**Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR)**

**Request for a scientific opinion on**

**Assessment of the Antibiotic Resistance Effects of Biocides**

## 1. Background

Directive (98/8/EC) of the European Parliament and of the Council on the placing on the market of biocidal products was adopted in 1998. According to the Directive, Member States had to transpose the rules before 14 May 2000 into national law. It has a transitional period of 10 years, during which all existing active substances have to be reviewed with regard to the safety of their use for human health and the environment.

The Directive aims to harmonise the European market for biocidal products and their active substances. At the same time it aims to provide a high level of protection for humans, animals and the environment. Active substances (both chemical and biological) are assessed at Community level, and if the outcome of the evaluation is positive, they are included into Annex I to the Directive. Member States then authorise biocidal products containing these active substances in accordance with harmonised criteria. While authorisation of products takes place at the national level, a biocidal product authorised in one Member State shall be authorised upon application also in other Member State unless there are specific grounds to derogate from this principle of mutual recognition.

The scope of the Directive is very wide, covering 23 different product types. These include disinfectants used in different areas, preservatives of products and materials, substances for pest control in non-agricultural applications, and others such as anti-fouling products used on hulls of vessels. However, the Directive does not apply to certain product types already covered by other Community legislation, such as plant protection products, medicines, food contact materials and cosmetics. Moreover, the Directive does not apply to articles (e.g. textiles and clothes, wood, plastic objects) treated with biocides imported from the third countries.

The Scientific Steering Committee recommended in its opinion on Antimicrobial Resistance (adopted on 28 May 1999, http://ec.europa.eu/food/fs/sc/ssc/out50_en.pdf), inter alia, "prudent use of antimicrobials", "reduction of the overall use of antimicrobials in a balanced way in all areas" and the identification of major contributors to resistance. Furthermore, it recommended in its opinion on Triclosan (adopted on 27/28 June 2002, http://ec.europa.eu/food/fs/sc/ssc/out269_en.pdf) "that the potential for biocides, in general, to induce antimicrobial resistance of importance to clinical medicine, or management of the wider environment be kept under continuous review. If new scientific evidence were to indicate a significant risk of biocides causing anti-microbial resistance to antibiotics used in human medicines, then appropriate action to manage these risks might be needed."

Recent scientific evidence suggests that during the last decade, antibiotic resistance by various mechanisms has increased world wide in bacterial pathogens leading to treatment failures in human and animal infections. However, the resistance against different types of biocides (including disinfectants, antiseptics, preservatives, sterilants) has been studied and characterized only recently. Only limited sound scientific evidence to correctly weigh the

risks of antibiotic resistance induced by resistance to biocides is available and some controversies remain. Furthermore, research indicates that biocides and antibiotics may share some common behaviour and properties in their respective activity and in the resistance mechanisms developed by bacteria.

One of the problems within Directive 98/8/EC and directives dealing with similar kind of substances is that cumulative risks and impacts resulting from the use of the active substance outside the scope of the Directive (e.g. in plant protection products, cosmetics, medicines, food contact materials, food hygiene, industrial chemicals, textiles and clothes, wood, plastic objects) are not addressed in the evaluation process. This is especially problematic in view of such cross-cutting issues as antimicrobial resistance. Therefore, it is considered relevant that the scientific assessment addresses the products regulated under the biocides directive 98/8/EC but also takes into account the potential contribution to antibiotic resistance of active substances in biocidal products covered by other legislation or in other applications (not regulated). This would include e.g. cosmetics, surface biocides in food-contact materials, feed additives, and antimicrobial treatment of textiles or clothes. These different applications will be called "active substances in biocidal products" for the purpose of this mandate. These active substances may have the capability[1] to induce the activation/selection of an antibiotic resistance mechanism in potential/recognized bacterial pathogens. In relation to active substances in food and feed applications, SCENIHR should co-ordinate with EFSA.

A report on the implementation of the Directive is foreseen in 2007, which could lead to the review of certain of its provisions. In light of the recent scientific evidence, clarification is sought as to whether cross resistance to antibiotics should be an additional criterion to consider in the common principles for the evaluation of dossiers for biocidal products as laid out in Annex VI of the Directive or whether the issue should be addressed by other means. Therefore, clarification of the questions listed in the Terms of Reference is sought. In parallel, a request for an opinion concerning (1) the environmental impact and (2) the effect on antimicrobial resistance of four substances used for the removal of microbial surface contamination of poultry carcases will be submitted for evaluation by SCHER (1) and SCENIHR (2) in close collaboration with EFSA. SCENIHR is invited to ensure the appropriate co-ordination with the relevant activities as appropriate.

[1] This capability is exercised through alteration of the pre-existing level of antibiotic susceptibility in "reference strains" or in potential bacterial pathogens (for humans and animals).

## 2. Terms of reference

1) Does current scientific evidence indicate that the use of certain active substances in biocidal products in various settings as mentioned above can contribute to the occurrence of antibiotic resistant bacteria, both in humans and in the environment? If so, how does this effect compare to resistance due to application of medicinal products or veterinary medicinal products and other relevant applications?[2]

2) If yes, which types of active substances, modes of action or areas of application create the highest risks for increasing antibiotic resistance?

3) If yes, what are the extent of the resulting antibiotic resistance and the relative contribution of the different applications to the risk of increasing antibiotic resistance?

4) How can the development of antibiotic resistance due to the use of active substances in biocidal products be examined and measured? Could the Committee advise on the methodologies?

5) Please identify relevant gaps in scientific knowledge and suggest major research needs.

## 3. Deadlines

In light of the implementation report of Directive 98/8/EC and the proposal for its amendment, a delivery of the opinion by **June 2008** would be appreciated.

[2] The SCENIHR is in particular asked to consider the possible risk that exposure to biocides or active substance in biocidal products may favour the emergence or selection of cross resistance mechanisms (in bacterial species) that may decrease the efficacy of antibiotic molecules during therapy.