Anette Sams' Curriculum Vitae

***Anette Sams Nielsen**, Pharmacist and PhD in Pharmaceutical R&D, Entrepreneur in Life Science*

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Born 30 January 1971. Married. Two children.

Brief

- Specialist in vitro and translational pharmacologist in vascular and metabolic disease
- Proven track record in identification of pharmaceutical target ideas across disciplines
- Enthusiastic and effective communicator with a natural flair for people engagement

Title and affiliation

Founder at Epoqe Aps (from 2015) and Senior Scientist at Clinical Experimental Research, Rigshospitalet (from 2016)

Course director and external Lecturer at University of Copenhagen (from 2015)

Director, Change manager and Principal Scientist in Novo Nordisk, R&D (until 2015)

University degrees

Ph.D. 1997 – 2000: University of Copenhagen (Former Royal Danish School of Pharmacy)

PhD thesis in vascular pharmacology, 2000. Supervisors: I Jansen-Olesen, J Engberg;

Stays abroad: University of California, Irvine (D Krause and S Duckles); University of Szeged, Hungary (L Vescei)

Master in Pharmaceutical Sciences/Pharmacist 1991 – 1996: Former Royal Danish School of Pharmacy

Master thesis in receptor imaging and tracer production. Supervisors: S. Schifter, K. Rald

Positions

Epoqe Aps (2015 -)

2015 Founder of Epoqe Aps, Lecturer of *Biologik.* Epoqe provides scientific biological education through inspiring workshops, courses and lectures (www.anettesams.dk). Costumers: Companies with employee health ambitions, Højskoler, Efterskoler, Patient organizations (e.g. Diabetesforeningen), Health Centers, and Sport Clubs etc.

Novo Nordisk A/S (2001-2015)

2012 - 2014 Director of Diabetic Complications Biology. Budget, strategy and people responsibility for department (28 FTEs) delivering biology data and innovation to R&D project pipeline. Presenter at board meetings. Experimental in aligning R&D organization's milestone criteria for new therapeutic area of vascular diabetic disease in close collaboration with area CVP and SVP. Building and maintaining local and international academic collaborations and advisory boards. Speaker and co-organizer at scientific conferences and involved in external sourcing decisions. Responsible for continued optimal alignment with local and international departments. Leading a bottom – up process developing an efficient novel agile knowledge management platform for our new research area. Mentors project managers, scientists, leaders and students. Used as 'rescue project manager' and project manager mentor to get research projects back on track. Active member of a cross-organizational optimization- and solution team referring to

SVP. Main results within successful transformation of new strategic directions into organizational operation; identification of organisational opportunities; establishment of high performance department; establishment of cross-organizational high performance teams; reversing stakeholder conflicts; establishment and maintenance of strategic and scientific external collaborations.

2011 - 2012 Manager of Diabetic Complications Biology. Build motivated team (26 FTEs) providing innovation and decision making biology data to the project pipeline. Experimental in setting and executing strategic and scientific refocus of research department. Selecting and building external academic network, e.g. visiting professors, consultants and strategic collaborations. Establishing scientific advisory board and co-organizing board meetings. Driver of a cross organizational 'Diabetic Complications Task Force' recommending clinical, regulatory, business and research strategies within diabetic complications to SVP.

2010 - 2011 Manager of Diabetes Inflammation, HRI. Building a diabetes biology department (25 FTEs) of scientist, technicians and masters/PhD students working within inflammation in diabetes. Setup and execute operational strategy for new research area. Proactive member of a change management team working closely with CVP, department managers, McKinsey and HR to merge basic research organization into Novo Nordisk R&D. Initiate and drive research projects and international workshops within new therapeutic area. Part of a cross organizational VP cLEAN team responsible for identification of opportunities for optimization of procedures, communication and collaboration.

2009 - 2010 Principal Scientist in Diabetes Biology. Specialized as translational and in vitro pharmacological scientist with broad technological and biological experience in target identification and drug efficacy and ADME screening. Responsible for evaluating novel type of anti-diabetic targets for suitability in project pipeline. Biological mode-of-action as well as drug candidate selection and characterization in research projects. Whereas major scientific and technological expertise is within vascular biology and pharmacology, diabetes biology, gastro-intestinal biology, molecular pharmacology, cell biology, inflammation and receptor pharmacology has been my major specialist contributions.

2006 - 2009 Project Manager, Innovation Focus Group Chair, Research Scientist. Proposing and managing alternative peptide delivery projects and managing alternative delivery innovation focus group responsible for conducting scientific, safety and IP evaluation of target- and technology opportunities brought to Novo Nordisk by biotech, academia and literature. Managing project team and innovation group team and presenting outcomes at board meetings. Establishing in vitro models of epithelial barriers for ADME and safety screening. Initiation of endothelial and leukocyte signalling and biology models of inflammation in diabetes and proposing 'Diabetes Inflammation' as a novel research area.

2001 - 2006 Research Scientist in Department of Molecular Pharmacology. Responsible for setting up bioassays, recombinant screening platforms and mode of action models in vitro (gut cells, β-cells, hepatocytes, adipocytes, epithelium and muscle cells). Target evaluations and high quality bioassay generation for new diabetes and haemostasis targets.

Copenhagen University (1996-2001)

2000 – 2001 Amanuensis and research fellow. Foundation raised for continued research within perivascular neuropeptide re-uptake and pain.

1997 – 2000 Ph. D student. (Copenhagen University, University of California, Irvine; University of Szeged, Hungary)

1996 – 1997 Amanuensis and research fellow. Preparation of Ph. D proposal, vascular GPCR signalling, teaching biology and inorganic chemistry.

Lecturing, supervision and masters/PhD opponent

Academic lecturing at Copenhagen University, DIS, Novo Nordisk and at international scientific conferences.

Academic supervision of PhD students, post docs and master students.

Censor for master students and PhD opponent at Copenhagen University.

Health Biology Workshops and lectures of 'Biologik' for Companies, Health Centers, Schools, Patient Organizations etc.

Presentations at international conferences

Lean product and process development exchange 2014, DK (Agile knowledge management in a novel research area); 18th EASD Oxford Hagedorn Workshop 2013, UK (Glomerular inflammation in DN); CGRP 2010, NZ (Oral scientific 'hot topic' presentation); Keystone Macrophage/Atherosclerosis, 2010 (Poster presentation); Keystone vasculature/Complications of obesity, 2009 (Poster presentation), Drug Delivery Summit 2007, London, UK (Oral presentation); CGRP 2001, Copenhagen (Oral presentation); Brain '99, 1999, Copenhagen (2 posters), Danube Symposium 1999, Szeged, Hungary (2 posters); CGRP and related peptides, 1998, Shaftesbury, UK (1 poster, 1 book chapter).

Major meeting organization

Co-organizing Diabetic Complications Advisory Boards, 2012 and 2014; Co-organizing The first Hagedorn IdeaShop: Inflammation and autoimmunity in T2D, 2011; Co-organizing CGRP 2001.

International collaborations and research abroad

Establishment of strategic and scientific collaborations with key opinion leaders of vascular diabetic complications in DK, UK, Australia, Canada and US. Establishment of contract research and licencing agreements.

Establishment of various academic collaborations with legal agreements.

PhD research at Department of Pharmacology, University of California, Irvine, USA (1999 - 2000) and at Department of Neurology, University of Szeged, Hungary (1999).

Publications

1. Sams A, Jansen-Olesen I. Expression of calcitonin receptor-like receptor and receptor-activity modifying proteins in human cranial arteries. *Neuroscience Letters*, 258: 41-44, 1998.

2. Sams A, Yenidunya A, Engberg J, Jansen-Olesen I. Equipotent in vitro actions of α- and β-CGRP on guinea pig basilar artery are likely to be mediated via CRLR derived CGRP receptors. *Regulatory Peptides*, 85: 67-75, 1999.

3. Sams A, Knyihár-Csillik E, Engberg J, Szok D, Tajti J, Bodi I, Edvinsson L, Vécsei L, Jansen-Olesen I. CGRP and Adrenomedullin receptor populations in human cerebral arteries: In vitro pharmacological and molecular investigations in different artery sizes. *European Journal of Pharmacology*, 408: 183-193, 2000.

4. Sams Nielsen A, Orskov C, Jansen-Olesen I. Pharmacological evidence for CGRP uptake into perivascular capsaicin sensitive nerve terminals. *British Journal of Pharmacology*, 132: 1145-1153, 2001. ***Highlight in TiPS, 22 (7): 340, 2001.***

5. Hasbak P, Sams A, Schifter S, Longmore J, Edvinsson L. CGRP receptors mediating CGRP-, adrenomedullin- and amylin-induced relaxation in porcine coronary arteries. *British Journal of Pharmacology,* 133: 1405-13, 2001.

6. Edvinsson L, Sams A, Jansen-Olesen I, Tajti J, Kane SA, Rutledge RZ, Koblan KS, Longmore J. Characterisation of the effects of a non peptide CGRP receptor antagonist in SK-N-MC cells and isolated human cerebral arteries, *European Journal of Pharmacology*, 415: 39-44, 2001.

7. Sams A, Hastrup S, Andersen M, Thim L. Naturally occurring glucagon-like peptide-2 (GLP-2) receptors in human intestinal cell lines. *European Journal of Pharmacology*, 532:18-23, 2006.

8. Ohashi K, Parker JL, Ouchi N, Higuchi A, Vita JA, Gokce N, Pedersen AA, Kalthoff C, Tullin S, Sams A, Summer R, Walsh K. Adiponectin Promotes Macrophage Polarization toward an Anti-inflammatory Phenotype. *J Biol Chem*. 26;285(9):6153-60, 2010.

9. Cummings BP, Stanhope KL, Graham JL, Baskin DG, Griffen SC, Nilsson C, Sams A, Knudsen LB, Raun K, Havel PJ. Chronic administration of the glucagon-like peptide-1 analog, liraglutide, delays the onset of diabetes and lowers triglycerides in UCD-T2DM rats. *Diabetes*, 59(10):2653-61, 2010.

10. Blaedel M, Boonen H, Raun K, Sheykhzade M, Sams A. Early Inflammation in Pre-Insulin Resistant Diet Induced Obese Rats Does not Affect the Vasoreactivity in isolated Small Mesenteric Arteries. *Vascular Pharmacology, 90(3-4): 125-132, 2012.*

11. Tullin S, Sams A, Brandt J, Dahl K, Gong W, Jeppesen CB, Krogh TN, Olsen GS, Liu Y, Pedersen AA, Petersen JM, Rolin B, Wahlund PO, Kalthoff C. Recombinant adiponectin does not lower plasma glucose in animal models of type 2 diabetes. PLoS One 7(10), 2012.

12. Fink LN, Oberbach A, Costford SR, Chan KL, Sams A, Blüher M, Klip A. Expression of anti-inflammatory macrophage genes within skeletal muscle correlates with insulin sensitivity in human obesity and type 2 diabetes. Diabetologia. 2013 Jul;56(7):1623-8.

13. Fink LN, Costford SR, Lee YS, Jensen TE, Bilan PJ, Oberbach A, Blüher M, Olefsky JM, Sams A, Klip A. Pro-Inflammatory macrophages increase in skeletal muscle of high fat-Fed mice and correlate with metabolic risk markers in humans. Obesity (Silver Spring). 2014 Mar;22(3):747-57.

14. Smillie SJ, King R, Kodji X, Outzen E, Pozsgai G, Fernandes E, Marshall N, de Winter P, Heads RJ, Dessapt-Baradez C, Gnudi L, Sams A, Shah AM, Siow RC, Brain SD. An ongoing role of α-calcitonin gene-related peptide as part of a protective network against hypertension, vascular hypertrophy, and oxidative stress. Hypertension, 63(5):1056-62, 2014.

15. Mayer C, Bergholdt R, Cucak H, Rolin BC, Sams A, Rosendahl A. Anti-IL20 treatment significantly modulates inflammation without affecting HbA1c in type 2 diabetic db/db mice. Plos One, 10 (7), 2015.

16. Blædel M, Sams A, Boonen HC, Sheykhzade M. Increased Contractile Response to Noradrenaline Induced By Factors Associated with the Metabolic Syndrome in Cultured Small Mesenteric Arteries. Pharmacology, 97(1-2):48-56, 2015.

17. Outzen EM, Zaki M, Abdolalizadeh B, Sams A, Boonen HC, Sheykhzade M. Translational Value of Mechanical and Vasomotor Properties of Mouse Isolated Mesenteric Resistance-Sized Arteries. Pharmacology Research & Perspectives, 3 (6), 2015.

18. Nilsson C, Kruse Hansen T, Rosenquist C, Hartmann B, Kodra JT, Lau J, Ryberg Clausen T, Raun K, Sams A. Long acting analogue of the Calcitonin gene-related peptide induces positive metabolic effects and secretion of the Glucagon-Like Peptide-1. European Journal of Pharmacology, 773:24-31, 2016.

19. Outzen EM, Zaki M, Mehryar R, Abdolalizadeh B, Sajid W, Boonen HC, Sams A, Sheykhzade M. LPS, but not Angiotensin ll, lnduces Direct Pro-lnflammatory Effects in Cultured Mouse Arteries and Human Endothelial and Vascular Smooth Muscle Cells. Basic Clin Pharmacol Toxicol, 2016.

20. Sheykhzade M, Amandi N, Pla MV, Abdolalizadeh B, Sams A, Warfvinge K, Edvinsson L, Pickering DS. Binding and functional pharmacological characteristics of gepant-type antagonists in rat brain and mesenteric arteries. Vascular Pharmacology, 2017.

21. Hansen NW, Hansen AJ, Sams-A. The endothelial border to health. Mechanistic evidence of the hyperglycemic culprit of inflammatory disease acceleration. IUBMB Life, 69:3, 2017.

22. Aubdool AA, Smillie-SJ, Thakore-P, Schnelle-M, Srivastava-S, Alawi-KM, Argunhan-F, Wilde-E, Mitchell-J, Farrell-Dillon K, Richards DA, Maltese G, Shah AM, Siow RC, Sams A, Brain SD. A novel α-calcitonin gene-related peptide analogue protects against end-organ damage in experimental hypertension, cardiac hypertrophy and heart failure. Circulation Research (resubmitted after minor revision)

Publications, issued patents

1. Thim L, Bang S, Schlein M, Egelund DK, Nielsen AS, Johansen NL, Madsen K, Zundel M, Thygesen P: GLP-2 compounds, formulations and uses thereof (PCT WO 2004/035624 A2).

2. Nielsen-AS, Kruse-T, Kodra-JT, Lau-JF, Kofoed-J, Raun-K, Nilsson-C: Derivatives of CGRP. (WO2011/051312 A1)