

## CURRICULUM VITAE

Liisa Arike, PhD

### PERSONAL INFORMATION

Date of Birth: January 24, 1983  
Place of Birth: Tallinn, Estonia  
E-mail: [liisaarike@gmail.com](mailto:liisaarike@gmail.com)  
Language skills: Estonian, English (fluent), Finnish (average),  
Russian (basic), Swedish (basic)

### EDUCATION

**2007 - 2012** PhD, Tallinn University of Technology, Faculty of Chemicals and Materials Technology, *specialized in proteomics*.  
**2005 - 2007** Master of Science, Tallinn University of Technology, food and biotechnology, *specialized in microbiology and probiotics*  
**2001 - 2005** Bachelor of Science, Tallinn University of Technology, food and biotechnology, *specialized in microbiology*

### PROFESSIONAL EXPERIENCE

**2013 - ...** University of Gothenburg, Department of Medical Biochemistry, Mucin Biology Groups - Post-Doctoral Researcher. *Developing new quantitative methods in order to analyse mucus and epithelial cells in gastro intestinal diseases*.  
**2010 - 2012** University of Tartu, Faculty of Science and Technology - Manager of Proteomics Core Facility. *Working with an LTQ Orbitrap Classic instrument, sample preparation for mass-spectrometry, data analysis, technical consultations with collaborators and clients*.  
**09.2007 – 02.2008** Instituto Tecnológico de Química e Biologia (New University of Lisbon), Mass Spectrometry Laboratory – Internship. *Developing microwave heated protein digestion method*.  
**2005 – 2012** Competence Center of Food and Fermentation Technologies - Researcher. *Until 2007 working with gastrointestinal model for probiotics screening; since 2007 developing and applying quantitative proteomics methods (<sup>15</sup>N labeling, SILAC labeling, iTRAQ, label-free absolute quantification) on microorganisms*.

### SPECIAL COURSES

**17-22.06.2012** 4<sup>th</sup> MaxQuant Summerschool “Computational Mass Spectrometry Based Proteomics”, Munich, Germany.  
**19-20.05.2012** Short Course (12 h) “Quantitative Mass Spectrometry”. Presented by The American Society for Mass Spectrometry  
**22-27.05.2011** 3<sup>rd</sup> MaxQuant Summerschool “Computational Mass Spectrometry Based Proteomics”, Munich, Germany.

- 01-07.08.2010** 4<sup>th</sup> European summer school in proteomic basics - „High-Throughput Data Analysis and Statistics“, Brixen/Bressanone, South Tyrol, Italy.
- 02-08.08.2009** 3<sup>rd</sup> European summer school in proteomic basics - „Quantification and Post-translational Modifications of Proteins“, Brixen/Bressanone, South Tyrol, Italy.
- 15-22.04.2009** Practical EMBO course in "Mass Spectrometry and Proteomics", Southern Denmark University, Odense, Denmark.
- 16-20.02.2009** Practical Course "Quantitative Proteomics 2009", University of Tartu, Institute of Technology, Estonia.
- 12-23.01.2009** iTRAQ experiments in Protein Research Group, Southern Denmark University, Odense, Denmark.
- 13-19.07.2008** 2<sup>nd</sup> EU summer school in proteomic basics - „Protein identification - Mass Spectrometry“, Brixen/Bressanone, South Tyrol, Italy.
- 22-23.01.2007** Course "Characterization of Peptides and Proteins by LC-MS", Waters, Sweden, Stockholm.

#### **TEACHING AND SUPERVISING**

- 06.05-12.05.2015** Practical Course “Protein Purification”, University of Gothenburg, Department of Medical Biochemistry. Teaching and supervising practical work in the laboratory
- 13.08-17.08.2012** Practical Course "Quantitative Proteomics 2012", University of Tartu, Institute of Technology, Estonia. Organization, teaching and supervising practical work in laboratory.
- 30.08-03.09.2010** Practical Course "Quantitative Proteomics 2010", University of Tartu, Institute of Technology, Estonia. Supervising practical work in laboratory.
- 2009** Supervising BSc thesis of Reet Tsupilo “Analysis of Gram-positive and Gram-negative bacteria membrane proteins“.
- 2009 Autumn** Lecture course “Chemistry and Material science” (6 EAP, Tallinn Technical University), assistant of the practical work in the laboratory.

#### **ORAL PRESENTATIONS**

- 10.12.2015 21<sup>st</sup> Nordic Glyco Meeting “Intestinal mucin O-glycosylation is goblet cell specific and affected by microbiota”
- 07.10.2014 The Swedish Mass Spectrometry Society’s (SMSS) Annual Symposium 2014 “Muc2 absolute quantification in mucus layer of mouse colon”
- 11.09.2012 Waters 3<sup>rd</sup> Nordic User Meeting – “Comparison of two common proteomics platform applied on growth rate dependent characterization of *Lactococcus lactis* proteome”
- 22-27.05.2011** MaxQuant Summerschool - "From relative to absolute proteome quantification".
- 11-13.05.2011** "Exploring Science and Culture" 6th Joint Tartu – Turku - Tallinn Meeting - "Quantitative proteomics applied on studies of microorganisms".

## SELECTION OF POSTERS

**Arike, L**, Seiman, A, van der Post, S, Rodriguez-Piñero, A, Ermund, A, Schütte, A, Johansson, MEV, Bäckhed, F, Hansson, GC. Poster „Protein turnover rate in mice gastrointestinal tract is affected by the spatial location and the microbiota“, 64th Conference on Mass Spectrometry and Allied Topics, ASMS, 05-09.06.2016, San Antonio, Texas, USA.

**Arike, L**, van der Post, S, Seiman, A, Rodriguez-Piñero, A, Ermund, A, Schütte, A, Johansson, MEV, Hansson, GC. Poster “Protein turnover rate in gastrointestinal tract“, 62th Conference on Mass Spectrometry and Allied Topics, ASMS, 15 – 19.05.2014, Baltimore, Maryland, USA

**Arike, L**, van der Post, S, Rodriguez-Piñero, A, Ermund, A, Schütte, A, Birchenough, G, Johansson, MEV, Hansson, GC. Poster "Fast stable isotope labeling of the murine intestinal tract“, HUPO 12th Annual Congress, 14-18.09.2013, Yokohama, Japan.

**Arike, L**, “Comparison and Applications of Label-free “Absolute” Proteome Quantification Methods on Study of Bacterial Proteome“, 60<sup>th</sup> Conference on Mass Spectrometry and Allied Topics, ASMS, 20-24.05.2012, Vancouver, Canada

**Arike, L**, Lahtvee, PJ, Valgepea, K, Nahku, R, Adamberg, K, Vilu, R. Poster "Characterization of Proteome Dynamics at Different Growth Rates in Continuous Cultures", Systems Biology of Microorganisms, 22-24.03.2010, Paris, France

**Arike, L**, Valgepea, K, Nahku, R, Lahtvee, PJ, Peil, L, Adamberg, K., Vilu, R. Poster "Quantitative study of *Escherichia coli* proteome by <sup>15</sup>N-labeling at different growth rates", SPS Scientific Meeting: "Proteome Dynamics: Protein Quantification in Time and Space", 01-04.12.2009, Zurich, Switzerland.

**Arike, L**, Nahku, R, Lahtvee, PJ, Adamberg, K, Vilu, R. Poster "Identification and relative quantification of proteins in *Escherichia coli* proteome using up-front CID". Proteomic Forum 2009, 28.03-02.04.2009, Berlin, Germany

## PUBLICATIONS

**Arike L**, Hansson GC. The Densely O-Glycosylated MUC2 Mucin Protects the Intestine and Provides Food for the Commensal Bacteria. Review. J Mol Biol. 2016 Aug 14;428(16):3221-9. doi: 10.1016/j.jmb.2016.02.010.

Johansson ME, Jakobsson HE, Holmén-Larsson J, Schütte A, Ermund A, Rodríguez-Piñero AM, **Arike L**, Wising C, Svensson F, Bäckhed F, Hansson GC. Normalization of Host Intestinal Mucus Layers Requires Long-Term Microbial Colonization. Cell Host Microbe. 2015 Nov 11;18(5):582-92.

Erickson NA, Nyström EE, Mundhenk L, **Arike L**, Glauben R, Heimesaat MM, Fischer A, Bereswill S, Birchenough GM, Gruber AD, Johansson ME. The Goblet Cell Protein Clca1

(Alias mClca3 or Gob-5) Is Not Required for Intestinal Mucus Synthesis, Structure and Barrier Function in Naive or DSS-Challenged Mice. PLoS One. 2015 Jul 10;10(7):e0131991.

Esquerré T, Moisan A, Chiapello H, **Arike L**, Vilu R, Gaspin C, Cocaign-Bousquet M, Girbal L. bGenome-wide investigation of mRNA lifetime determinants in *Escherichia coli* cells cultured at different growth rates. BMC Genomics. 2015 Apr 9;16:275.

**Arike L**, Peil L. Spectral counting label-free proteomics. Methods Mol Biol. 2014;1156:213-22.

Lahtvee PJ, Seiman A, **Arike L**, Adamberg K, Vilu R. Protein turnover forms one of the highest maintenance costs in *Lactococcus lactis*. Microbiology. 2014 Jul; 160(Pt 7):1501-12.

Varjak M, Saul S, **Arike L**, Lulla A, Peil L, Merits A. Magnetic fractionation and proteomic dissection of cellular organelles occupied by the late replication complexes of Semliki Forest virus. J Virol. 2013 Sep; 87(18):10295-312.

**Arike L**, Valgepea K., Peil L, Nahku R, Adamberg K., Vilu R. Comparison and applications of label-free absolute proteome quantification methods on *Escherichia coli*. Journal of Proteomics. 2012 Sep 18; 75(17):5437-48.

Olsper A, **Arike L**, Peil L, Truve E. Sobemovirus RNA linked to VPg over a threonine residue. FEBS Lett. 2011 Oct 3;585(19):2979-85.

Lahtvee PJ, Adamberg K, **Arike L**, Nahku R, Aller K, Vilu R. Multi-omics approach to study the growth efficiency and amino acid metabolism in *Lactococcus lactis* at various specific growth rates. Microb Cell Fact. 2011 Feb 24;10:12.

Valgepea K, Adamberg K, Nahku R, Lahtvee PJ, **Arike L**, Vilu R. Systems biology approach reveals that overflow metabolism of acetate in *Escherichia coli* is triggered by carbon catabolite repression of acetyl-CoA synthetase. BMC Syst Biol. 2010 Dec 1;4:166.

Nisamedtinov I, Kevvai K, Orumets K, **Arike L**, Sarand I, Korhola M, Paalme T. Metabolic changes underlying the higher accumulation of glutathione in *Saccharomyces cerevisiae* mutants. Appl Microbiol Biotechnol. 2011 Feb;89(4):1029-37.

**Arike L**, Nahku R, Borrisova M, Adamberg K, Vilu R. Identification and relative quantification of proteins in *Escherichia coli* proteome by "up-front" collision-induced dissociation. Eur J Mass Spectrom (Chichester, Eng). 2010;16(2):227-35.

Sumeri I, **Arike L**, Stekolstikova J, Uusna R, Adamberg S, Adamberg K, Paalme T. Effect of stress pretreatment on survival of probiotic bacteria in gastrointestinal tract simulator. Appl Microbiol Biotechnol. 2010 May;86(6):1925-31.

Sumeri I, **Arike L**, Adamberg K, Paalme T. Single bioreactor gastrointestinal tract simulator for study of survival of probiotic bacteria. Appl Microbiol Biotechnol. 2008 Aug;80(2):317-24.

## REFERENCES

### **Gunnar C. Hansson,**

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### **Raivo Vilu**

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### **Lauri Peil, Ph.D**

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