
Dr. Johannes Söllner - Resume



Professional Objective

The center of my professional objective and motivation is innovation, primarily in the biomedical area. I therefore strive to use my talents and skills to add an innovative and creative spin to projects I am heading or otherwise contributing to, to improve communication (harnessing conflict via mutual respect) and ultimately to see things fly. Fostering of technological innovation, biomedical rationale and complementarity of human personality types in my environment.

Summary of Qualifications

20 years of experience in the biotech industry with tool focus on bioinformatics and immunoinformatics, particularly in reverse-vaccinology and immunological therapies; protein, peptide, RNA & antigen design; designing automated data pipelines; parametrizing peptides and building machine learning classifiers for B-cell epitope prediction; building collaborations for experimental validation and bridging communication-gaps between specialists. Contribution of innovative solutions if indicated for improvement of efficiency or output quality. Deep expertise in databases and integration of heterogeneous biomedical data; Experience and track-record with Systems Biology based drug-repositioning strategies and network visualization; Development of RNA optimization algorithms; Supervision track-record; Longstanding customer contact and business-partner relations experience.

Professional Background

2015-current

Founder of sodatana e.U. (<https://sodatana.com>)

Provider of focused bioinformatics and immunoinformatics services; protein subunit modeling & design (antigen fusion, chimerization strategies, strain coverage, solubility, sweetspot between doability and IP, etc.); mRNA design for vaccines; computational vaccine & diagnostics design; biological datamining, machine-learning & analysis; modeling & interpretation; design & implementation of large databases and integration of heterogeneous data; literature/knowledge & IP background reviews. Development of software for scientific applications (mostly perl and python, but also C/C++, R, JavaScript). Consulting for biomedical solutions & IP related work.

2012-2014:

Head of Vaccines at emergentec biodevelopment GmbH, Austria (www.emergentec.com)

Design and conduct of R&D in the area of vaccines and immunomodulators, primarily antigen design / peptide selection and research on auxiliary small-molecules.

2010-2011:

Head of Therapeutic Innovation at emergentec biodevelopment GmbH, Austria (www.emergentec.com)

Carried responsibility to position the therapy branch of emergentec's technology and IP portfolio. Drafted and initiated a strategy for positioning a monoclonal antibody to major human diseases by identifying possible applications and selecting adequate academic groups for validation (low budget project).

Designed and steered the development of a comprehensive platform for integration of public and in-house data including e.g. protein annotation, biomedical literature, ontologies, drugs, patent data, clinical trials etc. as back-end database for a biomarker identification/assessment platform. Conducted contract research in the areas of vaccine design and immuno-suppressive/anti-inflammatory drugs. Responsibility for patent filing and communication with patent attorneys.

2008-2010:

Head of Target R&D at emergentec biodevelopment GmbH, Austria (www.emergentec.com)

As a major achievement, designed antigens for two fully synthetic vaccine prototypes for chronic infectious diseases successfully validated in animal models and superior to competitors. Designed, steered implementation and operated a reverse-vaccinology pipeline with our partners. Investigated uses of Systems Biology (protein interaction networks and pathways) for understanding of host-pathogen interactions and therapeutic target identification. Steered the development of a drug-repositioning strategy applicable to cancers and latent infections. Overall focus on infectious diseases, immunology and drug-repositioning. Supervision of students and developers.

2005-2008:

Bioinformatics freelancer

Focused on immunoinformatics services (vaccine design), patent informatics and automated distributed patent retrieval.

2001-2004:

Bioinformatician & Student at Intercell AG, Austria (now www.valneva.com)

Overlapping with my diploma and PhD work, mixed academic and corporate infrastructure duties. Designed and established an automated, relational storage and processing pipeline for microbial *in-house* and external sequencing data for epitope identification. Steered the development of a microbial genome viewer and designed other visualization methods. Invention of a method for *in-vitro* epitope selection and evolution. Supervision of internships. Support for the IP department.

Education

2004: PhD in Molecular Genetics, University of Vienna, Austria

Development of machine-learning models for prediction of B-cell epitopes on pathogen proteins

2001: Diploma in Molecular Genetics, University of Vienna, Austria (completed with distinction)

Computational analysis of the Staphylococcus aureus COL genome

Additional skills, qualifications and interests

Languages: English (fluent, written and verbal); German (native); Spanish (basic)

Science communication: relating complex relationships and technologies to non-scientists and media

2nd Science Slam Vienna [German]: <http://vimeo.com/20481078>

4th Science Slam Mainz [German]: <http://www.youtube.com/watch?v=g9ir5zs-hQE>

Communication training: seminars on rhetorics, science communication, presentation- and media training. Scientific and corporate presentations at numerous international conferences.

Selected publications and patents

Selak Sanja, Triska Christine, Schuster Manfred, Söllner Johannes, Roppenser Bernhard, Weinhäupl Theresa, Rössler Max. WO 2021/165543 A1 (**Patent Application**). Propionibacterium Acnes Prophylactic and Therapeutic Immune Treatment. Filed: Feb 22, 2021, Published: Aug 26, 2021, Earliest Priority: Feb 21, 2020

Söllner J. Systems Vaccinology: Applications, Trends and Perspectives. Vaccine Design. Methods and Protocols: Volume 1: Vaccines for Human Diseases. 2016. ISBN 978-1-4939-3385-3

Söllner J. Computational peptide vaccinology. Methods Mol Biol. 2015;1268:291-312. doi: 10.1007/978-1-4939-2285-7_13. PubMed PMID: 25555730.

Söllner J, Mayer P, Heinzl A, Fehete R, Siehs C, Oberbauer R, Mayer B. Synthetic lethality for linking the mycophenolate mofetil mode of action with molecular disease and drug profiles. *Mol Biosyst.* 2012 Oct 30;8(12):3197-207. doi: 10.1039/c2mb25256b. PubMed PMID: 23014771.

Lukas Arno, Soellner Johannes, Bernthaler Andreas, Mayer Bernd, Fehete Raul, Perco Paul, Heinzl Andreas (**Patent Application**). Critical gene targets for cytotoxic therapy. WO 2011/144738A1. application date: May 20, 2011

Fehete R, Heinzl A, Perco P, Mönks K, Söllner J, Stelzer G, Eder S, Lancet D, Oberbauer R, Mayer G, Mayer B. Mapping of molecular pathways, biomarkers and drug targets for diabetic nephropathy. *Proteomics Clin Appl.* 2011 Jun;5(5-6):354-66. doi: 10.1002/prca.201000136. Epub 2011 Apr 14. PubMed PMID: 21491608.

Söllner J, Heinzl A, Summer G, Fehete R, Stipkovits L, Szathmary S, Mayer B. Concept and application of a computational vaccinology workflow. *Immunome Res.* 2010 Nov 3;6 Suppl 2:S7. doi: 10.1186/1745-7580-6-S2-S7. PubMed PMID: 21067549; PubMed Central PMCID: PMC2981879.

Söllner J, Grohmann R, Rapberger R, Perco P, Lukas A, Mayer B. Analysis and prediction of protective continuous B-cell epitopes on pathogen proteins. *Immunome Res.* 2008 Jan 7;4:1. doi: 10.1186/1745-7580-4-1. PubMed PMID: 18179690; PubMed Central PMCID: PMC2244602.

Etz H, Minh DB, Henics T, Dryla A, Winkler B, Triska C, Boyd AP, Söllner J, Schmidt W, von Ahsen U, Buschle M, Gill SR, Kolonay J, Khalak H, Fraser CM, von Gabain A, Nagy E, Meinke A. Identification of in vivo expressed vaccine candidate antigens from *Staphylococcus aureus*. *Proc Natl Acad Sci U S A.* 2002 May 14;99(10):6573-8. Epub 2002 May 7. PubMed PMID: 11997460; PubMed Central PMCID: PMC124444.

Von Ahsen Uwe, Soellner Johannes, Weichhart Thomas, Hafner Martin (**Patent Application**) *S. Aureus* antigene. WO 2004/013166 A2; application Jul 22, 2003