MEETING OF THE STATES PARTIES TO THE CONVENTION ON THE PROHIBITION OF THE DEVELOPMENT, PRODUCTION AND STOCKPILING OF BACTERIOLOGICAL (BIOLOGICAL) AND TOXIN WEAPONS AND ON THEIR DESTRUCTION

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Meeting of Experts
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Items 5 and 6 of the provisional agenda
Consideration of national, regional and international measures to improve biosafety and biosecurity, including laboratory safety and security of pathogens and toxins
Consideration of oversight, education, awareness raising, and adoption and/or development of codes of conduct with the aim of preventing misuse in the context of advances in bio-science and bio-technology research with the potential of use for purposes prohibited by the Convention

THE GERMAN RESEARCH FOUNDATION[1] CODE OF CONDUCT: WORK WITH HIGHLY PATHOGENIC MICROORGANISMS AND TOXINS

Submitted by Germany

General considerations

1. Over the last few years, research into infections, immunity and pathogenicity factors has exploded. This work has produced important scientific findings, not least from work with highly pathogenic microorganisms. The effect of bacterial toxins, the penetration and spread of haemorrhagic viruses in host cells or the induction of cellular and humoral immunity through highly pathogenic microbes – these are all research subjects of relevance both to basic research and to the development of new diagnostics, therapeutics and vaccines. At the same time,

[1] The German Research Foundation (DFG – Deutsche Forschungsgemeinschaft): serves as the central public funding organization responsible for promoting research in Germany; fosters scientific excellence through competition; advises parliaments and public authorities on questions relating to science and research; encourages international collaboration in science and the humanities; and supports the advancement and education of young researchers.

however, it must be remembered that there is also a danger that the results of work with highly pathogenic microorganisms and toxins could be used to develop biological weapons.

2. The possibility of using scientific findings for both peaceful and non-peaceful purposes is known as the dual-use dilemma. Work with dual-use microorganisms and substances is the subject of intense international debate. The safety aspects of work with dual-use materials are comprehensively regulated both at national level (e.g. Genetic Engineering Act, Protection Against Infection Act) and at international level. There is consensus that the safety of the population is the prime concern. However, great importance is attached also to the freedom of scientific research, the publication of relevant research results and the exchange of material.

3. The various bodies of the DFG have considered the dual-use dilemma. The DFG is of the opinion that scientists, but also Peer Reviewers, decision-making bodies and the Head Office of the DFG, should be provided with a Code of Conduct dealing with the problems of work with highly pathogenic microorganisms and toxins and paying particular attention to the specific situation in Germany. The Executive Committee of the DFG has therefore approved a Code of Conduct which collates the recommendations for working with highly pathogenic microorganisms and toxins.

4. Based on international recommendations drawn up by scientific associations and science funding bodies in the United States and the United Kingdom, the Code of Conduct begins by listing experiments of particular relevance to the dual-use dilemma. Research in these fields is necessary and will continue to be funded under DFG programmes. However, scientists will have to provide detailed statements on the possible dual-use of scientific findings even in their applications for DFG funding. The Peer Reviewers and Review Boards will also have to take an intensive look at this issue and make concrete proposals on how to deal with the specific highly pathogenic microorganisms and toxins when recommending projects for funding. The universities and non-university research institutions, as well as the scientific associations and academies of science, will bear a special responsibility in this regard; they should consider the subject within the scope of their own activities, at seminars and other events for students and researchers, and by giving examples of best practice.

5. In April 2008 the DFG published its Code of Conduct for work with highly pathogenic microorganisms and toxins.

Code of Conduct: Work with highly pathogenic microorganisms and toxins

6. The DFG endorses the vote by the National Research Council of the National Academies of the USA which considers the following experiments to be particularly relevant with regard to the dual-use dilemma:

(i) work to increase the virulence of pathogenic microorganisms or to convert apathogenic to pathogenic microbes

(ii) experiments to induce resistance to therapeutically effective antibiotics and antiviral substances

(iii) experiments to increase the transmissibility of pathogens

(iv) experiments to alter the host range and stability of pathogens

(v) work to enable the evasion of diagnostic and detection modalities

(vi) work to demonstrate the ineffectiveness of vaccines

(vii) experiments to increase the weaponization potential of biological agents or toxins.

7. The DFG is of the view that it remains necessary to conduct research on highly pathogenic microorganisms and toxins. Not least, such research provides the basis for protecting society against natural infections with dangerous pathogens and against possible bioterrorist attacks. Furthermore, many findings in basic research have been achieved with the help of highly pathogenic microorganisms and toxins. For this reason, as few restrictions as possible should be imposed on research activities involving work with highly pathogenic microorganisms.

8. The DFG will also continue to fund research projects which tackle the problems of highly pathogenic microorganisms and toxins. Project leaders should, however, be made more aware of the issue and address sensitive aspects of the dual-use dilemma in their proposals. Peer Reviewers can then evaluate the information provided by applicants and make a recommendation to the Review Boards.

9. The Review Boards – following preparation by an ad hoc working group if required – should give thorough consideration to proposals which touch on the dual-use dilemma and, if appropriate, make a suggestion with regard to managing the proposed work. If required, the responsible Senate Commission or the Senate can be involved in the process.

10. The DFG is of the opinion that it should remain possible to publish articles on work with highly pathogenic microorganisms and toxins in peer-reviewed journals. The specific rules of individual journals must be respected in each case.

11. The DFG recommends that international collaboration, the exchange of scientists and the exchange of data, materials and methods relating to work with pathogenic microorganisms and toxins should continue to be promoted. The relevant national and international laws and regulations must be respected in each case.

12. The DFG recommends that seminars and other events on work with highly pathogenic microorganisms and toxins should be organized regularly at universities and non-university institutions for undergraduate, doctoral and post-doctoral students. Appropriate starting-points would be graduate colleges and schools in relevant fields, special areas of research, research centres and clusters of excellence.

13. The DFG urges that the best practice process with regard to work with highly pathogenic microorganisms and toxins be further developed and adapted to specific scientific circumstances. In this context, findings should be exchanged with other organizations at home and abroad, for example the Medical Research Council (MRC) and the Wellcome Trust in the United Kingdom or the American Society for Microbiology (ASM). The various scientific associations and academies of science can also make major contributions to this process.

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