BIOGRAPHY

3 July 2012

Title and name
Prof. Christer Hogstrand

Nationality
Sweden

Panel
Additives and products or substances used in animal feed (FEEDAP)

Education
BSc Biology, 1986, University of Göteborg
PhD Zoophysiology, 1991, University of Göteborg

Scientific and risk assessment experience
A primary focus of Hogstrand's research is on the biology and toxicology of minerals. In particular, he is interested in how metals, especially zinc, are regulated by organisms and control biological processes. These studies include identification of metal regulatory molecular networks and their involvement in biology and disease. In his current research, there is an emphasis on post-genomic approaches to study zinc regulation and signalling in the vertebrate model species, zebrafish (*Danio rerio*).

Hogstrand also investigates adverse effects of environmentally problematic pollutants in models for ecological and human toxicity. Post-genomic and proteomics technologies are explored as tools for class prediction (diagnosis of effects from specific contaminants) and to mechanistically relate adverse effects to affected networks. In recent research with an ecotoxicological angle, he developed a cell culture based method to detect specific effects of pollutants in natural waters on rainbow trout (Oncorhynchus mykiss).

Hogstrand has assisted the work of the FEEDAP panel since 2005 and has in particular contributed to Opinions relating to trace elements, flavourings, and safety to the environment. He has been research active in the area of toxicology since 1986 and has been involved in development of computational models to assess toxicity of metals to aquatic organisms.

Main scientific publications
Hogstrand has published >100 original research articles and >17 reviews, book chapters and books. The subject areas of his publications include Toxicology, Biochemistry & Molecular Biology, Environmental Sciences, and Pharmacology.

Zheng D., Kille P., Feeney G.P., Cunningham P., Handy R.D., Hogstrand C. (2010) Dynamic transcriptomic profiles of zebrafish gills in response to zinc supplementation. BMC Genomics, 11, 553.

Khan, F.R., Bury, N.R., Hogstrand, C. (2010) Cadmium bound to metal rich granules and exoskeleton from Gammarus pulex causes increased gut lipid peroxidation in zebrafish following single dietary exposure. Aquat Toxicol. 96, 124-129.

Glover, C.N., Zheng, D., Jayashankar, S, Sales, G.D., Hogstrand, C., Lundebye, A.K. (2009) Methylmercury speciation influences brain gene expression and behaviour in gestationally-exposed mice pups. Toxicol. Sci. 110, 389–400.

Hogstrand, C., Kille, P., Nicholson, R.I., Taylor, K.M. (2009) Zinc transporters and cancer: a potential role for ZIP7 as a hub for tyrosine kinase activation, Trends Mol. Med. 15, 101-111.

Zheng D., Feeney G.P., Kille P., Hogstrand C. (2008) Regulation of ZIP and ZnT zinc transporters in zebrafish gill: zinc repression of ZIP10 transcription by an intronic MRE cluster. Physiol. Genomics 34, 205-214.

Chung M..J.., Walker, P.A. Brown, R.W., Hogstrand, C. (2005) Zinc-mediated gene expression offers protection against H2O2 induced cytotoxicity. Toxicol. Appl. Pharmacol. 205, 225-236.

Qiu A., Hogstrand C. (2004) Functional Characterization and Genomic Analysis of an Epithelial Calcium Channel (ECaC) from Pufferfish, Fugu rubripes. GENE 342, 113-123.

Glover C.N. and Hogstrand C. (2002) In vivo characterization of intestinal zinc uptake in freshwater rainbow trout (Oncorhynchus mykiss). J. exp. Biol. 205, 141-150.

Hogstrand C. and Wood C.M. (1998). Toward a better understanding of the bioavailability, physiology, and toxicology of silver in fish: implications for water quality criteria. Environ. Toxicol. Chem. 17, 547-561.

Hogstrand C. and Haux C. (1991) Binding and detoxification of heavy metals in lower vertebrates with reference to metallothionein. Comp. Biochem. Physiol. 100C, 137-141.

Jayashankar, S., Glover, C.N., Folven, K.I., Brattelid, T., Hogstrand, C., Lundebye, A.K. (2011) Cerebral gene expression in response to single or combined gestational exposure to methylmercury and selenium through the maternal diet. Cell. Biol. Toxicol. 27, 181-197.

Khan, F.R., Irving, J.R., Bury, N.R., Hogstrand, C. (2011) Differential tolerance of two Gammarus pulex populations transplanted from different metallogenic regions to a polymetal gradient. Aquat. Toxicol. 102, 95-103.

Haave, M., Folven, K.I., Carroll, T., Glover, C., Heegaard, E., Brattelid, T., Hogstrand, C. & Lundebye, A.-K. (2011) Cerebral gene expression and neurobehavioural development after perinatal exposure to Polybrominated Diphenyl Ether (BDE47). Cell Biol. Toxicol. 27, 343-361.

Boyle, D., Hogstrand, C., & Bury, NR. (2011) Physiological response to a metal-contaminated invertebrate diet in zebrafish: Importance of metal speciation and regulation of metal transport pathways. Aquat. Toxicol. 105, 21-28.

Durrant, C.J., Stevens, J.R., Hogstrand, C., Bury, N.R. (2011) The effect of metal pollution on the population genetic structure of brown trout (Salmo trutta L.) residing in the River Hayle, Cornwall, UK. Environ. Pollut, 159, 3595-3603.

Hogstrand, C. (2011) Zinc. In: Homeostasis and Toxicology of Essential Metals. Eds. Wood, C.M., Farrell, A.P., Brauner, C.J. Book Series: Fish Physiology Volume: 31A Pages: 135-200.

Jayashankar, S., Glover, C.N., Folven, K.I., Brattelid, T., Hogstrand, C., Lundebye, A.K. (2012) Cerebral gene expression and neurobehavioural responses in mice pups exposed to methylmercury and docosahexaenoic acid through the maternal diet. Environ. Toxicol. Pharmacol. 33, 26-38.

Taylor, K.M., Hiscox, S., Nicholson, R.I., Hogstrand, C., Kille, P. (2012) Protein Kinase CK2 Triggers Cytosolic Zinc Signaling Pathways by Phosphorylation of Zinc Channel ZIP7. Sci. Signal. 5, ra11.

Khan, F.R., Bury, N.R., Hogstrand, C. (2012) Copper and zinc detoxification in Gammarus pulex (L). J. exp. Biol. 215, 822-832.

Wilson, M., Hogstrand, C., Maret, W. (2012) Picomolar concentrations of free zinc(II) ions regulate receptor protein tyrosine phosphatase beta activity. J. Biol. Chem. 287, 9322-9326.

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