

## Hanne C. Winther-Larsen

### CURRICULUM VITAE

NAME: Hanne Cecilie Winther-Larsen  
DATE OF BIRTH: 26/05/66  
SEX: Female  
MARIATATL STATUS: Married  
NATIONALITY: Norwegian

MAILING ADDRESS: Mogata 11b  
0464 Oslo  
Norway

E-MAIL: hannewi@farmasi.uio.no

#### **EDUCATION:**

1993-99: Norwegian University of Science and Technology (NUST), Trondheim, Norway. Ph.D. in Biotechnology.  
1992-93: University of Leicester, Leicester, England. M.Sc. in Molecular Genetics.  
1988-92: Heriot-Watt University, Edinburgh, Scotland. B.Sc. (hon) in Microbiology.  
1988 : University of Trondheim, Trondheim, Norway. Cell biology  
1987 : University of Oslo, Oslo, Norway. Computer Science and Chemistry.  
1986 : San Diego State University, California, USA. English and Art.  
1985 : University of Oslo, Oslo, Norway. Philosophy.

#### **WORK EXPERIENCE:**

2010 - : Associate Professor, School of Pharmacy, University of Oslo (UiO), Oslo, Norway.  
2009-2010 : Senior Research Scientist, Norwegian School of Veterinary Sciences, Oslo.  
Fall 2008 : Visting Scientist, Harvard Medical School, Boston, MA, USA.  
2004 - 2008 : Senior Scientist, Department of Molecular Biosciences, University of Oslo, Oslo.  
Fall 2002 : Post-doc, Institute of Bacteriology, University of Utrecht, Utrecht, The Netherlands.  
1999-03 : Post-doc, Biotechnology Centre of Oslo, University of Oslo, Oslo.  
1993-99 : Ph.D. studentship at UNIGEN Centre for Molecular biology, NUST, Trondheim.  
1994-97: : Research assistant in molecular biology and biochemistry, NUST, Trondheim.  
1984 : Laboratory Assistant at the Norwegian Research Centre for National Health, Oslo.

#### **PRIZES and MERITS:**

2008: Publication prize at Department of Molecular Biosciences, University of Oslo.  
2007: Cover picture of J Bacteriol Issue 18, **189**.  
2006: Publication prize at Department of Molecular Biosciences, University of Oslo.  
2005: Publication prize at Department of Molecular Biosciences, University of Oslo.  
2001: Prize for best publication at School of Pharmacy, University of Oslo.

#### **GRANTS:**

2009: Norwegian School of Veterinary Sciences. Internal 4 year PhD fellowship for Espen Brudal to explore Type IV pili in fish pathogenic *Francisella* species.  
2009: Trippel alliance research grant in collaboration with the Veterinary Institute and University of Life Sciences studying transformation capabilities of fish pathogenic *Francisella* species.  
2008: EMBIO travel grant in support of visiting Harvard Medical School, studying bacteriophage interaction with Type IV pili.  
2008: Kristine Bonneveis travel grant for female scientist. Visiting Harvard Medical School, studying bacteriophage interaction with Type IV pili.  
2002: Short-term EMBO fellowship (ASTF 139.00-02), visiting the University of Utrecht, in The Netherlands. Studying microbial adherence to human cells, and learning immunofluorescence- and immunogold electron-microscopy techniques.

2002: The Norwegian Cancer Society, Grete Harbitz og Lillemor Grobstok's stipend, in support of my scientific work.

2001: Henrik Homans Minde, in support of my scientific work.

1999 – 2002: Norwegian Research Council (NFR) post-doc stipend (128374/310). A novel pathway for Type IV pilus biogenesis with implications for organelle structure and function.

### **TEACHING :**

Supervision of project students, summer students, diploma students, Erasmus students, Ph.D. students and research fellows. 1994-present.

Lecturing in Gene cloning, Department of Molecular Biosciences, University of Oslo. 2009.

Lecturing in Food Microbiology, Biotechnology and Molecular Biology, School of Pharmacy, University of Oslo. 2002, 2003, 2005.

Laboratory course in Molecular Biology and Biochemistry, Institute of Biotechnology, NUST. 1994-1997

### **SUPERVISION:**

2010-	Elisabeth Opsjøn	Ph.D.
2010-	Anne Paulenz Hope	M. Sc.
2009-	Kristian Franer	M. Sc.
2009-	Espen Brudal	Ph. D.
2009	Christin Vanberg	post-doc
2007-2008	Raimonda Butkute	M.Sc.
2003-2006	Cecilia Løvold	Ph.D.
1996	Bjørnar Valand	M.Sc.

### **ORGANIZATIONAL EXPERIENCE:**

2010-2011	: Organizing MicroMatNat seminar series (Consortium of microbiologist at Mathematical and Natural Science Faculty, UiO)
2006	: Organizing the 1 <sup>st</sup> student/post-doc meeting in Microbiology in Norway (NoMi-06).
2005 - 2006	: Assistant platform leader, The FUGE platform CAMST ( <a href="http://camst.org">http://camst.org</a> ) (Consortium of Advances Microbial Sciences and Technologies)
2005 - 2006	: Board member at the Institute of Molecular Biosciences (IMBV), University of Oslo.
2005 - 2006	: Member of IMBV strategic committee for 2005 - 2009.
2005 - 2006	: Member of IMBV's appointment committee.
2002	: Board member at The Biotechnology Center of Oslo.
Fall 2001	: Chairman of the Biochemical Interest Group, Oslo.
Spring 2001	: Vice-chairman of the Biochemical Intererst Group, Oslo.
1990-91	: Editor in EDINA, the Norwegian Student Magazine in Edinburgh.
1988-89	: Secretary in NORSA, the Norwegian Student Association in Edinburgh.
1984-88	: Member of Oslo City Local Council.

## PUBLICATION LIST

- Jones AK, Heiniger JW, **Winther-Larsen HC**, Holiday PM, Roos N, Fulcher NB, Cann MJ and Wolfgang MC. Intracellular Cyclic AMP Controls Vfr Autoregulation and Virulence Factor Expression in *Pseudomonas aeruginosa*.  
*Submitted*.
- Egge-Jacobsen WM, Salmonsson EN, Aas FE, Forslund A-L, **Winther-Larsen HC**, Macellaro A, Kuoppa K, Oyston PCF, Titball RW, Thomas RM, Forsberg Å, Prior JL and Koomey M. O-linked glycosylation of the PilA pilin-like protein of *Francisella tularensis*: structural characterization and identification of PglA, the endogenous protein-targeting oligosaccharyltransferase  
*Submitted*.
- Heiniger JW, **Winther-Larsen HC**, Pickles R, Koomey M and Wolfgang MC. 2010. Infection of human mucosal tissue by *Pseudomonas aeruginosa* requires sequential and mutually dependent virulence factors and a novel pilus-associated adhesin.  
*Cellular microbiology*. **12**. 1158-73. IP 5.6
- Børud B, Aas F-E, Vik Å, **Winther-Larsen HC**, Egge-Jacobsen W, and Koomey M. 2010. Genetic, structural and antigenic analyses of glycan diversity in the O-linked protein glycosylation systems of human *Neisseria* species.  
*J Bacteriol*. **192**. 2816-29. IP 3.6
- Salomonsson E, Forsberg Å, Roos N, Holz C, Maier B, Koomey M and **Winther-Larsen HC**. 2009. Functional analyses of pilin-like proteins from *Francisella* species: complementation of Type IV pilus phenotypes in *Neisseria gonorrhoeae*.  
*Microbiology*, **155**, 2546-59. IP 3.1
- Næssan CL, Egge-Jacobsen W, Heiniger R, Wolfgang M, Røhr Å, Aas FE, **Winther-Larsen HC** and Koomey M. 2008. Genetic and structural characterization of *Neisseria gonorrhoeae* PptA, a phosphoethanolamine transferase targeting Type IV pili. 2008.  
*J Bacteriol*, **190**, 387-400. IP 3.9
- Winther-Larsen HC**, Wolfgang MC, van Putten JMP, Roos N, Aas FE, Egge-Jakobsen W, Maier B, and Koomey M. 2007. *Pseudomonas aeruginosa* Type IV pilus expression in *Neisseria gonorrhoeae*: effects of pilin subunit composition and function and organelle dynamics.  
*J Bacteriol*, **189**, 6676-85, 2007. IP 3.7
- Aas FE, **Winther-Larsen HC**, Wolfgang M, Frye F, Løvold C, van Putten JMP, Roos N and Koomey M. 2006. Substitutions in the N-terminal alpha helical spine of *Neisseria gonorrhoeae* pilin affect Type IV pilus assembly, dynamics and associated functions.  
*Mol Microbiol* **63**, 69-85. IP 6.4
- Aas FE, Egge-Jacobsen WM, **Winther-Larsen HC**, Løvold C, Hitchen PG, Dell A, and Koomey M. 2006. *Neisseria gonorrhoeae* type IV pili undergo multisite, hierarchical modifications with phosphoethanolamine and phosphocholine requiring an enzyme structurally related to LPS phosphoethanolamine transferases.  
*J Biol Chem* **22**, 27712-23. IP 7.6
- Winther-Larsen HC**, Wolfgang M, Dunham S, van Putten JP, Dorward D, Løvold C, Aas FE, and Koomey M. 2005. A conserved set of pilin-like molecules controls type IV pilus dynamics and organelle-associated functions in *Neisseria gonorrhoeae*.  
*Mol Microbiol*. **56**(4):903-17. IP 6.4

**Winther-Larsen, H. C.** and Koomey, M. 2002. Transcriptional, chemosensory and cell contact-dependent regulation of Type IV pilus expression. *Current Opinion of Microbiology*. **5** (2), 173-178. IP 2.4

**Winther-Larsen, H. C.**, Hegge, F. T. Wolfgang, M, van Putten, J. P. M. Hayes, S. F. and Koomey, M. 2001. *Neisseria gonorrhoeae* PilV, a type IV pilus-associated protein essential to human epithelial cells adherence. *PNAS* **98**, 15276-15281. IP 10.6

**Winther-Larsen, H. C.**, Valand, B., Blatny, J. M., Brautaset, T. and Valla, S. 2000. *Pm* promoter expression mutants and their use in broad-host-range RK2 plasmid vectors. *Metabolic Engineering*. **2**, 92-103. IP 2.5

**Winther-Larsen, H. C.**, Josefsen, K., Brautaset, T. and Valla, S. 2000. Parameters affecting gene expression from the *Pm* promoter in Gram-negative bacteria. *Metabolic Engineering*. **2**, 70-91. IP 2.5

Blatny, J. M., Brautaset, T., **Winther-Larsen, H. C.**, Karunakaran, P., and Valla, S. 1997. Improved broad-host-range RK2 vektors useful for high and low regulated gene expression levels in Gram-negative bacteria. *Plasmid*. **38**, 35 - 51. IP 1.4

Blatny, J. M., Brautaset, T., **Winther-Larsen, H. C.**, Haugan, K., and Valla, S. 1997. Construction and use of a versatile set of broad-host-range cloning and expression vectors based on the RK2 replicon. *Applied and Environmental Microbiology*. **63**:370-379. IP 3.5

Zhao, S., Douglas N. W., Heine, M. J. S., Williams, G. M., **Winther-Larsen, H. C.**, and Meaden, P. G. 1994. The STL1 gene of *Saccharomyces cerevisiae* is predicted to encode a sugar transporter-like protein. *GENE*. **146**:251-219. IP 2.2

### PAPERS IN PROGRESS

Hegge FT, **Winther-Larsen HC**, van Putten JMP, and Koomey M. A *N. gonorrhoeae* PilV mutant defective in prepilin peptidase processing disrupts both Type IV pilus dynamics and associated phenotypes.

**Winther-Larsen HC**, Dunham S, Wolfgang M, Hayes SF, Dorward D, and Koomey M. Characterization of a conserved gene cluster that affects Type IV pili dynamics in *Neisseria gonorrhoeae*.

Furushita M, **Winther-Larsen HC** and Waldor M  
Development of a biochemical system for detection of substrates of bacteria Type IV secretion.

## OTHER PUBLICATIONS

### **Invited Speaker**

Institute of Basal Medical Sciences seminar series, 2009. Department of Anatomy, Norwegian General Hospital.  
Development of a biochemical system for detection of substrates of bacterial Type IV secretion.  
Furushita M, **Winther-Larsen HC** and Waldor M.

Westfälische Wilhelms-Universität Münster, Münster, Germany. 2008.  
Graduate School Seminars - Molecular Interactions of Pathogens with Bioteic and Abioteic Surfaces.  
**Winther-Larsen HC.**  
Title of talk: Exploring the role of virulence-associated pilin proteins from the bioterrorism class A agent *Francisella tularensis*.

The Oppdal Winther Meeting for Molecular Biology at NTNU, Oppdal 2001.  
**Winther-Larsen HC.**  
Title of pilins: Minor pilins in *Neisseria gonorrhoeae*

### **Speaker**

Norwegian Biochemical Society meeting, Røros 2009.  
Development of a biochemical system for detection of substrates of bacteria Type IV secretion.  
Furushita M, **Winther-Larsen HC** and Waldor M.

Channing laboratory seminar series 2008. Harvard Medical School, Boston, MA, USA.  
*Francisella* Type IV pilus expression in *N. gonorrhoeae*.  
Salomonsson E, Koomey M, Roos N, Forsberg Å, and **Winther-Larsen HC**.

Norwegian Biochemical Society meeting, Lillehammer 2008.  
Salomonsson E, Koomey M, Roos N, Forsberg Å, and **Winther-Larsen HC**.  
Exploring the role of virulence-associated pilin proteins from *Francisella tularensis* using heterologous expression in *Neisseria*.

Departement of Molecular Biosciences seminar series, 2007/2008.  
Salomonsson E, Koomey M, Roos N, Forsberg Å, and **Winther-Larsen HC**.  
Heterologous expression of *Francisella* pilin genes in *Neisseria gonorrhoeae*.

2nd National Conference on Microbial Sciences and Technology, Holmen Fjordhotell, Nesbru 2006.  
**Winther-Larsen HC**, Heinigen R, Egge-Jacobsen W, van Putten JMP, Roos N, Koomey M, Wolfgang M.  
Dynamic of Type IV pilus biogenesis in *Pseudomonas aeruginosa*.

Departement of Molecular Biosciences seminar series, 2005/2006.  
**Winther-Larsen HC**, Wolfgang M, Egge-Jakobsen WM, Roos N, Løvold C, Aas FE, van Putten JMP, Meier B, Lory S, Sheetz MP and Koomey M.  
Microbial hair-extensions

Spetsai Summer School, Spetsai Greece 2002.  
**Winther-Larsen HC**, Wolfgang M, Dunham S, van Putten JMP, Dorward D, Hayes SF, Løvold C, and Koomey M.  
Minor pilins involved in Type IV pilus biogenesis, retraction and anchoring in *Neisseria gonorrhoeae*.

The 13<sup>th</sup> International Pathogenic Neisseria Conference, Oslo 2002.

**Winther-Larsen HC**, Wolfgang M, Dunham S, van Putten JMP, Dorward D, Hayes SF, Løvold C, and Koomey M.

Minor pilins involved in Type IV pilus biogenesis, retraction and anchoring in *Neisseria gonorrhoeae*.

The 12<sup>th</sup> International Pathogenic Neisseria Conference, Galveston, Texas, 2000.

**Winther-Larsen HC**, Hegge FT, Wolfgang M, van Putten JPM, Hayes SF, and Koomey M.

AcfP, an essential cofactor for *Neisseria gonorrhoeae* pilus mediated adherence to human epithelial cells.

Speaker at the Nos-M meeting in Molecular Bacteriology, Oslo 1998.

**Winther-Larsen HC**, Brautaset T, Blatny JM, Valand B, and Valla S.

Studies of the *Pseudomonas putida* Pm promoter system, useful for expression of enzymes in numerous bacterial species.

### Poster presentations

5th International Conference on TULAREMIA. November 1-4, 2006, Marine Biological Laboratory, Woods Hole, MA, US.

Salomonsson E, Forsberg Å, Koomey M, and **Winther-Larsen HC**.

Heterologous expression of Francisella pilin genes in *Neisseria gonorrhoeae*.

1st Norwegian Microbiology Meeting NoMi-06. Student/post-doc meeting in Microbiology in Norway. 22-24 October, 2006. Dr. Holms Hotel, Geilo.

**Winther-Larsen HC**, Heiniger R, Egge-Jacobsen W, Roos N, van Putten JMP, Koomey M, and Wolfgang M.

Dynamics of Type IV pilus biogenesis in *Pseudomonas aeruginosa* PAK.

ASM-FEMS Conference on Protein Traffic in Prokaryotes. May 6-10, 2006, Crete, Greece.

**Winther-Larsen HC**, Heiniger R, Egge-Jacobsen W, Roos N, van Putten JMP, Koomey M, and Wolfgang M.

Dynamics of Type IV pilus biogenesis in *Pseudomonas aeruginosa* PAK.

10<sup>th</sup> International Congress - Pseudomonas -2005, 26 - 31 August 2005. Marseille, France.

**Winther-Larsen HC**, Løvold C, Aas FE, Wolfgang M, Egge-Jacobsen W, Roos N, van Putten JMP, Meier B, Lory S, Sheetz MP and Koomey M.

Complementation of both transformation competence and human cell adherence by heterologous expression of the *Pseudomonas aeruginosa* Type IV pilin subunit in *Neisseria gonorrhoea*

5<sup>th</sup> Louise Pasteur Conference on Infectious Diseases – Pathogens and their eco-systems, Paris, 2004

**Winther-Larsen HC**, Løvold C, Aas FE, Wolfgang M, Roos N, van Putten JMP, Meier B, Frye S, Lory S, Sheetz MP and Koomey M.

Complementation of both transformation competence and human cell adherence by heterologous expression of the *Pseudomonas aeruginosa* Type IV pilin subunit in *Neisseria gonorrhoea*.

5<sup>th</sup> Louise Pasteur Conference on Infectious Diseases – Pathogens and their eco-systems, Paris, 2004.

Aas FE, Løvold C, **Winther-Larsen HC**, Egge-Jacobsen W, Roos N, van Putten J and Koomey M.

Characterization of *dca*, a gene involved in postranslational modification of *Neisseria gonorrhoeae* Type IV pili with phosphoethanolamine and phosphocholine.

Euresco Conference on Frontiers of Cellular Microbiology & Cell Biology, San Feliu de Guixols, Spain, 2004.

**Winther-Larsen HC**, Løvold C, Aas FE, Wolfgang M, Roos N, van Putten JMP, Meier B, Frye S, Lory S, Sheetz MP and Koomey M.

Complementation of both transformation competence and human cell adherence by heterologous expression of the *Pseudomonas aeruginosa* Type IV pilin subunit in *Neisseria gonorrhoea*.

National Conference on Microbial Sciences and Technology, Holmen Fjordhotell Nesbru, 2004.

**Winther-Larsen HC**, Løvold C, Aas FE, Wolfgang M, Roos N, van Putten J, Frye S, and Koomey M.

Complementation of both transformation competence and human cell adherence by heterologous expression of the *Pseudomonas aeruginosa* Type IV pilin subunit in *Neisseria gonorrhoea*.

National Conference on Microbial Sciences and Technology, Holmen Fjordhotell Nesbru, 2004.

Aas FE, Løvold C, **Winther-Larsen HC**, Egge-Jacobsen W, Roos N, van Putten JMP and Koomey M.

Characterization of *dca*, a gene involved in posttranslational modification of *Neisseria gonorrhoeae* Type IV pili with phosphoethanolamine and phosphocholine

Seminar for Institute for Molecular Biosciences, Klækken 2004.

**Winther-Larsen HC**, Wolfgang M, Dunham S, van Putten JMP, Dorward D, Hayes SF, Løvold C, Koomey M.

Minor pilins involved in Type IV pilus biogenesis, retraction and anchoring in *Neisseria gonorrhoeae*.

Seminar for Institute for Molecular Biosciences, Klækken 2004.

Løvold C, **Winther-Larsen HC**, Aas FE, Wolfgang M, van Putten J, Frye S, and Koomey M.

Complementation of both transformation competence and human cell adherence by heterologous expression of the *Pseudomonas aeruginosa* Type IV pilin subunit in *Neisseria gonorrhoeae*

Norwegian Biochemical Society meeting, Hafjell 2004.

Løvold C, **Winther-Larsen HC**, Aas FE, Wolfgang M, van Putten J, Frye S, and Koomey M.

Complementation of both transformation competence and human cell adherence by heterologous expression of the *Pseudomonas aeruginosa* Type IV pilin subunit in *Neisseria gonorrhoeae*.

2<sup>nd</sup> Genome Maintenance Meeting, Oslo 2003.

Løvold C, **Winther-Larsen HC**, Aas FE, Wolfgang M, van Putten J, Frye S, and Koomey M.

Complementation of both transformation competence and human cell adherence by heterologous expression of the *Pseudomonas aeruginosa* Type IV pilin subunit in *Neisseria gonorrhoea*.

2<sup>nd</sup> Genome Maintenance Meeting, Oslo 2003.

Hegge FT, **Winther-Larsen HC**, van Putten JMP, and Koomey M.

PilV of *Neisseria gonorrhoeae* interacts with Tfp biogenesis.

Spetsai Summer School, Spetsai Greece 2002.

**Winther-Larsen HC**, Wolfgang M, Dunham S, van Putten JMP, Dorward D, Hayes SF, Løvold C, Koomey M.

Minor pilins involved in Type IV pilus biogenesis, retraction and anchoring in *Neisseria gonorrhoeae*.

13<sup>th</sup> International Pathogenic *Neisseria* Conference, Oslo 2002.

Hegge FT, **Winther-Larsen HC**, van Putten JMP, and Koomey M.

Evidence that the PilV protein of *Neisseria gonorrhoeae* interacts with the Tfp biogenesis machinery and influences post-translational modifications of PilE, the pilin subunit.

Norwegian Biochemical Society meeting, Røros 2002.

**Winther-Larsen HC**, Wolfgang M, Dunham S, van Putten JMP, Dorward D, Hayes SF, Løvold C, Koomey M.

Minor pilins involved in Type IV pilus biogenesis, retraction and anchoring in *Neisseria gonorrhoeae*.

Microbial Pathogenicity and Host Responses meeting, Cold Spring Harbour Laboratory, USA 2001.

**Winther-Larsen HC**, Wolfgang M, Dunham S, van Putten JMP, Dorward D, Hayes SF, Løvold C, Koomey M.

Minor pilins involved in Type IV pilus biogenesis, retraction and anchoring in *Neisseria gonorrhoeae*.

Microbial Genome Maintenance meeting, Norwegian General Hospital, Oslo 2001.

**Winther-Larsen, H. C.** Hegge, F. T. Wolfgang, M, van Putten, J. P. M. Hayes, S. F. and Koomey, M.

What does *Neisseria gonorrhoeae* need to stick to human cells.

Norwegian Biochemical Society meeting, Beitostølen 2001.

**Winther-Larsen, H. C.** Hegge, F. T. Wolfgang, M, van Putten, J. P. M. Hayes, S. F. and Koomey, M.

What does *Neisseria gonorrhoeae* need to stick to human cells.

Gordon Research Conference– Microbial Toxins and Pathogenicity, Andover, New Hampshire 2000.

**Winther-Larsen, H. C.**, Hegge, F. T. Wolfgang, M, van Putten, J. P. M. Hayes, S. F. and Koomey, M.

Identification and characterization of AcfP, a type IV pilus adherence cofactor.

Norwegian Biochemical Society Meeting, Lillehammer 1997.

**Winther-Larsen, H C.**, Valand, B., Blatny, J. M., and Valla, S.

Studies of the *Pseudomonas putida* Pm promoter system, useful for expression of enzymes in numerous bacterial species.

Biochemical Society Scottish Area Predoctoral meeting, Glasgow 1992.

Zhao, S., **Winther-Larsen, H. C.**, and Meaden, P. G.

The Product of the Yeast *POFI* Gene has Homology with Sugar Transport Proteins.