Rules for safeguarding good scientific practice at the Leibniz Institute for Neurobiology (LIN) and procedures for handling scientific misconduct

Contents

1 Preamble

Good scientific practice is essential for public trust in the foundations and findings of research and science. It promotes scientific and economic progress and avoids wasting of resources, unnecessary risks to people and the environment, and misinformation of the public. It also protects scientific reputations and careers. All research institutions are called upon to take responsibility to protect science from falsification and manipulation and to take action against the misuse of scientific results. The members of the Leibniz Institute for Neurobiology (LIN) are aware of their responsibility in this regard.

With this objective in mind, the LIN management has issued the rules below. These rules are based on the current versions of the "Guidelines for Safeguarding Good Research Practice" of the German Research Foundation[1,2], the "Leibniz Code for Good Research Practice"[3] and the "Guidelines for Good Scientific Practice in the Leibniz Association"[4]. These guidelines are legally recognised and implemented at LIN. All LIN members are bound by the rules below[5].

2 Subject and applicability

The rules for safeguarding good scientific practice at LIN are based on the central principles of good scientific practice and describe the procedure to be followed in the event of non-compliance. They concern all academic and non-academic staff employed at LIN, as well as visiting researchers, scholarship holders and all other researchers without remuneration. These persons are notified of the rules in the appropriate form, which take effect from the time of notification. Compliance with the rules at LIN is a contractual (employment) obligation.

3 Rules of good scientific practice

3.1 Commitment to the general principles

Individual researchers are responsible for ensuring that their own conduct complies with the standards of good scientific practice. In particular, the following principles must be observed:

- to work *lege artis* and always be guided by the current state of the art;
- to critically and consistently check the validity and reproducibility of all results of experiments and other research designs;

[1] https://wissenschaftliche-integritaet.de/en/
[2] https://www.dfg.de/en/research_funding/principles_dfg_funding/good_scientific_practice/index.html
[3] https://www.leibniz-gemeinschaft.de/fileadmin/user_upload/Bilder_und_Downloads/%C3%9Cber_uns/Gute_wissenschaftliche_Praxis/Leibniz_Code_for_Good_Research_Practice.pdf
[4] https://www.leibniz-gemeinschaft.de/fileadmin/user_upload/Bilder_und_Downloads/%C3%9Cber_uns/Integrit%C3%A4t/Guidelines_for_Good_Scientific_Practice_in_the_Leibniz_Association.pdf
[5] A number of passages of the rules are verbatim quotations from the guidelines of the German Research Foundation. However, they are not identified as such.

- to fully document all the methods and results of an experiment or study and to securely store all research data;
- to maintain strict honesty in attributing and evaluating the contributions of all participants and transparency in disclosing all sources of third-party funding;
- to respect the intellectual authorship of others and to properly identify all citations and acquisitions.

3.2 Professional ethics

LIN researchers are responsible for putting the fundamental values and norms of research into practice and advocating for them. Researchers at all career levels regularly update their knowledge of the standards of good scientific practice and the current state of the art. Experienced and early-career researchers support each other in a process of continuous mutual learning and ongoing training and maintain regular dialogue. Education in the principles of good scientific work begins at the earliest possible stage in academic teaching and research training.

3.3 Organisational structures and responsibilities

3.3.1 Organisational responsibilities of the management

The LIN management creates the basic framework for research and is responsible for ensuring that an appropriate organisational structure is in place at the institute. The basic framework includes clear written policies and procedures for staff selection and development as well as for early career support and equal opportunity. The management also guarantees the necessary conditions to enable LIN researchers to comply with legal and ethical standards. The management makes certain that:

- the tasks of leadership, supervision, quality assurance and conflict management are clearly allocated in accordance with the size of individual research work units and suitably communicated to members and employees;
- with regard to staff selection and development, due consideration is given to gender equality and diversity, and the relevant processes are transparent and avoid unconscious bias as far as possible;
- suitable supervisory structures and policies are established for early-career researchers;
- individual and responsible career advice, training opportunities and mentoring are offered to researchers and research support staff;
- all researchers receive appropriate career support.

LIN is committed to giving regular courses on good scientific practice, which are open to all researchers and research support staff. Regular participation is mandatory for research staff. The content of the courses is tailored to the respective career level.

The management ensures that appropriate organisational measures are in place at the level of the individual research unit and of the management of the institute to prevent any abuse of power and exploitation of dependencies. These measures include workshops on management

development and on “error culture and good scientific practice” and the establishment of thesis committees for supervising doctoral candidates.

3.3.2 Responsibilities of the heads of research units

The head of each LIN research unit is responsible for the entire unit. The leadership role includes the management, supervision and quality assurance of research work, and especially in the training and support of early-career researchers, communicating and complying with the rules of good scientific practice. The size and organisation of the unit are designed to allow management tasks, particularly skills training (e.g. working in a research environment, communication and transparency, dealing with conflicts, self-reflection), research support and supervisory duties, to be performed properly.

The heads of research units ensure that:

- the institute’s research goals are clearly recognisable for all participants and their tasks are clearly assigned, so that the necessary cooperation and coordination can be achieved and all members understand their roles, rights and duties;
- all researchers receive adequate individual advice and supervision, especially early-career researchers, this being an integral part of the institute’s career policy;
- LIN researchers and research support staff benefit from a balance of support and personal responsibility appropriate to their career level, so that they are given adequate status with the corresponding rights of participation;
- there is regular exchange on achieving targets.

Furthermore, the heads of the individual research units promote responsible cooperation within LIN and within the research community.

3.4 Dimensions of performance and assessment criteria

To assess the performance of researchers, a multidimensional approach is called for. In general, originality and quality always have priority over quantity as performance and assessment criteria for promotions, recruitment, appointments and allocation of funds. In addition to scientific achievements, other aspects may be taken into consideration, such as involvement in academic self-governance, public relations, knowledge and technology transfer, teaching, and contributions to the general good of society if they are in line with the institute's goals.

Where provided voluntarily, individual circumstances stated in curricula vitae, as well as the categories specified in the German General Equal Treatment Act (*Allgemeines Gleichbehandlungsgesetz*)[6], are taken into account in the assessment. Thus, appropriate allowance is made for periods of absence due to personal, family or health reasons or for prolonged training or qualification phases resulting from such periods, and for alternative career paths or similar circumstances.

[6] https://www.antidiskriminierungsstelle.de/EN/about-discrimination/order-and-law/general-equal-treatment-act/general-equal-treatment-act-node.html

3.5 Ombudspersons

As neutral and qualified contact persons, LIN ombudspersons advise on issues and disagreements relating to good scientific practice and in suspected cases of scientific misconduct and, where possible, contribute to solution-oriented conflict mediation. The ombudspersons maintain confidentiality in dealing with queries and, if necessary, notify the management in the event of suspected cases of scientific misconduct and subsequently any commission of inquiry set up for this purpose (see 5.3.2). Two experienced scientific employees with management experience (beginning with the professional supervision of doctoral students), ideally one male and one female, should act as *internal* ombudspersons at LIN. They must be permanent LIN employees and exercise their office as ombudspersons on a voluntary basis, independently and free of instructions. The internal ombudspersons shall not be members of the Board of Directors during the exercise of this office, and have no disciplinary powers. Ombudspersons may stand in for one another, especially where there is concern about a conflict of interest or in the case of impediment. Even the emergence of a conflict of interest precludes the ombudsperson concerned from exercising his or her duty. The rules of the German Research Foundation (DFG)[7] and the Leibniz Association[8] for avoiding conflicts of interest apply.

The duties of external ombudsperson should be performed by an experienced scientist, for example an active or former member of the Scientific Advisory Board.

The ombudspersons endeavour to resolve conflicts primarily within the institute. However, the parties concerned may also insist that the external ombudsperson be consulted for clarification purposes. In addition, both the national German Research Ombudsman committee[9] and the central Ombuds Committee of the Leibniz Association[10] are available.

Internal and external ombudspersons are selected from a group of candidates who have previously declared their willingness to perform this function in a secret ballot procedure conducted by the management. All LIN employees are entitled to vote. The term of office of an ombudsperson is five years. One further term of office is permissible.

An ombudsperson may be deselected if there are sufficient (valid) reasons why it no longer appears possible for them to fulfil their duties reliably or if colleagues no longer have confidence that they will fulfil their duties responsibly. Before a deselection decision is taken, the ombudsperson concerned must be given a hearing. The reasons for the lack of confidence regarding the fulfilment of the task must be explained – while maintaining confidentiality and protecting any persons concerned – and agreement on the further procedure must be reached. An ombudsperson is deselected only if this is agreed by at least two-thirds of those entitled to vote in a secret ballot conducted by the management.

The management ensures that LIN employees know who the ombudspersons are. The management gives the ombudspersons the necessary professional support and acceptance they need to carry out their duties. To ensure the ombudsperson system works well, LIN may initiate additional measures to facilitate their work.

[7] https://www.dfg.de/formulare/10_201/10_201_en.pdf
[8] https://www.leibniz-gemeinschaft.de/fileadmin/user_upload/Bilder_und_Downloads/Forschung/Wettbewerb/Dokumente/13_Criteria_for_potential_bias.pdf
[9] https://ombudsman-fuer-die-wissenschaft.de/?lang=en
[10] https://www.leibniz-gemeinschaft.de/en/about-us/leibniz-integrity/good-scientific-practice-and-ombuds-services

4 Research process

4.1 Research planning and design, methods and standards

LIN researchers take into account and acknowledge the current state of research when planning a project. To identify relevant and suitable research questions, they familiarise themselves with existing research in the public domain. LIN ensures that the necessary basic framework for this is in place and that the following points in particular are taken into account:

- The choice of research approach is central to the meaningfulness of the findings, but also to their connectivity and generalisability. The choice of methodology and model system should be carefully considered and the advantages and disadvantages openly identified and reflected upon when evaluating projects.
- Project planning should include considerations on how to handle the research data generated in the project, on their documentation and on the possibility of making the datasets available to the public. Ideally, a data management plan should be drawn up before the start of the project. A template is provided by LIN.
- The validity of the results is determined by the research design, statistical parameters and systematic documentation of the research data and findings. Methods to avoid distortions in the interpretation of findings, e.g. the use of blinding in test series or the pre-registration of tests and studies in clinical areas, should therefore be used whenever possible.
- Researchers examine whether and to what extent gender and diversity dimensions may be of significance to the research project (with regard to methods, work programme, objectives, etc.). The basic framework in which the research was conducted is taken into consideration when interpreting findings[11],[12],[13].
- To answer research questions, researchers use scientifically sound and appropriate methods. When developing and applying new methods, they attach particular importance to quality assurance and establishing standards.
- The application of a method normally requires specific expertise that may require suitable cooperative arrangements. The establishment of standards for methods, the use of software, the collection of research data and the description of research results are essential for the comparability and transferability of research outcomes.

4.2 Cross-phase quality assurance

LIN researchers carry out each step of the research process *lege artis*, taking into account the current technical and discipline-specific standards. Continuous quality assurance during the research process is essential, starting with thorough research of the current state of knowledge through to the publication of new findings. The same amount of care needs to be taken in the project planning phase and in establishing appropriate quality assurance measures as in the

[11] https://www.dfg.de/en/research_funding/principles_dfg_funding/diversity_dimensions/index.html
[12] https://www.dfg.de/download/pdf/foerderung/grundlagen_dfg_foerderung/vielfaeltigkeitsdimensionen/stellungnahme_en.pdf
[13] https://wissenschaftliche-integritaet.de/en/comments/sex-gender-and-diversity-in-research/

implementation and publication of the results. Continuous quality assurance in the research process is part of good scientific practice and refers in particular to:

- compliance with specific standards and established methods;
- processes such as equipment calibration;
- the collection, processing and analysis of research data;
- the selection and use of research software, its development and programming;
- the keeping of laboratory notebooks (manual or electronic) and thus the comprehensive documentation and description of all data and metadata to embed the research in the research context;
- the explanation of all applied mechanisms of quality assurance - especially in the development of new methods - as soon as scientific findings are published;
- the disclosure and strict honesty regarding the origin of all data, organisms, materials and software used in the research process, the clear indication of reuse (e.g. in the form of material transfer agreements) and citing of original sources
- a detailed description of all methods and materials used to ensure the reproducibility of findings and results by other researchers;
- the correction of inconsistencies and errors that become known after the research results have been published. If the inconsistencies or errors constitute grounds for correcting or retracting a publication, the researchers will promptly request the publisher, infrastructure provider (e.g. of repositories), etc. to correct or retract the publication and make a corresponding announcement. The same applies if researchers are made aware of such inconsistencies or errors by third parties.

4.3 Documentation and archiving of research data

LIN researchers document all information relevant to the production of a research result (experimental objective and, if relevant, the development of the hypothesis, records and method descriptions, evaluation and analysis steps and all original data) in a form that can no longer be changed afterwards and as clearly as is necessary and appropriate to allow the result to be reviewed and assessed. The heads of the research units provide clear rules and instructions on how data collected in their units are to be documented. This also includes documenting results that do not support the research hypothesis. Selecting results that support the hypothesis is not permissible. Where concrete professional recommendations exist for review and assessment, researchers create documentation in accordance with the guidelines. If the documentation does not satisfy these professional specifications and requirements, the constraints and the reasons for them are clearly explained. The following rules also apply:

- Documentation and research results must not be manipulated; they are to be protected as effectively as possible against manipulation.
- Where research software is being developed, the source code must be documented.
- At LIN, laboratory notebooks (manual or electronic) are used to document research data. Electronic records, original data and associated metadata are stored in digital form on the institute's internal servers and kept for at least ten years.

- When employees and guests leave the LIN, the original data and their documentation remain at the institute; however, copies may be made and taken with them. The responsible unit head acknowledges the proper handover of all documentation such as laboratory notebooks and electronic data on the routing slip issued by the administration. After leaving the institute, heads of research units may continue to use the research data of their group and take copies of the data with them. Irrespective of this, copyright and patent claims remain unchanged.
- When data are made publicly available, the LIN researchers responsible ensure that all the original data on which they are based, the analysed data, any research software and all other materials used are adequately secured and stored for at least ten (10) years. This applies to all data collected at LIN[14]. LIN provides the necessary infrastructure for this in the form of an institute repository (LINarchive) in which all of the above data and materials included in publications and in theses and dissertations are stored in a structured manner. The retention period begins from the date of public access or publication.

4.4 Stakeholders, responsibilities and roles

The roles and responsibilities of the researchers and research support staff participating in a research project must be clear at each stage of the project. The participants in a research project define their roles and responsibilities in a suitable way – ideally before the start of the project – and adapt them where necessary in the course of the project. Adaptations are likely to be needed if the focus of a participant's work changes. Regular exchange between all those involved is essential.

4.5 Legal and ethical frameworks, usage rights

LIN researchers adopt a responsible approach to the constitutionally guaranteed freedom of research. They comply with rights and obligations, particularly those arising from legal requirements and contracts with third parties, and where necessary seek approvals such as ethics statements and animal licence before the start of the project and present these when required.

With regard to research projects, the potential consequences of the research must be evaluated in detail and the ethical aspects should be assessed. Researchers maintain a continual awareness of the risks associated with the misuse of research results. Their responsibility is not limited to compliance with legal requirements but also includes an obligation to use their knowledge, experience and skills such that risks can be recognised, assessed and evaluated. They pay particular attention to the aspects associated with security-related research (dual use). LIN is responsible for ensuring that its members' actions comply with regulations and promote this through suitable organisational structures, such as by convening a "Commission for Ethics in Security-related Research"[15]. It has developed ethical

[14] In cases where different institutions provide each other with infrastructure, appropriate written agreements should be made to ensure that LIN interests are protected in accordance with these guidelines.
[15] https://www.lin-magdeburg.org/research/commission-for-ethics-in-security-related-research

guidelines, policies and procedures to assess ethical issues relating to research projects and recorded them in the statutes of the commission[16].

The legal framework of a research project includes documented agreements on usage rights relating to data and results generated by the project. Where possible and practicable, researchers conclude documented agreements on usage rights at the earliest possible point in a research project. Documented agreements are especially useful when multiple academic and/or non-academic institutions are involved in a research project or when it is likely that a researcher will move to a different institution and continue using the data he or she has generated for (his or her own) research purposes (see 4.3). It is particularly the researcher who collected the data who is entitled to continue using them. During a research project, those entitled to use the data decide whether third parties should have access to them (subject to data protection regulations).

4.6 Providing public access to research results

As a rule, LIN researchers make all their results available as part of scientific/academic discourse. They decide autonomously, with due regard for the conventions of the relevant field of research, whether, how and where to disseminate their results. If a decision is made to publish the results, researchers describe them clearly, precisely and in full, together with their preliminary work and that of third parties, and explain their work processes in detail. Where possible and reasonable, this includes making available in recognised archives and repositories, in accordance with the FAIR principles (Findable, Accessible, Interoperable, Reusable), the research data, materials and information on which the results are based, as well as the methods and software used, and where necessary the source code of self-developed software[17]. Researchers provide full and correct information about their own preliminary work and that of others.

In specific cases there may be reasons not to make results publicly available (in the narrower sense of publication, but also in a broader sense through other communication channels). This decision must not depend on third parties. Restrictions may apply to public availability in the case of patent applications. If self-developed research software is to be made available to third parties, an appropriate licence or material transfer agreement is provided.

In line with the principle of “quality over quantity”, researchers avoid splitting research into inappropriately small publications and limit the repetition of content from their earlier publications to that which is necessary to enable the reader to understand the context. They must cite results that have previously been made publicly available.

4.7 Authorship

Collaborating researchers involved in the publication of their research results agree on the authorship. An author is an individual who has made a genuine, identifiable contribution to the content of a research publication of text, data or software. What constitutes a genuine and identifiable contribution must be evaluated on a case-by-case basis and depends on the

[16] https://www.lin-magdeburg.de/fileadmin/user_upload/01_Forschung/KEF_Satzung_LIN.pdf
[17] https://www.go-fair.org/fair-principles/

subject area in question. Essential criteria for this are if a researcher has contributed significantly to:

- the development and conceptual design of the research project, and/or
- the gathering, collection, acquisition or provision of data, software or sources, and/or
- the analysis or interpretation of data, sources and conclusions drawn from them, and/or
- the drafting of the manuscript.

The decision as to the order in which authors are named is made in good time, normally no later than when the manuscript is drafted, and in accordance with clear criteria and rules. All authors agree on the final version of the work to be published. Unless explicitly stated otherwise, they share responsibility for the publication. Researchers may not refuse to give their consent to publication of the results without sufficient grounds. Refusal of consent must be justified by verifiable criticism of data, methods or results.

If a contribution is not sufficient to justify authorship, the individual`s support may be properly acknowledged in footnotes, a foreword or an acknowledgement. Contributions limited to data collection, financing of research, a leadership or supervisory function in the unit in which the research was carried out, or reading or commenting on the manuscript, do not constitute authorship. So-called honorary authorship is also not permissible. Rules of authorship may be the subject of a prior cooperation agreement.

Authors seek to ensure that, as far as possible, their contributions are identified by publishers or infrastructure providers such that they can be correctly cited by users.

4.8 Publication medium

The publication medium (journal, publisher, internet platform, etc.) is selected carefully, with due regard to its quality and visibility in the relevant field of discourse. A new or unknown publication medium is evaluated to assess its seriousness. The scientific/academic quality of a contribution does not depend on the medium in which it is published (or its bibliometric indicators) but on the accuracy, originality and importance of the research results for which publication is sought. In addition to publication in books and journals, authors may also consider academic repositories, data and software repositories, and blogs. A key criterion to selecting a publication medium is whether it has established guidelines on good research practice. LIN researchers who assume the role of editor carefully select the publication media for which they will carry out this activity.

4.9 Confidentiality and neutrality of review processes and discussions

Fair behaviour is the basis for the legitimacy of any judgement-forming process. Researchers who have been asked to evaluate submitted research manuscripts, funding proposals or personal qualifications are obliged to maintain strict confidentiality with regard to this process. They disclose all facts that could give rise to the appearance of a conflict of interest. The duty of confidentiality and disclosure of facts that could give rise to the appearance of a conflict of interest also applies to members of research advisory and decision-making bodies. The

confidentiality of third-party material precludes sharing the material with other third parties or making personal use of it. Researchers immediately inform the responsible body of any potential or apparent conflicts of interest, bias or favouritism relating to the research project being reviewed or the person or matter being discussed.

5 Non-compliance with good scientific practice, procedures

5.1 Complainants and those affected by allegations

The LIN ombudspersons and, if necessary, the commission set up to investigate allegations of scientific misconduct (see 5.3) take appropriate measures to protect both the complainant and the person affected by the allegations. The investigation into allegations of scientific misconduct must be carried out in strict *confidentiality* and adhere to the *presumption of innocence* of the person affected by the allegations. If the confidentiality of the process is breached, for example if the complainant makes his or her suspicion public, the investigating body will decide on a case-by-case basis how to handle the breach of confidentiality on the part of the complainant. In its consideration of the case, the investigating body respects the presumption of innocence at each stage of the process.

The information disclosed by the complainant must be provided in good faith and the complainant must have objective reasons for suspecting that an infringement of the standards of good scientific practice may have occurred. A knowingly false or malicious allegation or incomplete information about the facts may itself constitute scientific misconduct.

The disclosure alone must not disadvantage the research or professional career prospects of either the complainant or the person affected by the allegations. Particularly in the case of early-career researchers, the disclosure must not lead to delays or disadvantages in the complainant's own qualification phase, for example in the writing of a final dissertation or doctoral thesis. The same applies to working conditions and possible contract extensions. Should research misconduct not be proven, the complainant must continue to be protected, assuming that the allegations cannot be shown to have been made against his or her better judgement.

Disclosures made anonymously can only be investigated if the complainant provides the party investigating the allegation with solid and sufficiently concrete facts. LIN therefore reserves the right not to investigate disclosures where no such facts have been presented and where the anonymity of the information makes consultation impossible. If the complainant's identity is known, the investigating body will keep the individual's name confidential and will not share it with third parties without the individual's consent, unless there is a legal obligation to do so or the person affected by the allegations cannot otherwise properly defend him/herself because, exceptionally, the case concerns the identity of the complainant. The investigating body will promptly inform the complainant if his or her name is to be disclosed. The complainant can then decide whether to withdraw the allegation, given the impending disclosure. However, the ombudspersons may nevertheless be obliged to pursue the case, particularly if it is a serious one.

5.2 Procedures in cases of alleged scientific misconduct

LIN has a detailed set of rules on procedures for handling allegations of scientific misconduct (see 5.3). It contains a summary of circumstances that constitute scientific misconduct – with special consideration being given to fabrication of data, falsification of data and plagiarism – and of procedural rules and measures to be taken should an allegation be upheld. It should be noted that not every breach of good scientific practice constitutes misconduct. Only deliberate or grossly negligent infringements defined in the set of rules are considered scientific misconduct.

The person subject to the allegations and the complainant are each given the opportunity to be heard at each stage of the investigation. Until such time as it is demonstrated that scientific misconduct has occurred, information relating to the individuals involved in the process and the findings so far is treated in confidence. LIN ensures that the entire investigation is conducted as promptly as possible and implements the steps necessary to complete each stage of the procedure within an appropriate time frame.

If, after it has been established that scientific misconduct has occurred, the revocation of an academic degree or licence to teach is considered, the management includes the competent authorities (usually the relevant university) in the deliberations. Once inquiries are complete, the result is announced to affected research organisations and, where relevant, third parties with a justified interest in the decision.

5.3 Rules of procedure for dealing with scientific misconduct at LIN

5.3.1 Catalogue of scientific misconduct

Scientific misconduct includes:

(1) misrepresentation and false statements in a scientifically relevant context, in particular:
   a) inventing data;
   b) falsifying data (for instance, by selecting desirable results and rejecting undesirable results, deliberately using evaluation methods known to be unsuitable for the purpose, processing data without disclosing this, or manipulating figures or illustrations);
   c) including incorrect information in publication lists, a funding application or a letter of application (e.g. false information in a CV, about a publication medium or about forthcoming publications);
   d) undisclosed duplicate publication of data or texts;

(2) the infringement of intellectual property rights, in particular:
   a) in relation to copyright-protected works of others or significant scientific findings, hypotheses, theories or research approaches of others:
      – unauthorised appropriation or other use of passages without proper acknowledgement (plagiarism);
      – exploitation of research approaches or ideas without approval, especially as a reviewer or supervisor (theft of ideas);
      – unauthorised use or publication of theories, research data and results or their unauthorised disclosure to third parties without the consent of the

originator and without acknowledgement of co-authorship;

- assuming or unjustifiably claiming scientific authorship or co-authorship
- falsifying content or unauthorised publication or unauthorised sharing with third parties while the work, findings, hypothesis, theory or research approach has not yet been officially published;

b) using another person's name as author or co-author without their permission;

(3) sabotaging the research activities of others, including damaging, destroying or manipulating experimental installations, equipment, documents, hardware, software, chemicals or other things needed by others to conduct an experiment;

(4) deleting research data insofar as it violates legal requirements or established principles of scientific practice;

(5) the neglect of scientific leadership responsibility or supervision duties by a leader of a research unit or institute in a way that promotes violations of good scientific practice;

(6) agreeing to be a co-author of a falsified publication;

(7) intentionally and without valid scientific reasons preventing a colleague from attempting publication, especially in a dependent relationship;

(8) grossly incorrect, deliberately false or misleading expert evaluation of the research work of others and the preparation of reports by way of favours;

(9) deliberately pretending to have carried out or made use of quality assurance measures and methods (e.g. peer review).

5.3.2 Investigating allegations of scientific misconduct

(1) In the event of specific grounds for suspicion of scientific misconduct, the internal LIN ombudspersons must first be informed.

(2) The ombudspersons confirm receipt of notification to the person making the allegation within one week of notification.

(3) If scientific misconduct is suspected, the ombudspersons first conduct a preliminary investigation. To this end, the accused and the complainant, at least, must be given a hearing. Persons who are asked to be interviewed by ombudspersons for the purpose of the preliminary investigation must comply with this request promptly (within no more than two weeks).

(4) If the case is not one of scientific misconduct that has already occurred but of advice on avoiding misconduct or of mediation between individuals, the procedure may be terminated at any time without a reason being given. In the case of mediation, the parties to the conflict themselves are responsible for enforcing and implementing the proposed solutions. The ombudspersons have no authority to take steps to enforce or monitor the agreements made.

(5) If the suspicion of scientific misconduct is substantiated by the preliminary investigation, the ombudspersons inform the LIN management. To clarify the scientific facts, the management sets up a suitable commission of inquiry consisting of at least four members, including two experienced and impartial scientists from unaffected LIN research units, one external scientist, e.g. a member of the Scientific Advisory Board, who also has the expertise necessary to fully understand the scientific facts of the case, and one or both internal ombudspersons. Two deputies are also appointed. The rules of

the German Research Foundation (DFG) and the Leibniz Association for avoiding conflicts of interest apply. From among its members, the commission of inquiry appoints a chairperson and his/her deputy.

(6) If a scientific director is suspected of misconduct, the chairperson of the Scientific Advisory Board must be informed, who may involve the chairperson of the Board of Trustees.

(7) The commission of inquiry examines in free evaluation of evidence whether scientific misconduct has occurred. It hears the complainant(s) and the person(s) subject to the allegations and may also interrogate other persons and consult experts for advice.

(8) LIN provides the commission of inquiry with organisational support. In particular, it makes all requested data and documents available to the commission.

(9) As a rule, the commission of inquiry should complete its investigation within six months of its inaugural meeting.

(10) If, in the course of an investigation procedure, it is found that the allegations cannot be fully resolved within LIN or that extraordinary circumstances prevent the procedure from being carried out, the LIN ombudspersons should submit the case to the external LIN ombudsperson. In addition, one of the central ombudspersons of the Leibniz Association may be called upon. The central ombudsperson proceeds according to the "Guidelines for good scientific practice in the Leibniz Association" (current version, 28 November 2019, § 5-7)[18].

(11) Upon completion of the investigation, the commission of inquiry produces a report that either gives the reasons for discontinuing the investigation or concludes that there is a case for scientific misconduct. If the commission of inquiry concludes that scientific misconduct has occurred, i.e. if the majority of its members consider that there is sufficient evidence of scientific misconduct, the report must in particular:

- establish whether such behaviour was grossly negligent or intentional;
- assess the severity of the scientific misconduct;
- state what further action the commission recommends (referral to other institutions and bodies, initiation of appropriate measures, etc.).

(12) The report is presented to the parties involved, the LIN management and the chairpersons of the Scientific Advisory Board and the Board of Trustees. The management deals with the report promptly and decides on any further measures necessary.

5.3.3. Internal LIN procedure in the event of proven misconduct

(1) If scientific misconduct is considered proven, the management and/or the chairperson of the Scientific Advisory Board shall decide on the necessity of further measures according to their due discretion.

(2) Depending on the circumstances of the individual case, and in particular on the severity of the misconduct established, various kinds of legal penalties are possible and certain penalties may be cumulative. They include for example:

[18] https://www.leibniz-gemeinschaft.de/fileadmin/user_upload/Bilder_und_Downloads/%C3%9Cber_uns/Integrit%C3%A4t/Guidelines_for_Good_Scientific_Practice_in_the_Leibniz_Association.pdf

a) consequences under employment law, such as
   - written reprimand;
   - ordinary termination or, if applicable, termination without notice or
   - termination agreement;

b) consequences under civil law, such as
   - issuance of a house ban;
   - justified restitution claims against the person concerned, for example to return stolen scientific material;
   - claims for removal and injunctive relief based on copyright, personal rights, patent law or competition law;
   - reimbursement claims, such as for reimbursement of grants or financial resources;
   - damage claims by the institute or third parties;

c) consequences under criminal law.

(3) Scientific publications that contain errors due to proven scientific misconduct must be withdrawn with a statement of the reasons. In less serious cases, incorrect data should be corrected by publishing an erratum or corrigendum. Cooperation partners should be informed in an appropriate manner. In principle, this is the task of the authors concerned. If they do not meet this obligation within a reasonable period of time, the management should take any appropriate measures at its disposal, e.g. contacting the publisher.

(4) In cases of serious scientific misconduct, the management informs affected cooperation partners, research institutions and organisations, and where necessary also supervisory and funding bodies.

(5) The management may be obliged to inform affected third parties and the public in order to protect third parties, maintain confidence in scientific integrity, restore LIN's scientific reputation, prevent consequential damage, as well as in the general public interest.

Magdeburg, June 2022

Prof. Dr. Stefan Remy
Managing Director

Thekla Thiel
Head of Administration