

Curriculum Vitae

Tomasz Furmanek

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Birthdate: 28.09.1974

Education

From 01.10.2007 - 2010 PhD student

University of Bergen, Norway

Visualization and analysis of gene regulation and expression in developing tooth crown shape and innervation. Large scale bioimaging informatics of gene expression in developmental biology and cancer research.

1999-2003 Master's degree in Molecular Biology

University of Bergen, Norway

3D visualization and quantification of viability and gene expression in thick tissue samples. Analysis of alginate microcapsules and multicellular tumor spheroids based on confocal microscopy and imaging.

1998-2000 Informatics

University of Bergen, Norway

2 year study toward BA in Informatics

1997-1998 Psychology

University of Bergen, Norway

Completed one year course in Psychology

1997 Preclinical medicine exam

Umeå University, Sweden

1993-1996 Preclinical medicine

University of Medical Sciences in Gdansk, Poland

Completed the preclinical part of medical studies.

1991-1993 Allmenfaglig utdanning (high school)

Gimle Videregående Skole, Bergen, Norway

1981-1991 General education

Bergen, Norway

Professional Profile

In-demand Java programmer and web developer with proven ability to quickly analyze a project brief and employ 'pragmatic programming' principles to deliver fast, workable solutions utilizing available components and/or architect custom software to produce online, interactive reality.

Experienced IT consultant with proficiency to translate technical concepts into user-friendly ideas. Talent for versatility and adaptability with new technology, and ability to quickly master new software and hardware.

Astute understanding of human psychology and motivation; proven ability to work and communicate well in teams, handle responsibility, complete projects without supervision, and meet deadlines.

Skills Summary

Information Technology

Java Programming , Database Design & Management, Flash Animation, Software Architecture, Client-Side and Server-Side Scripting, Automation

Life Sciences

Analysis of next generation sequencing data (454, Solexa, SOLiD), Large scale evolutionary analyses, Scientific image analysis, 3D reconstruction, Bioinformatics, Integration of analysis software with external life science databases, Systems biology (visualization of gene ontology/pathways) Microscopy, fluorescence microscopy and confocal laser microscopy General lab training in molecular biology.

Technical Expertise

Biojava, biopython, from 2007
Storing and analyzing large scale data from sequencing and bioimaging, from 2005
Software development from 1999: Java (JDBC, Java Advanced Imaging and Java 3D, Applets, JNI)
Scripting languages from 2000 : Ruby, Python, Jython
Visualization from 2000: Scientific visualization employing Java, VTK (Visualization Toolkit)
Web development from 1997: Apache, MySQL, PHP
IT support: Automation in science, image analysis and general IT support.

Career Summary

2011-2014 Institute of Marine Research , Bergen - Bioinformatics

RNASeq analysis, gene prediction and annotation, visualization of gene expression and pathway analysis.

2008-2010 Bodø University College and University of Tromsø - Bioinformatics

Design and implementation of custom analysis software for next generation sequencing data at University of Tromsø (UiT) and Bodø University College (HiB).

2008-2009 Department of Biomedicine, University of Bergen – Bioimaging Informatics

Development of Internet based image database for MR images in animal research.
Software for large scale automated image analysis in spheroid and cell monolayer imaging assays.

2007 Department of Biology, University of Bergen - Internet-based fishroom database

Design and implementation of internet-basted fishroom database for scientific research.

2006-2010 Northern Biolabs AS - Consulting

Automation, diagnostics and database mining in life sciences.

2006-2007 Bodø University College and University of Tromsø - Bioinformatics

Design and implementation of databases and cluster analysis software for The Marine Animal mtDNA Group at University of Tromsø (UiT) and Bodø University College (HiB).

2001-2006 Department of Anatomy and Cell Biology - Imaging software

Development of imaging software for 3D visualization gene expression in tooth development
University of Bergen, Norway

2005-2006 Byggimport Vest AS - Management experience

Import and sales in a construction company, Bergen, Norway

2000-2005 Freelance Software Developer

Languages Spoken

Norwegian, English, Polish

Scientific Publications

Edvardsen RB, Dalvin S, Furmanek T, Malde K, Mæhle S, Kvamme BO, Skern-Mauritzen R.
Gene expression in five salmon louse (*Lepeophtheirus salmonis*, Krøyer 1837) tissues.

Mar Genomics. 2014 Jul 3. pii: S1874-7787(14)00079-8. doi: 10.1016/j.margen.2014.06.008.
PMID: 24999079

Kleppe L, Edvardsen RB, Furmanek T, Taranger GL, Wargelius A.

Global transcriptome analysis identifies regulated transcripts and pathways activated during oogenesis and early embryogenesis in atlantic cod.

Mol Reprod Dev. 2014 Mar 29. doi: 10.1002/mrd.22328. PMID: 24687555

Wang S, Furmanek T, Kryvi H, Krossøy C, Totland GK, Grotmol S, Wargelius A.

Transcriptome sequencing of Atlantic salmon (*Salmo salar* L.) notochord prior to development of the vertebrae provides clues to regulation of positional fate, chordoblast lineage and mineralisation.

BMC Genomics. 2014 Feb 19;15:141. doi: 10.1186/1471-2164-15-141. PMID: 24548379

Karlsen BO, Klingan K, Emblem Å, Jørgensen TE, Jueterbock A, Furmanek T, Hoarau G, Johansen SD, Nordeide JT, Moum T.

Genomic divergence between the migratory and stationary ecotypes of Atlantic cod.

Mol Ecol. 2013 Oct;22(20):5098-111. doi: 10.1111/mec.12454. Epub 2013 Sep 3. PMID: 23998762

Wang S, Kryvi H, Grotmol S, Wargelius A, Krossøy C, Epple M, Neues F, Furmanek T, Totland GK.

Mineralization of the vertebral bodies in Atlantic salmon (*Salmo salar* L.) is initiated segmentally in the form of hydroxyapatite crystal accretions in the notochord sheath.

J Anat. 2013 Aug;223(2):159-70. doi: 10.1111/joa.12067. Epub 2013 May 27. PMID: 23711083

Ketil Malde, Tomasz Furmanek

Increasing sequence search sensitivity with transitive alignments.

PloS one 2013;8(2):e54422.

Kleppe L, Edvardsen RB, Kuhl H, Malde K, Furmanek T, Drivenes O, Reinhardt R, Taranger GL, Wargelius A.

Maternal 3'UTRs: from egg to onset of zygotic transcription in Atlantic cod.

BMC Genomics. 2012 Sep 1;13:443. doi: 10.1186/1471-2164-13-443.

Bizuayehu, Teshome; Lanes, Carlos Fredrico Ceccon; Furmanek, Tomasz; Karlsen, Bård Ove; Fernandes, Jorge; Johansen, Steinar; Babiak, Igor.

Differential expression patterns of conserved miRNAs and isomiRs during Atlantic halibut development.

BMC Genomics 2012 ;Volume 13. p.

Johansen, Steinar Daae; Karlsen, Bård Ove; Furmanek, Tomasz; Andreassen, morten; Jørgensen, Tor Erik; Bizuayehu, Teshome; Breines, Ragna; Emblem, Åse; Kettunen, Paivi; Luukko, Keijo; Edvardsen, Rolf; Nordeide, Jarle Tryti; Coucheron, Dag-Hugo; Moum, Truls.

RNA deep sequencing of the Atlantic cod transcriptome.

Comparative Biochemistry and Physiology - Part D:Genomics and Proteomics 2011 ;Volume 6.(1) p. 18-22

Kettunen, Paivi; Furmanek, Tomasz; Chaulagain, Rajib; Kvinnsland, Inger Hals; Luukko, Keijo.

Developmentally regulated expression of intracellular Fgf11-13, hormone-like Fgf15 and canonical Fgf16,-17 and-20 mRNAs in the developing mouse molar tooth.

Acta Odontologica Scandinavica 2011 ;Volume 69.(6) p. 360-366

Johansen Steinar D, Coucheron Dag H, Andreassen Morten, Karlsen Bård Ove, Furmanek Tomasz, Jørgensen Tor Erik, Emblem Ase, Breines Ragna, Nordeide Jarle T, Moum Truls, Nederbragt Alexander J, Stenseth Nils C, Jakobsen Kjetill S
Large-scale sequence analyses of Atlantic cod.
New biotechnology 2009;25(5):263-71.

Oltedal Leif, Haglerød Camilla, Furmanek Tomasz, Davanger Svend
Vesicular release of glutamate from hippocampal neurons in culture: an immunocytochemical assay.
Experimental brain research. 2008;184(4):479-92.

Luukko Keijo, Moe Kyaw, Sijaona Angelica, Furmanek Tomasz, Hals Kvinnsland Inger, Midtbø Marit, Kettunen Päivi
Secondary induction and the development of tooth nerve supply.
Annals of anatomy 2008;190(2):178-87.

Kettunen Päivi, Spencer-Dene Bradley, Furmanek Tomasz, Kvinnsland Inger Hals, Dickson Clive, Thesleff Irma, Luukko Keijo
Egfr2b mediated epithelial-mesenchymal interactions coordinate tooth morphogenesis and dental trigeminal axon patterning.
Mechanisms of development 2007;124(11-12):868-83.

Ellingsen S, Laplante MA, Konig M, Kikuta H, Furmanek T, Hoivik EA, Becker TS.
Large-scale enhancer detection in the zebrafish genome.
Development. 2005 Sep;132(17):3799-811. Epub 2005 Jul 27. PMID: 16049110

Fjeld K, Kettunen P, Furmanek T, Kvinnsland IH, Luukko K.
Dynamic expression of Wnt signaling-related Dickkopf1, -2, and -3 mRNAs in the developing mouse tooth. Dev Dyn. 2005 May;233(1):161-6. PMID: 15759274

Kettunen P, Loes S, Furmanek T, Fjeld K, Kvinnsland IH, Behar O, Yagi T, Fujisawa H, Vainio S, Taniguchi M, Luukko K.
Coordination of trigeminal axon navigation and patterning with tooth organ formation: epithelial-mesenchymal interactions, and epithelial Wnt4 and Tgfbeta1 regulate semaphorin 3a expression in the dental mesenchyme.
Development. 2005 Jan;132(2):323-34. Epub 2004 Dec 16. PMID: 15604101

Stensvaag V., Furmanek T., Lonning K., Terzis AJ., Bjerkvig R., Visted T.
Cryopreservation of alginate-encapsulated recombinant cells for antiangiogenic therapy.
Cell Transplant. 2004;13(1):35-44.

Visted T., Furmanek T., Sakariassen P., Foegler WB., Sim K., Westphal H., Bjerkvig R., Lund-Johansen M.
Prospects for delivery of recombinant angiostatin by cell-encapsulation therapy.
Human Gene Therapy. 2003 Oct 10;14(15):

Keijo Luukko, Sigbjørn Løes, Tomasz Furmanek, Karianne Fjeld, Inger Hals Kvinnsland, Päivi Kettunen
Identification of a novel putative signaling center, the tertiary enamel knot in the postnatal mouse molar tooth.
Mechanisms of Development (2003) Mar;120(3):270-6

Chekenya M, Enger PO, Thorsen F, Tysnes BB, Al-Sarraj S, Read TA, Furmanek T, Mahesparan R, Levine JM, Butt AM, Pilkington GJ, Bjerkvig R.
The glial precursor proteoglycan, NG2, is expressed on tumour neovasculature by vascular pericytes in human malignant brain tumours.
Neuropathology & Applied Neurobiology, Volume 28 Issue 5 - October 2002