Short presentation

Research area:
The biofilm lifestyle dominates in chronic bacterial infections. These biofilm infections are a huge burden for both the patient and the society. Biofilm infections can occur on for example medically inserted implants, in chronic wounds or in the lungs of cystic fibrosis patients.
Characteristic for the chronic biofilm infections is that they show extremely high tolerance towards antibiotics and the host immune system.

I primarily focus on investigating *P. aeruginosa*biofilms and how to interfere with the development of biofilms or the biofilm tolerance towards antibiotics and/or the host immune system. Currently, I am screening and testing drug candidates with these abilities, using both *in vitro*and *in vivo*studies.

Education:
MSc in Engineering (Biotechnology) from the Technical University of Denmark
Ph.D. in medical microbiology from University of Copenhagen

Qualifications

MSc in Engineering, Biotechnology
Award Date: 24 Aug 2006

Employment

Associate Professor
Bacteriology

København N.
1 Sep 2022 → nu

PhD student
Graduate School of Health and Medical Sciences

København N., Denmark
1 Nov 2008 → 2 Aug 2012

Research assistant, Technical University of Denmark (DTU)
1 Nov 2006 → 30 Sep 2008

Research output

Identification of small molecules that interfere with c-di-GMP signaling and induce dispersal of *Pseudomonas aeruginosa* biofilms
Andersen, Jens Bo, Hultqvist, Louise Dahl, Jansen, C. U., Jakobsen, Tim Holm, Nilsson, Carl Martin Peter, Rybtke, Morten Levin, Uhd, J., Fritz, Blaine Gabriel, Seifert, R., Berthelsen, J., Nielsen, Thomas Eiland, Qvortrup, K., Givskov, Michael & Tolker-Nielsen, Tim, 2021, In: npj Biofilms and Microbiomes. 7, 13 p., 59.

Induction of native c-di-GMP phosphodiesterases leads to dispersal of Pseudomonas aeruginosa biofilms
Andersen, Jens Bo, Kragh, K. N., Hultqvist, Louise Dahl, Rybtke, Morten Levin, Nilsson, Carl Martin Peter, Jakobsen, Tim Holm, Givskov, Michael & Tolker-Nielsen, Tim, 2021, In: Antimicrobial Agents and Chemotherapy. 65, 4, e02431-20.

SAR study of 4-arylazo-3,5-diamino-1: H -pyrazoles: identification of small molecules that induce dispersal of Pseudomonas aeruginosa biofilms
Jansen, C. U., Uhd, J., Andersen, Jens Bo, Hultqvist, Louise Dahl, Jakobsen, Tim Holm, Nilsson, Carl Martin Peter, Nielsen, Thomas Eiland, Givskov, Michael, Tolker-Nielsen, Tim & Qvortrup, K. M., 2021, In: RSC Medicinal Chemistry. 12 , 11, p. 1868-1878 11 p.

Small Molecule Anti-biofilm Agents Developed on the Basis of Mechanistic Understanding of Biofilm Formation
Qvortrup, K., Hultqvist, Louise Dahl, Nilsson, Carl Martin Peter, Jakobsen, Tim Holm, Jansen, C. U., Uhd, J., Andersen, Jens Bo, Nielsen, Thomas Eiland, Givskov, Michael & Tolker-Nielsen, Tim, 2019, In: Frontiers in Chemistry. 7, 27 p., 742.

Visualizing biofilm by targeting eDNA with long wavelength probe CDr15
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CDy14: A novel biofilm probe targeting exopolysaccharide Psl
Kwon, H. Y., Kim, J. Y., Lee, J. Y., Yam, J. K. H., Hultqvist, Louise Dahl, Xu, W., Rybtke, Morten Levin, Tolker-Nielsen, Tim, Kim, J. J., Kang, N. Y., Yang, L., Park, S. J., Givskov, Michael & Chang, Y. T., 2018, In: Chemical Communications. 54, 84, p. 11865-11868 4 p.

Imaging N-acyl homoserine lactone quorum sensing in vivo
Hultqvist, Louise Dahl, Alhede, M., Jakobsen, Tim Holm, Givskov, Michael & Bjarnsholt, Thomas, 2018, *Quorum Sensing: Methods and Protocols.* Leoni, L. & Rampion, G. (eds.). Humana Press, Vol. 1673. p. 203-212 10 p. (Methods in Molecular Biology; No. 1673).

Qualitative and Quantitative Determination of Quorum Sensing Inhibition In Vitro
Jakobsen, Tim Holm, Alhede, M., Hultqvist, Louise Dahl, Bjarnsholt, Thomas & Givskov, Michael, 2018, *Quorum Sensing: Methods and Protocols.* Springer, Vol. 1673. p. 275-285 11 p. (Methods in molecular biology (Clifton, N.J.)).

***In vitro* and *in vivo* generation and characterization of *Pseudomonas aeruginosa* biofilm-dispersed cells via c-di-GMP manipulation**
Chua, S. L., Hultqvist, Louise Dahl, Yuan, M., Rybtke, Morten Levin, Nielsen, Thomas Eiland, Givskov, Michael, Tolker-Nielsen, Tim & Yang, L., Aug 2015, In: Nature Protocols (Print). 10, 8, p. 1165-80 16 p.

***Pseudomonas aeruginosa* Biofilm Infections: Community Structure, Antimicrobial Tolerance and Immune Response**
Rybtke, Morten Levin, Hultqvist, Louise Dahl, Givskov, Michael & Tolker-Nielsen, Tim, 2015, In: Journal of Molecular Biology. 427, 23, p. 3628-3645

Bacterial biofilm formation and treatment in soft tissue fillers
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Clearance of Pseudomonas aeruginosa Foreign-Body Biofilm Infections through Reduction of the Cyclic Di-GMP Level in the Bacteria
Hultqvist, Louise Dahl, van Gennip, M., Rybtke, Morten Levin, Wu, H., Chiang, W., Alhede, M., Høiby, Niels, Nielsen, T., Givskov, Michael & Tolker-Nielsen, Tim, Aug 2013, In: Infection and Immunity. 81, 8, p. 2705-13 9 p.

Interactions between polymorphonuclear leukocytes and Pseudomonas aeruginosa biofilms on silicone implants in vivo
van Gennip, M., Hultqvist, Louise Dahl, Alhede, M., Qvortrup, Klaus, Jensen, Peter Østrup, Høiby, Niels, Givskov, Michael & Bjarnsholt, Thomas, Aug 2012, In: Infection and Immunity. 80, 8, p. 2601-2607 7 p.

Process for the manufacture of ajoene derivatives
Bjarnsholt, Thomas, Høiby, Niels, Jensen, Peter Østrup, Phipps, R., Shanmugham, Meenakshi, S., Alhede, M., Hultqvist, Louise Dahl, Jakobsen, Tim Holm, Tanner, D., Larsen, Thomas, O. & Givskov, Michael, 14 Jun 2012, IPC No. C07C 323/65 A I, Patent No. WO2012076016, Priority date 8 Dec 2010, Priority No. EP20100194154

Ajoene, a sulfur-rich molecule from garlic, inhibits genes controlled by quorum sensing
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Food as a source for quorum sensing inhibitors: iberin from horseradish revealed as a quorum sensing inhibitor of Pseudomonas aeruginosa
Jakobsen, Tim Holm, Bragason, S. K., Phipps, R. K., Hultqvist, Louise Dahl, van Gennip, M., Alhede, M., Skindersoe, M., Larsen, T. O., Høiby, Niels, Bjarnsholt, Thomas & Givskov, Michael, 2012, In: Applied and Environmental Microbiology. 78 , 7, p. 2410-2421 12 p.

Synergistic antibacterial efficacy of early combination treatment with tobramycin and quorom sensing inhibitors against Pseudomonas aeruginosa in an intraperitoneal foreign-body infection mouse model.
Hultqvist, Louise Dahl, van Gennip, M., Jakobsen, Tim Holm, Alhede, M., Hougen, H. P., Høiby, Niels, Bjarnsholt, Thomas & Givskov, Michael, 2012, In: Journal of Antimicrobial Chemotherapy. 67, 5, p. 1198-1206 9 p.

Treatment of Pseudomonas Aeruginosa Biofilm Infections: An Experimental Study
Hultqvist, Louise Dahl, 2012

Imaging N-acyl homoserine lactone quorum sensing in vivo
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Qualitative and quantitative determination of quorum sensing inhibition in vitro
Jakobsen, Tim Holm, van Gennip, M., Hultqvist, Louise Dahl, Bjarnsholt, Thomas & Givskov, Michael, 1 Jan 2011, In: Methods in Molecular Biology. 692, 3, p. 253-263 11 p.

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Polymorphonuclear leucocytes consume oxygen in sputum from chronic Pseudomonas aeruginosa pneumonia in cystic fibrosis
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***Pseudomonas aeruginosa* recognizes and responds aggressively to the presence of polymorphonuclear leukocytes**
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Impact of Pseudomonas aeruginosa quorum sensing on biofilm persistence in an in vivo intraperitoneal foreign-body infection model

Hultqvist, Louise Dahl, Moser, C., Jensen, Peter Østrup, Rasmussen, T. B., Christophersen, L., Kjelleberg, S., Kumar, N., Høiby, Niels, Givskov, Michael & Bjarnsholt, Thomas, 2007, In: Microbiology. 153, Pt 7, p. 2312-20 8 p.