

Selected High Impact Publications:

"Triallelic inheritance in Bardet-Biedl Syndrome, a mendelian recessive disorder.", N., Ansley, S.J., Badano, J.L., Eichers, E.R., Lewis, R.A., Hoskins, B.E., Scambler, P.J., Davidson, W.S., Beales, P.L. and Lupski, J.R. (2001) *Science* 293:2256-2259. (294 citations as of January 3, 2012).

"Development and application of a salmonid EST database and cDNA microarray: data mining and interspecific hybridization characteristics." Rise, M.L., von Schalburg, K., Brown, G.D., Mawer, M.A., Devlin, R.H., Kuipers, N., Busby, M., Beetz-Sargent, M., Alberto, R., Gibbs, A.R., Hunt, P., Shukin, R., Zeznik, J.A., Nelson, C., Jones, S.R.M., Smailus, D. Jones, S.J.M., Schein, J.E., Marra, M.A., Butterfield, Y.S.N., Stott, J.M., Ng, S.H.S., Davidson, W.S. and Koop, B.F. (2004) *Genome Res.*14: 478-490. (263 citations as of January 3, 2012).

"Mutations in *MKKS* cause obesity, retinal dystrophy and renal malformations associated with Bardet-Biedl syndrome". Katsanis, N., Beales, P.L., Woods, M.O., Lewis, R.A., Green, J.S., Parfrey, P.S., Ansley, S.J., Davidson, W.S. and Lupski, J.R. (2000). *Nat. Genet.* 26:67-70. (214 citations as of January 3, 2012).

"FINS (forensically informative nucleotide sequencing): A procedure for identifying the animal origin of biological specimens." Bartlett, S.E. and Davidson, W.S. (1992) *BioTechniques* 12:408-411. (205 citations as of January 3, 2012).

"Fish and Chips: Various methodologies demonstrate utility of a 16,006-gene salmonid microarray." von Schalburg, K.R., Rise, M.L., Cooper, G.A., Brown, G.D., Gibbs, R.A., Nelson, C.C., Davidson, W.S. and Koop, B.F. (2005) *BMC Genomics* 6:126. (152 citations as of January 3, 2012)

2011

"A dense SNP-based linkage map for Atlantic salmon (*Salmo salar*) reveals extended chromosome homeologies and striking differences in sex-specific recombination patterns." Lien, S., Gidskehaug, L., Moen, T., Hayes, B.J., Berg, P.R., Davidson, W.S., Omholt, S.W. and Kent, M.P. (2011) *BMC Genomics* 12:615.

"Expression of olfactory receptors in different life stages and life histories of wild Atlantic salmon (*Salmo salar*)." Johnstone, K.A., Lubieniecki, K.P., Koop, B.F. and Davidson, W.S. (2011) *Mol. Ecol.* 20:4059-4069.

"Ribosomal genes and heat shock proteins as putative markers for chronic, sublethal heat stress in Arctic charr: applications for aquaculture and wild fish." Quinn, N.L., McGowan, C.R., Cooper, G.A., Koop, B.F. and Davidson, W.S. (2011) *Physiol. Genomics* 43:1056-1064.

"Identification of the sex chromosomes of brown trout (*Salmo trutta*) and their comparison with the corresponding chromosomes in Atlantic salmon (*Salmo salar*) and rainbow trout (*Oncorhynchus mykiss*)." Li, J., Phillips, R.B., Harwood, A.S., Koop, B.F. and Davidson, W.S. (2011) *Cytogenetic Genome Res.* 133:25-33.

" Identification of genes associated with heat tolerance in Arctic charr exposed to acute thermal stress." Quinn, N.L., McGowan, C.R., Cooper, G.A., Koop, B.F. and Davidson, W.S. (2011) *Physiol. Genomics* 43:685-696.

" Regulation and expression of sexual differentiation factors in embryonic and extragonadal tissues of Atlantic salmon." von Schalburg, K.R., Yasuike, M., Yazawa, R., de Boer, J.G., Reid, L., So, S., Robb, A., Rondeau, E.B., Phillips, R.B., Davidson, W.S. and Koop, B.F. (2011) *BMC Genomics* 12:31.

"Gene duplication and divergence of long wavelength-sensitive opsin genes in the guppy, *Poecilia reticulata*." Watson, C.T., Gray, S.M., Hoffmann, M., Lubieniecki, K.P., Sandkam, B.S., Weigel, D., Loew E., Dreyer, C., Davidson, W.S. and Breden, F. (2011). *J. Mol. Evol.* 72:240-252.

"Assessment of population structure in Pacific *Lepeophtheirus salmonis* (Krøyer) using single nucleotide polymorphism and microsatellite genetic markers." Messmer, A.M., Rondeau, E.B., Jantzen, S.J., Lubieniecki, K.P., Davidson, W.S. and Koop, B.F. (2011) *Aquaculture* 320:183-192.

2010

"Genomic organization and evolution of the Atlantic salmon hemoglobin repertoire." Quinn, N.L., Boroevich, K.A., Lubieniecki, K.P., Chow, W., Davidson, E.A., Phillips, R.B., Koop, B.F. and Davidson, W.S. (2010) BMC Genomics 11:539.

"Sequencing the Genome of the Atlantic Salmon (*Salmo salar*)." Davidson, W.S., Koop, B.F., Jones, S.J.M., Iturra, P., Vidal, R., Maass, A., Jonassen, I., Lien, S. and Omholt, S.W. (2010) Genome Biol. 11:403.

"Evolution of duplicated *IgH* Loci in Atlantic salmon, *Salmo salar*." Yasuike, M., de Boer, J., von Schalburg, K.R., Cooper, G.A., McKinnel, L., Messmer, A., So, S., Davidson, W.S. and Koop, B.F. (2010) BMC Genomics 11:486.

"Genomic organization of duplicated short wave-sensitive and long wave-sensitive opsin genes in the green swordtail, *Xiphophorus helleri*." Watson, C.T., Lubieniecki, K.P., Loew, E., Davidson, W.S. and Breden, F. (2010) BMC Evol. Biol. 10:87.

"Grayling (Thymallinae) phylogeny within salmonids: complete mitochondrial DNA sequences of *Thymallus arcticus* and *Thymallus thymallus*." Yasuike, M., Jantsen, S., Cooper, G.A., Leder, E., Davidson, W.S. and Koop, B.F. (2010) J. Fish Biol. 76:395-400.

"Comparative genomics identifies candidate genes for Infectious Salmon Anemia (ISA) resistance in Atlantic salmon (*Salmo salar*)." Li, J., Boroevich, K.A., Koop, B.F. and Davidson, W.S. (2010) Marine Biotechnol. 13:232-241.

"*Salmo salar* and *Esox lucius* full-length cDNA sequences reveal changes in evolutionary pressures on a post-tetraploidization genome." Leong, J.S., Jantzen, S.G., von Schalburg, K.R., Cooper, G.A., Messmer, A.M., Liao, N.Y., Munro, S., Moore, R., Holt, R.A., Jones, S.J., Davidson, W.S. and Koop, B.F. (2010) BMC Genomics 11:279.

"BAC-based upgrading and physical integration of genetic SNP map in Atlantic salmon." Lorenz, S., Brenna-Hansen, S., Moen, T., Roseth, A., Davidson, W.S., Omholt, S.W. and Lien, S. (2010) Animal Genetics 41:48-54.

"Regulation, Expression and Characterization of Aromatase (*cyp19b1*) transcripts in ovary and testis of rainbow trout (*Oncorhynchus mykiss*). von Schalburg, K.R., Yasuike, M., Davidson, W.S. and Koop, B.F. (2010) Comp. Biochem. Physiol. Part B: Biochemistry and Molecular Biology 155:118-125.

2009

"Autosomal recessive Bardet-Biedl syndrome: first-degree relatives have no predisposition to metabolic and renal disorders". Webb, M.P. Dicks, E.L., Green, J.S., Moore, S.J. Warden, G.M., Gamberg, J.S., Davidson, W.S., Young, T.L. and Parfrey, P.S. (2009) Kidney Int. 76:215-223.

"Genomic organization and evolution of the vomeronasal type 2 receptor-like (*OlfC*) gene clusters in Atlantic salmon (*Salmo salar*)." Johnstone, K.A., Ciborowski, K.L., Lubieniecki, K.P., Chow, W., Phillips, R.B., Koop, B.F., Jordan, W.C. and Davidson, W.S. (2009) Mol. Biol. Evol. 26:1117-1125.

"Genomic Organization and Evolution of Genes Encoding for Intestinal Fatty Acid Binding Protein (FABP2) in Atlantic salmon (*Salmo salar*)." Lai, Y.Y., Lubieniecki, K.P., Phillips, R.B., Chow, W., Koop, B.F. and Davidson, W.S. (2009) Marine Genomics. 2:193-200.

"Assignment of Atlantic Salmon (*Salmo salar*) Linkage Groups to Specific Chromosomes: Conservation of Large Syntenic Blocks Corresponding to Whole Chromosome Arms in Rainbow Trout (*Oncorhynchus mykiss*). Phillips, R.B., Keatley, K.A., Morasch, M.R., Ventura, A.B., Lubieniecki, K.P., Koop, B.F., Danzmann, R.G. and Davidson, W.S. (2009) BMC Genetics 10:46.

"Rainbow trout interleukin-2:cloning, expression and bioactivity analysis. Diaz-Rosales, P., Bird, S., Wang, T.H., Fujiki, K., Davidson, W.S., Zou, J. and Secombes, C.J. (2009) Fish Shellfish Immunol. 27:414-422.

"Sex determining loci and sex chromosomes in the family Salmonidae". Davidson, W.S., Huang, T-k., Fujiki, K., von Schalburg, K.R. and Koop, B.F. (2009) Sexual Development 3:78-87.

2008

"Functional adaptive diversity of the Atlantic Salmon T-cell receptor gamma locus." Yazawa, R., Cooper, G.A., Beetz-Sargent, M., Robb, A., McKinnel, L., Phillips, R.B., Davidson, W.S. and Koop B.F. (2008). *Mol. Immunol.* 45:2150-2157.

"Rainbow Smelt (*Osmerus mordax*) Genomic Library and EST Resources." von Schalburg, K.R., Leong, J., Cooper, G.A., Robb, A., Beetz-Sargent, M., Lieph, R., Holt, R.A., Moore, R., Ewart, K.V., Driedzic, W.R., Ten Hallers, B.F., Zhu, B., de Jong, P.J., Davidson, W.S. and Koop, B.F. (2008) *Marine Biotechnol.* 10:487-491.

"A linkage map of the Atlantic salmon (*Salmo salar*) based on EST-derived SNP markers". Moen, T., Hayes, B., Baranski, M., Berg, P.R., Kjøglum, S., Koop, B.F., Davidson, W.S., Omholt, S.W. and Lien, S. (2008) *BMC Genomics* 9:223.

"EST and Mitochondrial DNA Sequences Support a Distinct Pacific Form of Salmon Louse, (*Lepeophtheirus salmonis*)." Yazawa, R., Yasuike, M., Leong, J., von Schalburg, K.R., Cooper, G.A., Beetz-Sargent, M., Robb, A., Davidson, W.S., Jones, W.S. and Koop, B.F. (2008) *Marine Biotechnol.* 10:741-749.

"Genomic organization and characterization of two vomeronasal 1 receptor-like genes (*ora1* and *ora2*) in Atlantic salmon (*Salmo salar*)." Johnstone, K.A., Lubieniecki, K.P., Chow, W., Phillips, R.B., Koop, B.F. and Davidson, W.S. (2008) *Marine Genomics* 1:23-31.

"Assessing the feasibility of GS FLX Pyrosequencing for sequencing the Atlantic salmon genome." Quinn, N.L., Levenkova, N., Chow, W., Bouffard, P., Borevich, K.A., Knight, J.R., Jarvie, T.P., Lubieniecki, K.P., Desany, B.A., Koop, B.F., Harkins, T.T. and Davidson, W.S. (2008) *BMC Genomics* 9: 404.

"Isolation, characterization and comparison of Atlantic and Chinook salmon BACs containing growth hormone 1 and 2." von Schalburg, K.R., Yazawa, R., de Boer, J., Lubieniecki, K.P., Goh, B., Straub, C.A., Beetz-Sargent, M.R., Robb, A., Davidson, W.S., Devlin, R.H. and Koop, B.F. (2008) *BMC Genomics* 9:522.

"Microarray analysis reveals differences in expression of cell surface and extracellular matrix components during development of the trout ovary and testis". von Schalburg, K.R., Cooper, G.A., Yazawa, R., Davidson, W.S. and Koop, B.F. (2008) *Comp. Biochem. Physiol. Part D: Genomics and Proteomics.* 3:78-90.

"Striking antigen recognition diversity in the Atlantic salmon T-cell receptor alpha/delta locus". Yazawa, R., Cooper, G.A., Hunt, P., Beetz-Sargent, M., Robb, A., Conrad, M., McKinnel, L., So, S., Jantzen, S., Phillips, R.B., Davidson, W.S. and Koop, B.F. (2008) *dev. Comp. Immunol.* 32:204-212.

"Distribution of ancestral proto-Actinopterygian chromosome arms within the genomes of 4R-derivative salmonid fishes (Rainbow trout and Atlantic salmon)." Danzmann, R.G., Davidson, E.A., Ferguson, M.M., Gharbi, K., Koop, B.F., Hoyheim, B., Lien, S., Lubieniecki, K.P., Moghadam, H.K., Park, J., Phillips, R.B. and Davidson, W.S. (2008) *BMC Genomics* 9:557.

"A salmonid EST genomic study: genes, duplications, phylogeny and microarrays." Koop, B.F., von Schalburg, K.R., Leong, J., Walker, N., Lieph, R., Cooper, G.A., Robb, A., Beetz-Sargent, M., Holt, R.A., Moore, R., Brahmabhatt, S., Rosner, J., Rexroad III, C.E., McGowan, C.R. and Davidson, W.S. (2008) *BMC Genomics* 9:545.

"Expansion of the genomics research on Atlantic salmon (*Salmo salar*) project (GRASP) microarray tools." von Schalburg, K.R., Cooper, G.A., Leong, J., Robb, A., Lieph, R., Rise, M.L., Davidson, W.S. and Koop, B.F. (2008) *J. Fish Biol.* 72:2051-2070.

2007

"Sixteen Type 1 polymorphic microsatellite markers from chinook salmon (*Oncorhynchus tshawytscha*) expressed sequence tags." Wright, J.J., Lubieniecki, K.P., Park, J.W., Ng, S.H.S., Devlin, R.H., Leong, J., Koop, B.F. and Davidson, W.S. (2007) *Animal Genetics* 39:84-85.

"Genomic organization of duplicated major histocompatibility complex class I regions in Atlantic salmon (*Salmo salar*)." Lukacs, M.F., Harstad, H., Grimholt, U., Beetz-Sargent, M., Cooper, G.A., Reid, L., Bakke, H.G., Phillips, R.B., Miller, K.M., Davidson, W.S. and Koop, B.F. (2007) *BMC Genomics*, 8:251

"The Atlantic Salmon Genome". Moran, P., Verspoor, E. and Davidson, W.S. in "The Atlantic Salmon - Genetics, Conservation and Management" Edited by Verspoor, E., Stradmeyer, L and Nielsen J.L. (2007) Blackwell Publishing Ch 3 pp. 57-85.

"Striking antigen recognition diversity in the Atlantic salmon T-cell receptor alpha/delta locus." Yazawa, R., Cooper, G.A., Hunt P., Beetz-Sargent, M., Robb, A., Conrad, M., McKinnel, L., So, S., IJantzen, S., Phillips, R.B., Davidson, W.S. and Koop, B.F. (2007) *Dev. Comp. Immunol.* 32:204-212.

"Bacterial Artificial Chromosome Libraries and BAC-based Physical Mapping of Aquaculture Genomes" Davidson, W.S. in "Aqualculture Genome Technologies" Edited by Liu, John (2007) Blackwell Publishing Ch 14 pp 247-262

"An extensive resource of single nucleotide polymorphism markers associated with Atlantic salmon (*Salmo salar*) expressed sequences." Hayes, B., Laerdahl, J.K., Lien, S., Moen, T., Berg, P., Hindar, K., Davidson, W.S., Koop, B.F., Adzhubei, A. and Hoyheim, B. (2007) *Aquaculture* 265: 82-90.

"Bursts and horiozontal evolution of DNA transposons in the speciation of pseudotetraploid salmonids". de Boer, J.G., Yazawa, R., Davidson, W.S. and Koop, B.F. (2007) *BMC Genomics* 8:422.

2006

"Multiple microarray platforms utilized for hepatic gene expression profiling of growth hormone transgenic coho salmon with and without ration restriction." Rise, M.L., Douglas, S.E., Sakhrani, D., Williams, J., Ewart, K.V., Rise, M., Davidson, W.S., Koop, B.F. and Devlin, R.H. (2006) *J. Mol. Endocrinol.* 37:259-282.

"Incident renal events and risk factors in autosomal dominant polycystic disease: a population and family based cohort followed for 22 years." Dicks, E.L., Ravani, P., Langman, D.S., Davidson, W.S., Pei, Y. and Parfrey, P.S. (2006) *Clin. J. Am. Soc. Nephrolog.* 1:710-717.

"Conservation of synteny between guppy and Xiphophorous genomes." Brummell, M., Kazianis, S. Davidson, W.S. and Breden, F. (2006) *Zebrafish* 3:343-353.

"Expression of morphogenic genes in mature ovary and testicular tissues: Potential stem-cell niche markers and patterning factors." Schalburg, K.R.v., McCarthy, S.P., Rise, M.L., Hutson, J.C., Davidson, W.S. and Koop, B.F. (2006) *Mol. Reprod. Devel.* 73:142-152.

"Identification of the sex-determining locus of Atlantic salmon (*Salmo salar*) on chromosome 2." Artieri, C.G., Mitchell, L.A., Ng, S.H.S., Parisotto, S.E., Danzmann, R.G., Hoyheim, B., Phillips, R.B., Morasch, M., Koop, B.F. and Davidson, W.S. (2006) *Cytogenet. Genome Res.* 112:152-159.