omitting acknowledgement, as specified in Part I, Section C, point 8 (i.e. “Make explicit acknowledgments where needed”), of the contribution of individuals where such contribution satisfies the requirements;
  - not communicating clearly and transparently in the publication, in the section dedicated to materials and methods or in the acknowledgments, the eventual recourse to professional translation or editing services. The practice of delegating the drafting of a scientific article entirely to professional “ghost” writers, not otherwise involved in the research, is considered an example of misconduct whenever it is not explicitly mentioned in the article itself with the name of the companies or professionals involved;
  - falsely stating or giving the impression that one's own work has already been discussed or examined by reputable experts, for example by making a misleading use of acknowledgements;
  - not verifying the consent of the co-authors of a publication before its submission to a journal.
5. Failure to correct and rectify one's own scientific production:
- not requesting the retraction of an article once the presence of manufactured/falsified data or serious errors is ascertained to such an extent as to compromise the validity of the results;
  - not requesting the correction of an article once the presence of significant errors that could compromise the understanding of the publication or of its relevant parts has been ascertained;
  - announcing a result or discovery in a publication or in the media without being able to support the statement with data or facts;
  - not making every effort to communicate in the most comprehensive way, including the media, the retraction or correction of the announcement of a discovery once the claim has been proved entirely or partially incorrect.

**QUESTIONABLE AND/OR IRRESPONSIBLE PRACTICES:**

- directly using parts of one's own already published text without indicating the sources in notes and/or as a quotation (a practice sometimes referred to as self-plagiarism);
- artificially multiplying publications through an unjustified subdivision of results. Unjustified subdivision means an excessive fragmentation of results that goes beyond a natural and logical separation, to such an extent as to prevent a full access and correct interpretation of results by third parties;
- denigrating or diminishing the contribution brought to one's research by competing researchers, for example by intentionally omitting to mention their work in the publications, even though that work represents an objectively prior and significant contribution;
- introduce, in one's own publications, errors in the bibliographical quotations of works by competing researchers in order to limit the impact of their publications and the recognition of their contribution by the scientific community;
- unjustifiably expanding the list of citations in a publication in order to increase the citations to one's own or someone else's work;

- imposing, when acting as peer reviewer, editor in chief or editorial manager of scientific publications, the citation of works not essential for publication, in order to increase the impact of one's own scientific or journal production;
- deliberately publishing in journals known to practice predatory publishing, in order to avoid adequate peer review.

***D. In the evaluation of people, projects, or publications***

**MISCONDUCT:**

1. Negligence and abuse of one's role as reviewer or leader/director of a research group:
  - publishing as one's own, or using in any other way without the express permission of the author, texts whose access has been obtained when acting as a reviewer or as leader/director of a research group;
  - making severely erroneous or completely false or unbalanced judgments in order to obtain an advantage for oneself or for third parties;
  - unjustly preventing or intentionally delaying the publication of another's work in order to gain a professional, material or personal advantage for oneself or for third parties;
  - infringing the duty of confidentiality towards third parties, unless the peer-reviewed work raises suspicions of misconduct or other violations.
2. Negligence and abuse in performing the role of editorial manager:
  - selecting reviewers of publications on the basis of criteria other than proven competence;
  - not evaluating with sufficient care, objectivity and fairness the reports of conflicts of interest;
  - not interpreting in an impartial and transparent way the verifications carried out on the publications aimed at identifying possible cases of plagiarism, falsification or fabrication of data;
  - not handling impartially and consistently allegations of research misconduct, which includes handling requests for correction/retraction;
  - not protecting the parties involved in any allegations/reports of research misconduct by taking measures to ensure confidentiality, within the limits of the law, and to protect the reputation of all those involved.
3. Mismanagement of conflicts of interest:
  - concealing, in whole or in part, the contribution of a research funding entity;
  - accepting sources of funding or professional roles that are ethically incompatible with the role of researcher according to criteria and regulations of the institution of affiliation and the correct functioning of Public Administration;
  - conceal, in whole or in part, actual or potential conflicts of interest that may affect the objectivity of researchers' work as reviewers, whenever their disclosure is required.
4. Falsification of one's scientific credentials in the submission of publications or projects, or in the participation in a public competition:
  - falsifying, in part or in whole, one's scientific credentials and professional achievements in documents such as, for example:
    - a. *Curriculum Vitae*;
    - b. authorship and affiliation indicated in the publications;
    - c. biographical notes submitted to conferences;
    - d. lists of publications and websites edited by the same researcher.
  - Deliberately providing incorrect information when registering for a competition or applying for a position.

**QUESTIONABLE AND/OR IRRESPONSIBLE PRACTICES:**

- systematically refusing to act as a peer reviewer;
- acting as a peer reviewer with negligence or bias, for example by expressing opinions on a work without having properly reviewed it, or for reasons other than its scientific value;
- in acting as peer-reviewer, attempting to identify the author of an article that has been anonymized by the journal or, where the author's identity is clearly understood or unintentionally known, not communicating this circumstance to the journal editor;
- in either the role of peer-reviewer or that of journal editor, concealing, in whole or in part, potential or actual conflicts of interest which are deemed to affect the objectivity of one's work, even though their disclosure is not required;
- either in one's role of peer-reviewer or in that of journal editor, expressing a negative opinion on a publication that is not sufficiently motivated or that does not allow the authors to challenge it, and delaying the evaluation of the submitted articles without justified reason;
- when participating in a public competition or in a scientific or educational event, falsely indicating as 'published' or 'in publication' a work that is not so, in documents such as:
  - a. *Curriculum Vitae*;
  - b. authorship and affiliation indicated in the publications;
  - c. biographical notes presented at conferences;
  - d. lists of publications and websites edited by oneself.

***E. In professional relations within research institutes, relations with colleagues, and when organizing or managing research***

**MISCONDUCT:**

**1. Sabotage of colleagues:**

- directly sabotaging the research of colleagues, collaborators or competitors, for instance by damaging, destroying or manipulating materials, experiments, instrumental equipment, documents, software, data, information and any other element necessary for their research;
- directly and intentionally obstructing or slowing down the work of colleagues, collaborators or competitors through deliberate or extremely negligent actions. Sabotage can also take the form of behaviour such as, for example:
  - a. delaying bureaucratic procedures;
  - b. postponing the dispatching of essential materials;
  - c. abusing one's influence;
  - d. preventing other colleagues from carrying out their own research, for instance by making negative comments in the media, relying on prejudices, local customs, etc.

However, it is not considered sabotage to carry out actions that hinder or slow down the activity of colleagues when such actions are aimed at defending one's own legitimate interests;

- excessively delaying contributions to an article or a book in order to slow down its publication for reasons of personal interest.

**2. Instigation, facilitation, connivance, complicity:**

- encouraging a person to behave in a way that constitutes misconduct in research according to the definition and examples given in the Guidelines;
- concealing or contributing to conceal evidence of misconduct by others;



- not taking action once there are reasonable grounds for suspecting misconduct, in particular by failing to inform the persons responsible within the affiliated institute or other deputed personnel;
  - agreeing to be co-authors of a publication known to be fraudulent;
  - becoming aware of the fraudulent nature of a research or publication in which you are a co-author and not acting, by informing the heads of the institution of affiliation and/or the editors of the scientific journals concerned, as well as the competent authorities.
3. Misleading allegations and obstructing the investigation of misconduct:
- intentionally making an unfounded allegation of misconduct, also in order to obtain a benefit for oneself or others or to cause harm to others;
  - attempting to confuse or obstruct investigations of alleged misconduct in research;
  - initiating, instigating or encouraging punishment and retaliation against whistleblowers;
  - initiating, instigating or encouraging punishment, retaliation, reprisals, intimidation, direct or indirect, against members of commissions/committees appointed to ascertain/evaluate alleged cases of research misconduct, as well as against the staff responsible for the investigations;
  - intentionally violating the investigative procedures established by one's institution of affiliation.
4. Non-transparent or inappropriate use of research funds:
- using research funds in a non-transparent, inappropriate or highly negligent manner;
  - using research funds in violation of procedures or without proper reporting.
5. Negligence and abuse of one's role:
- abusing one's role, position and influence to obtain undue advantages, goods and favours for oneself or for third parties or to damage colleagues, collaborators or competitors.

**QUESTIONABLE AND/OR IRRESPONSIBLE PRACTICES:**

- hindering, delaying, or indirectly and unintentionally sabotaging the work of colleagues through the protracted refusal to share data, methods, negative results of experiments, information on methodological or other errors, beyond professionally and scientifically justifiable limits;
- showing negligence in the performance of one's role as leader/coordinator of a research group;
- showing negligence in one's role as mentor and leader for students, PhD students and young researchers;
- intimidating students or researchers or subordinate staff;
- writing unjustly positive or negative letters of reference in order to improperly condition the employment opportunities of the researcher mentioned in them;
- failing to adopt a collaborative and transparent attitude towards the members of the commissions/committees responsible for ascertaining/assessing alleged cases of research misconduct and towards the staff responsible for the preliminary stages of these proceedings.

## **NOTE TO TEXT AND CONTRIBUTORS**

*The CNR Research Ethics and Integrity Committee<sup>12</sup> submits the document "Guidelines for Research Integrity", revised on 11th of April 2019<sup>13</sup>, to the critical attention of the scientific community, in the first place the community of the CNR, but also of representatives of public institutions, industry and in general all those who wish to contribute to ensuring a broad and informed discussion on the subject. A regular review of the document will be carried out by the Committee, on an annual basis, also in light of the information and training activities to be carried out at the CNR. Comments and observations can be sent to the following e-mail address: [cnr.ethics@cnr.it](mailto:cnr.ethics@cnr.it).*

*The original text published here adheres to the guidelines contained in the main international charters on the subject, in particular in the European Charter for Researchers, and is consistent with the provisions contained in the research integrity policies of the most prominent scientific institutions around the world, as well as with the "Code of Conduct for CNR employees according to art. 54 section 5 of Legislative Decree no. 165 of 2001". An English version of the text is also available.*

*The "Guidelines for Research Integrity", revised in 2019, have been elaborated with the contribution of all the members of the CNR Research Ethics and Integrity Committee<sup>14</sup>.*

*The following members participated in the Thematic Workgroup for the revision of the Guidelines: Cinzia Caporale, Elisabetta Cerbai, Ombretta Di Giovine and Daniele Fanelli. Thanks to Elena Mancini and Giorgia Adamo for their scientific contribution to the revision. Cinzia Caporale and Daniele Fanelli have been authors of the 2015 Guidelines and the 2019 version.*

## **NATIONAL RESEARCH COUNCIL (CNR) RESEARCH ETHICS AND INTEGRITY COMMITTEE**

*Reports of alleged research misconduct can be sent to: [integrity@cnr.it](mailto:integrity@cnr.it). For more information visit the website: [www.cnr.it/it/research-misconduct](http://www.cnr.it/it/research-misconduct): [www.cnr.it/it/research-misconduct](http://www.cnr.it/it/research-misconduct).*

---

<sup>12</sup> Current members of the Committee (2019-2023): Massimo Inguscio (CNR and Committee's President), Cinzia Caporale (Committee's Coordinator – CNR-ITB), Gian Vittorio Caprara (Sapienza University of Rome), Elisabetta Cerbai (University of Florence), Carmela Decaro (Free International University of Social Studies LUISS Guido Carli, Rome), Laura Deitinger (Assoknowledge, Confindustria Innovative and Technological Services, Rome), Juan Carlos De Martin (Polytechnic University of Turin), Giuseppe De Rita (Centre for Social Investment Studies - CENSIS, Rome), Ombretta Di Giovine (University of Foggia), Vincenzo Di Nuoscio (University of Molise), Daniele Fanelli (London School of Economics and Political Science, UK), Giovanni Maria Flick (President Emeritus of the Constitutional Court, Rome), Silvio Garattini (IRCCS Institute of Pharmacological Research Mario Negri, Milan), Louis Godart (Lincoi National Academy, Rome), Giuseppe Ippolito (National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Rome), Vittorio Marchis (Polytechnic University of Turin), Armando Massarenti (Il Sole 24 Ore, Milan), Federica Migliardo (University of Messina), Demetrio Neri (Consulta di Bioetica), Francesco Maria Pizzetti (University of Turin), Enrico Porceddu (Lincoi National Academy, Rome), Angela Santoni (Sapienza University of Rome), Carlo Secchi (Luigi Bocconi Business University, Milan), Giuseppe Testa (University of Milan and European Institute of Oncology - IRCCS, Milan), Lorenza Violini (University of Milan).

<sup>13</sup> The first version of the Guidelines for Research Integrity is dated June 10, 2015.

<sup>14</sup> In addition to the above mentioned members, the following experts served in the previous mandates and acquired the status of honorary members of the Committee: Evandro Agazzi (University of Genoa and Universidad Panamericana, Mexico City), Ugo Amaldi (European Organization for Nuclear Research - CERN Ginevra), Lucio Annunziato (University of Naples "Federico II"), Francesco Donato Busnelli (Sant'Anna School of Advanced Studies, Pisa), Nicola Cabibbo† (Sapienza University of Rome), Gilberto Corbellini (Sapienza University of Rome), Emilia D'Antuono (University of Naples "Federico II"), Maria De Benedetto (University of Rome 3), Giuliano Ferrara ("Il Foglio" Daily), Stefania Giannini (Unesco, Paris), Paolo Legrenzi (Ca' Foscari University, Venice), Lorenzo Leuzzi (Office for University Pastoral Care - Vicariate of Rome), Mario Magaldi (Magaldi Industries S.r.l.), Luciano Maiani (CNR President), Roberto Mordacci (Vita-Salute San Raffaele University, Milan), Luigi Nicolais (CNR and Committee's President), Laura Palazzani (LUMSA, Rome), Fabio Pammolli (IMT Advanced Studies, Lucca), Maria Luisa Rastello (INRIM - National Institute of Metrological Research, Turin), Giovanni Rezza (Superior Institute of Healthcare), Gianfelice Rocca (Techint Spa), Stefano Rodotà† (International University College of Turin), Mauro Ronco (University of Padova).