Good Scientific Practice - Implementation of the DFG Guidelines at the DKFZ

Background/Foreword

The aim of this directive is to establish a binding culture of scientific integrity in the sense of a professional ethic. The following regulations for safeguarding good scientific practice at the DKFZ are based on the German Research Foundation (DFG) Code, which describes appropriate standards for scientific work in the form of guidelines. The *Rules of Procedure for Dealing with Scientific Misconduct (VerfOwF)* were adopted by the DFG's Joint Committee on July 2, 2019. The *Code of Conduct Guidelines for Safeguarding Good Scientific Practice* was adopted by the DFG's General Assembly on July 3, 2019. In order to receive funding from the DFG, the individual guidelines of the DFG Code must be implemented in a legally binding manner.

In the spirit of scientific self-commitment, the DFG guidelines enable researchers and the DKFZ to align their actions, internal structures, and processes with them. These framework conditions are essential for successful, good scientific work.

The standards are subdivided into general principles (Guidelines 1-6), address essential steps of good scientific work (Guidelines 7-17), and end with the guidelines on non-compliance with good scientific practice (Guidelines 18 and 19).

Basic explanation

The DKFZ agrees to the DFG's *Guidelines for Safeguarding Good Scientific Practice* of July 3, 2019 without restriction and commits to complying with and implementing the rules set out therein.

Guideline 1: Commitment to the general principles

All scientific staff at the DKFZ are obliged to comply with the standards of good scientific practice (Guidelines 1-17). Every researcher is responsible for ensuring that their own conduct complies with the standards of good scientific practice.
These general principles include, in particular, working lege artis, maintaining strict honesty with regard to one's own and third parties' contributions, consistently questioning all results oneself and allowing and promoting critical discourse in the scientific community.

The obligation to comply with the regulations for safeguarding good scientific practice at the DKFZ is signed as part of the recruitment process.

All researchers receive annual target group-specific training from the responsible department head. There are also mandatory events for the target group of young researchers (master's students, doctoral students, and postdoctoral researchers).

Guideline 2: Professional ethics

Researchers have a responsibility to realize the fundamental values and standards of scientific work in their actions and to stand up for them. Teaching the fundamentals of good scientific

work begins as early as possible in academic teaching and scientific training. Researchers at all career levels regularly update their knowledge of the standards of good scientific practice and the state of research. The standards should be an integral part of the training of young researchers. In the context of research projects, this is the responsibility of those responsible for the project.

Guideline 3: Organizational responsibility

The DKFZ creates the framework conditions for scientific work, guarantees compliance with legal and ethical standards, and is responsible for the observance and communication of good scientific practice. The management of the DKFZ and all its operational units support the careers of all researchers in an appropriate manner. The framework conditions also include procedures and principles for personnel selection and development, as well as the promotion of young scientists and equal opportunities.

Using the expertise of the Scientific Council and administrative staff as well as all relevant committees, the DKFZ Management Board ensures that information on the rules of good scientific practice applicable at the DKFZ is easily, comprehensibly, and anonymously accessible to everyone, both internally and externally (in particular on the DKFZ internet and intranet pages). This also applies to information on responsibilities, contact persons (especially the ombudspersons), and basic procedures.

Further information can be found on the DKFZ internet and intranet pages:

- Information for new department and working group heads
- Human resources
- General Equal Treatment Act
- Equal opportunities
- Young talent
- Policies Tenure Track
- Career Service
- Career advancement, see also Advanced Training
- Ombudspersons

Guideline 4: Responsibility of the management of work units

The head of a scientific work unit is responsible for the entire unit. The cooperation in scientific work units is such that the group as a whole can fulfill its tasks, that the necessary cooperation and coordination take place, and that all members are aware of their roles, rights, and duties. The management task also includes, in particular, ensuring the appropriate individual supervision of young scientists and career advancement (corresponding service agreements are also in place at the DKFZ) for scientific and scientific support staff. Abuse of power and the exploitation of dependency relationships must be prevented.

The performance of management tasks goes hand in hand with corresponding responsibilities. Researchers and academic support staff enjoy a balance of support and personal responsibility

appropriate to their career level. They are accorded an appropriate status with corresponding participation rights. Increasing independence enables them to shape their careers.

Guideline 5: Performance dimensions and evaluation criteria

A multidimensional approach is required to assess the performance of researchers: in addition to scientific performance, other aspects can also be taken into account. The assessment of performance is primarily based on qualitative standards, whereby quantitative indicators can only be included in the overall assessment in a differentiated and reflected manner. Where voluntarily stated, individual characteristics in CVs are also included in the assessment - in addition to the categories of the General Equal Treatment Act.

Guideline 6: Ombudspersons

The ombudspersons are nominated by the Scientific Council and appointed by the Management Board. The term of office is three years and normally no more than two terms. The ombudspersons are independent. In the event of concerns of bias or incapacity, another ombudsperson may be appointed. The ombudspersons should receive training at the beginning of their term of office and undergo regular training and networking during their term of office. The ombudspersons may not be members of a central management body at the DKFZ during their term of office. Researchers of integrity with leadership experience who belong to different disciplines are selected as ombudspersons. They are the contact persons for DKFZ scientific staff and provide neutral and qualified advice on questions of good scientific practice and in cases of suspected scientific misconduct. The ombudspersons receive the necessary substantive support and acceptance from the DKFZ. They can call in experts for advice and, if possible, contribute to the solution-oriented avoidance of conflicts. The ombudspersons examine inquiries while maintaining confidentiality and, if necessary, forward suspected cases of scientific misconduct to the Commission for the Investigation of Scientific Misconduct (Ombuds Commission). The ombudspersons meet at least once a year and report to the Scientific Council and the Management Board.

Information on the DKFZ ombudspersons is easily, comprehensibly, and anonymously accessible to all internal and external parties (especially on the DKFZ internet and intranet pages).
If there is suspicion of misconduct in science, researchers can contact the ombudspersons or the Chairperson of the Scientific Council without following official channels. In addition to the local ombudspersons at the DKFZ, anyone can also contact the supra-regional 'Ombudsman for Science' committee or the central ombudsperson of the Helmholtz Association.

Guideline 7: Cross-phase quality assurance

Researchers carry out each step in the research process *lege artis.*

Continuous, research-related quality assurance relates in particular to compliance with subject-specific standards and established methods, to processes such as the calibration of equipment, the collection, processing, and analysis of research data, the selection and use of research software, its development and programming (source code of publicly accessible

software must be persistent, citable, and documented) and to the maintenance of laboratory notebooks. The origin of data, organisms, materials, and software used must be identified, subsequent use must be documented, and the original sources must be cited. The type and scope of research data generated during the research process must be described. An essential component of quality assurance is that results or findings can be replicated or confirmed by other researchers (for example, by means of detailed descriptions of materials and methods, as well as by keeping an electronic laboratory notebook). Any discrepancies subsequently discovered in publications must be corrected.

Further information:

- DFG Guidelines on the Handling of Research Data
- Quality Management
- Innovation Management

Guideline 8: Participants, responsibilities, and roles

The roles and responsibilities of the researchers involved in a research project, as well as those of the scientific support staff, must be clear at all times during a research project. The participants in a research project are in regular contact with each other. They define their roles and responsibilities in an appropriate manner and adapt them where necessary.

Guideline 9: Research design

When planning a project, researchers take the current state of research fully into account and recognize it. The identification of relevant and suitable research questions requires careful research into research that has already been made publicly available. As far as possible, methods are used to avoid (unconscious) bias in the interpretation of findings. Researchers reflect on the significance of gender and/or diversity dimensions for the research project. The DKFZ ensures that all the necessary framework conditions are in place.

Guideline 10: Legal and ethical framework conditions, rights of use

Researchers handle the constitutionally granted freedom of research responsibly. Project managers take into account rights and obligations, in particular those resulting from legal requirements, but also from contracts with third parties, and obtain and submit approvals and ethics votes where necessary. The actual use of research data also belongs to those who have collected it. As part of an ongoing research project, the authorized users decide (in particular in accordance with data protection regulations) whether third parties should have access to the data.

With regard to research projects, a thorough assessment of the research consequences and the evaluation of the respective ethical aspects should be carried out. In doing so, the researchers take particular account of the aspects associated with safety-relevant research (dual use).

The DKFZ bears responsibility for the compliance of its employees' actions and promotes this through appropriate organizational structures. Binding principles for research ethics and procedures for the corresponding assessment of research projects are in place.

Further information:

- Project funding Info A-Z
- Forms Innovation Management
- Clinical Trials Office
- Animal testing permits
- Data protection at the DKFZ (contact: datenschutz@dkfz-heidelberg.de)
- Information sheet on personal data at the DKFZ
- WiKi of the ITCF (e.g. framework data protection concept)
- EURAT Code

Guideline 11: Methods and standards

Researchers use scientifically sound and reproducible methods (*lege artis*) to answer research questions. When developing and applying new methods, they attach particular importance to quality assurance and the establishment of standards.

Further information:

- Overview and contacts Core Facilities DKFZ (with corresponding specifications for the use of the respective services)
- Pseudonymization services (service of the Data Protection Department; Contact: service.datenschutz@dkfz.de).
- Presentation data protection instructions can be found on the intranet

Guideline 12: Documentation

The management of research units is responsible for ensuring that researchers document all information relevant to the production of a research result in a comprehensible manner so that the result can be reviewed and evaluated. Individual results that do not support the research hypothesis are therefore also documented as a matter of principle. If the documentation of research results does not meet the relevant (professional) requirements, the limitations and the reasons for them are clearly explained.

Further information:

- Electronic lab notebook
- DKFZ paper lab book - available from the Central Library

Guideline 13: Establishing public access to research results

In principle, the results of research at the DKFZ must be made public. The researchers contribute all results to the scientific discourse. This is subject to compliance with project-related agreements.

Further information:

- DKFZ Central Library (DKFZ Guidelines for Research Data Management)
- Publication database
- Innovation Management

Guideline 14: Authorship

Authorship applies to anyone who has made a genuine, comprehensible contribution to the content of a scientific text, data, or software publication. All authors agree to the final version of the work to be published. They bear joint responsibility for the publication, unless explicitly stated otherwise. Authors shall ensure and, as far as possible, work towards ensuring that their research contributions are marked by the publishers or infrastructure providers in such a way that they can be correctly cited by users.

A comprehensible, genuine contribution exists in particular if researchers have contributed in a scientifically relevant manner to the development and conception of the research project or to the preparation, collection, procurement, provision of data, software, sources, or the analysis/evaluation or interpretation of the data, sources and the conclusions drawn from them or to the writing of the manuscript.

Whether a contribution is genuine and comprehensible must be examined separately in each individual case and depends on the specialist area concerned.

All researchers who have made a comprehensible, genuine contribution to the idea, planning, implementation, or analysis of the research work must be named as co-authors. Persons with minor contributions are mentioned in the acknowledgements.

Honorary authorship where no such contribution has been made is not permitted. A management or supervisor function does not in itself constitute co-authorship. Researchers agree on who is to be the author of the research results. Agreement on the order of authors shall be reached in good time, usually at the latest when the manuscript is formulated, on the basis of comprehensible criteria, taking into account the conventions of each subject area. The required approval for publication of results may not be refused without sufficient reason. The refusal of consent must be justified with a verifiable criticism of data, methods, or results.

Guideline 15: Publication medium

Authors choose the publication medium carefully, taking into account its quality and visibility in the respective field of discourse. However, it should be noted that the scientific quality of a contribution does not depend on the publication medium in which it is made publicly accessible. A key criterion in the selection decision is whether the publication organ has established its own guidelines for good scientific practice. In addition to publications in books and specialist journals, specialist repositories, data and software repositories as well as blogs also come into consideration.

Guideline 16: Confidentiality and neutrality in assessments and consultations

Honest conduct is the basis of the legitimacy of an evaluation process. Researchers who assess submitted manuscripts, funding applications, or the expulsion of individuals in particular are

obliged to maintain strict confidentiality in this regard. They disclose all facts that could give rise to concerns of bias. The obligation to maintain confidentiality and to disclose facts that could give rise to concerns of bias also applies to members of scientific advisory and decision-making bodies. The confidentiality of external content to which reviewers or committee members gain access excludes disclosure to third parties and personal use.

Further information can be found under DFG Information on bias.

Guideline 17: Archiving

Researchers shall adequately secure publicly accessible research data or research results as well as the underlying central materials and, if applicable, the research software used at the DKFZ. The start of the retention period is the date on which public access is established. The data is stored on durable and secure media for 10 years. In justified cases, shorter retention periods may be appropriate; the corresponding reasons for shortened retention periods must be described in a comprehensible manner. If, in exceptional cases, there are very important, comprehensible reasons for not retaining certain data, the researchers must explain this to the Scientific Council of the DKFZ. On the basis of the Scientific Council's assessment, the DKFZ Management Board decides whether the retention obligation can be suspended and records the measures taken and the reasons for doing so. Further retention obligations due to legal provisions and measures for the protection of personal data remain unaffected by this.

Further information:

- Central Library
- Innovation Management
- Data management of large data sets

Guideline 18: Whistleblowers and persons affected by allegations

The ombudspersons and Ombuds Commission investigating suspected scientific misconduct shall take appropriate measures to protect both the whistleblowers and those affected by the allegations. The investigating body treats the names of the whistleblowers - if known - confidentially and does not disclose them to third parties without their consent. Anything else shall only apply if there is a legal obligation to do so or if the persons affected by the allegations would otherwise not be able to defend themselves properly. Substantiated anonymous information will also be investigated. Whistleblowers are to be protected even in the case of unproven scientific misconduct, provided that the allegations were not demonstrably made against better knowledge. The investigation of allegations of scientific misconduct is expressly carried out in compliance with confidentiality and the basic principle of the presumption of innocence. The whistleblower must make the report in good faith. Deliberately false or willful allegations may themselves constitute scientific misconduct. Neither the whistleblower nor the person affected by the allegations should suffer any disadvantages for their own academic or professional advancement because of the report.

Guideline 19: Procedure in cases of suspected scientific misconduct

The DKFZ proceeds in accordance with the DFG's *Code of Procedure for Dealing with Scientific Misconduct (VerfOwF)* (as of July 2019), which is implemented by the *DKFZ Rules of Procedure for Dealing with Scientific Misconduct*.

Entry into force

This regulation comes into force on 01.11.2024.

It replaces the *Regulation on Safeguarding Good Scientific Practice and Dealing with Misconduct in Science* dated September 30, 1999.

The original document in German is signed by the Management Board and the head of the Scientific Counsel. In case of any question of interpretation the German version is the leading version.