

BIOGRAPHY

13/04/2010



Title and name

Prof. KAARE MAGNE NIELSEN

Nationality

Norwegian

Panel

Genetically Modified Organisms (GMO)

Education

B.sc (1991), M.sc (1993), Ph.D (1997) Norwegian University of Science and Technology, Trondheim, Norway. Postdoctoral studies at Research Institute for Plant Protection, DLO, Wageningen, The Netherlands, and Department of Organismic and Evolutionary Biology, Harvard University, USA.

Scientific and risk assessment experience

My main research focus is aimed at understanding how bacteria utilize horizontally transferred (foreign) DNA to adapt to changing environments. I seek to identify factors that regulate genetic recombination process in natural environments and probe the stringency of barriers towards interspecies gene transfers (e.g. of transgenes). Of particular research interest have been the potential for possible unintended horizontal dissemination of antibiotic resistance marker genes. I have participated in biosafety capacity building activities in all regions of the world, and have been a member of the GMO Panel of the Norwegian Food Safety Committee since 2007, and the GMO panel of the European Food Safety Authority since 2009.

Main scientific publications

Examples of research work related to horizontal gene transfer processes, ranging from molecular to population scale approaches, include:

Johnsen P. J., J. Townsend, T. Bohn, G. S. Simonsen, A. Sundsfjord, K. M. Nielsen. 2009. Factors affecting the reversal of antimicrobial resistance. *Lancet Infect. Dis.* 9, 357-364.

Ray, J. L., P. Harms, K., Wikmark, O. G, Starikova, I, Johnsen, P. J., K. M. Nielsen, 2009. Sexual isolation in *Acinetobacter baylyi* is locus-specific and various 10 000 fold over the genome. *Genetics*, 182, 1165-1181.

Nielsen, K. M, P. Johnsen, D. Bensasson, D. Daffonchio. 2007. Release and persistence of extracellular DNA in the open environment. *Environ. Biosafety Res.* 6, 37-53.

Nordgard, L, Nguyen, T., Midtvedt, T., Benno, Y., Traavik, T., K. M. Nielsen. 2007. Lack of detectable uptake of DNA by bacterial gut isolates grown *in vitro* and by *Acinetobacter baylyi* colonizing rodents *in situ*. *Environ. Biosafety Res.* 6, 149-160.

Thomas, C. M., Nielsen, K. M. 2005. Mechanisms and barriers to horizontal gene transfer between bacteria. *Nature Reviews Microbiol.* 3, 711-721.

Pettersen, A. K. Primicero, R., Bohn, T., Nielsen, K. M. 2005. Modeling suggest frequency estimates are not informative for predicting the long-term effect of horizontal gene transfer in bacteria. *Environ. Biosafety Res.* 4, 222-233.

Bensasson, D., Boore, J. L., Nielsen, K. M. 2004. Genes without frontiers. *Heredity* 92, 483-489.
Nielsen, K. M. Townsend, J. P. 2004. Monitoring and modeling horizontal gene transfer. *Nature Biotechnol.* 22, 1110-1114. See also correspondence vol 22, 1349-1350.

Nielsen, K. M., J. D. van Elsas and K. Smalla. 2000. Transformation of *Acinetobacter* sp. BD413(pFG4 Δ *nptII*) with transgenic plant DNA in soil microcosms and effects of kanamycin on selection of transformants. *Appl. Environ. Microbiol.* 66, 1237-42.

Nielsen K. M., Bones A. M., Smalla K., van Elsas J. D. 1998. Horizontal gene transfer from plants to terrestrial bacteria - a rare event? *FEMS Microbiol. Rev.* 22, 79-103.
