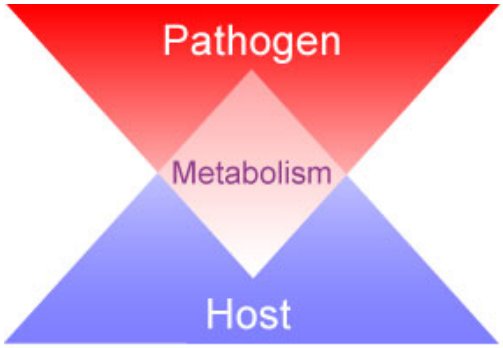

Metabolism Meets Virulence

International Symposium 4.-7. April 09, Hohenkammer, near Munich, Germany

Programme (as of 18.3.09)

Suggested chair person
Invited speakers (30 + 5 min discussion)
Short presentations from abstracts (about 15 min incl. discussion)

4. 4. 09, Saturday

From 12:00 Registration

14:00 – 14.15 Welcome (J. Heesemann/Leopoldina, E. Ron/FEMS, M. Hensel/DFG-SPP)

14.15 - 16:00, Session 1: General aspects of bacterial metabolism

Chair: Jürgen Heesemann

Milton H. Saier (La Jolla, USA)

Regulation of carbon utilization in Gram-negative bacteria

Wolfgang Hillen (Erlangen, Germany)

Physiological and structural requirements for carbon catabolite regulation in Gram-positive bacteria

Eliora Ron (Tel Aviv, Israel)

Temperature-dependent proteolysis as a control element in bacterial metabolism

Dirk Bumann (Basel, Switzerland)

In vivo and in silico analysis of *Salmonella* nutrition and metabolism during infection

16:00 - 16:30 Coffee break

16:30 – 18:00, Session 2: RNA biology in bacterial metabolism and virulence

Chair: Werner Goebel

Jörg Vogel (Berlin, Germany)

How small non-coding RNAs control the making and breaking of sugars

Tina Henkin (Columbus, USA)

Riboswitch-mediated regulation

Tools for metabolic analyses of pathogen

Volker Behrends (London, UK)

Time-resolved metabolic profiling, a tool for pathogen characterization

Barry L. Wanner (West Lafayette, USA)

www.EcoliHub.org - an interoperable information resource

18:30 Dinner

20:30- 21:30 Keynote Lecture

Chair: August Böck

Frederick Neidhardt (Ann Arbor, USA)

Growth meets virulence: Confluence of two paths of microbiology

From 21:30 Informal get together

5. 4. 09, Sunday

9:00 – 10:30, Session 3: Global regulation of bacterial metabolism

Chair: Wolfgang Hillen

Regine Hengge (Berlin, Germany)

Role of cyclic-di-GMP in the coordination of growth phases, the general stress response and biofilm formation of *E. coli*

Jörg Stülke (Göttingen, Germany)

Coordination of metabolism and gene regulation by trigger enzymes

P. Gilot (Nouzilly, France)

The Frz carbohydrate metabolic system of *Escherichia coli*: a new environmental sensor?

10:30 Coffee Break

11:00 – 12:30, Session 4: Metabolic adaptations of pathogens with extracellular lifestyle

Chair: Christine Josenhans

Richard A. Proctor (Madison (USA)

The crossroads of staphylococcal metabolism and virulence factor synthesis

Steven Lory (Boston, USA)

Sensing the world - how *Pseudomonas aeruginosa* assimilates and processes environmental signals

Tyrrell Conway (Oklahoma, USA)

E. coli metabolism in the intestine

12:30 Lunch

14:00 – 16:00, Session 5: Metabolic adaptation of pathogens with intracellular lifestyle

Chair: Dirk Bumann

Werner Goebel (Germany)

Metabolism of intracellular bacterial pathogens in the cytosol of mammalian cells

Carmen Buchrieser (Paris, France)

Intracellular metabolism of *Legionella pneumophila*

Hubert Hilbi (Zürich, Switzerland)

Virulence and gene regulation of the vacuolar pathogen *Legionella pneumophila*

Marta Szaszak (Lübeck, Germany)

Metabolic profiling of *Chlamydia*-infected cells by two-photon microscopy

Matthias Wilmanns (Hamburg, Germany)

Selective inhibition of a bifunctional enzyme from *M. tuberculosis* that catalyses isomerization reactions in histidine and tryptophan biosynthesis

16:00 Coffee Break

16:30 – 18:30 Poster session

Title (corresponding or presenting author)

- Small non-protein-coding RNAs - a regulatory link to the phenotype and metabolism of *Staphylococcus aureus*? (Becker, Karsten)
- Metabolic effects of the *mucA* mutation in *Pseudomonas aeruginosa* (Behrends, Volker)
- New architectures for Tet-ON and Tet-OFF regulation in *Staphylococcus aureus* (Bertram, Ralph)
- Multiple CUT1 ABC trasporter permeases, involved in the virulence of *Streptococcus pneumoniae*, are served by a single orphan ATP binding protein (Bidossi, Alessandro)
- Effect of the *Staphylococcus aureus* catabolite control protein A on capsule production, biofilm formation and *tst* expression. Bischoff, Markus
- Modelling of metabolism during bacterial intracellular infections (Dandekar, Thomas)
- Regulators of *Yersinia pseudotuberculosis* virulence alter carbon metabolism, transport and lipids (Dersch, Petra)
- Progress in Isotopologue Profiling of Pathogenic Bacteria (Eylert, Eva)
- Homolactic acid fermentation has an impact on virulence of group A Streptococci (Fiedler, Tomas)
- Role of glutamine transporters on expression of virulence factors and pathogenesis of pneumococci (Hammerschmidt, Sven)
- Metabolic pathways in *Streptococcus pneumoniae* as analyzed by ^{13}C-isotopologue profiling and ^{1}H-NMR metabolomics (Hammerschmidt, Sven)
- The AHL-LuxR receptor Plu4562 of the insect pathogen *Photorhabdus luminescens (*Heermann, Ralf)
- The intracellular metabolism of *Legionella pneumophila* (Herrmann, Vroni)
- Role of various metabolic pathways for the intracellular lifestyle of *Salmonella* Typhimurium (Hölzer, Stefanie)

- Signal perception by the periplasmic domains of BvgS is involved in virulence regulation of the whooping cought agent (Jacob-Dubuisson, Françoise)
- Insights into the molecular mechanism of stimulus perception by CadC of *Escherichia coli*, a representative of the ToxR family (Jung, Kirsten)
- Regulators of *Yersinia pseudotuberculosis* virulence alter carbon metabolism, transport and lipids (Corresponding author: Kucklick, Martin)
- A novel RNA thermometer controls *Vibrio cholerae* virulence gene expression (Kortmann, Jens Frank)
- myo-Inositol metabolism of *Salmonella enterica* serovar Typhimurium (Kröger, Carsten)
- A reliable method for energy metabolite detection in *Staphylococcus aureus* and its kinase and phosphatase mutants by LC-MS(TOF) (Lalk, Michael)
- Control of LPS biosynthesis by FtsH-dependent proteolysis of LpxC in *Escherichia coli* (Langklotz, Sina)
- Characterization of the incomplete phosphotransferase system (PTS) in the intracellular pathogen *Brucella melitensis* (Letesson, Jean-Jacques)
- Role of a PTS-encoding locus in host colonization by pathogenic *Escherichia coli* (Le Bouguénec, Chantal)
- YERSY – A new database for comparative genomics of *Yersinia* (Münch, Richard)
- Genome scale reconstruction and modeling of the metabolic network in *Bacillus anthracis* (Panda, Gurudutta)
- HPr kinase/phosphorylase and PTS proteins: their role in *Neisseria meningitides* (Poncet, Sandrine)
- Identifying meningococcal proteins induced under iron-limitation by isobaric tandem mass tag (TMT®) labeling (Prinz, Thorsten)
- Intracellular metabolism of *Listeria monocytogenes* (Schauer, Kristina)
- The ability of an extraintestinal pathogenic *Escherichia coli* strain to metabolize fructooligosaccharides, a prebiotic, contributes to intestinal colonization (Schouler, Catherine)
- Differences in virulence between subspecies of *Francisella (F.) tularensis* are reflected in different gene expression profiles of human neutrophils (Seibold, Erik)
- Identification of drug target combinations in *Salmonella metabolism* in silico and in vivo (Steeb, Benjamin)
- Metabolism of *Pseudomonas aeruginosa* under simulated infection conditions (Wesche, Andrea)
- Mutation in the L,D-carboxypeptidase influence on multiplication and virulence (Yurov, Dmitry)

18:30 Dinner

20:00 – 21:15, Session 6: Coordination meeting of members of SPP1316 – Data mining, data handling, standardization and new approaches

Discussion leaders: Wolfgang Eisenreich, Thomas Dandekar, Richard Münch, An-Ping Zeng, Michael Hensel

6. 4. 09, Monday

8:30 – 10:30, Session 7: Approaches to an integrated understanding of bacterial metabolism and virulence

Chair: Eliora Ron

Michael Wagner (Vienna, Austria)

Isotope Raman Microspectroscopy and NanoSIMS to investigate the metabolism of intracellular bacteria

Jay Hinton (Norwich, UK)

Towards an integrated understanding of the detoxification of host defence factors by *Salmonella* Typhimurium

Rainer Breitling (Groningen, The Netherlands)

Metabolomics Systems Biology

Robert Howlett (Sheffield, UK)

Metabolomic analysis of the food-borne pathogen *Campylobacter jejuni*

10:30 Coffee break

11:00 – 12:30 Session 7, cont.

Michael Lalk (Greifswald, Germany)

Approaches to decipher the metabolism of *Staphylococcus aureus*

Session 8: Host-adapted metabolism of bacterial pathogens - Priority Programme 1316

Chair: Michael Hensel

Klaus Heuner (Berlin, Germany)

The metabolism of *Legionella pneumophila* - First experimental results

Gottfried Wilharm (Wernigerode, Germany)

Cross-talk between type three secretion system and metabolism in *Yersinia*

Petra Dersch (Braunschweig, Germany)

Host-adapted metabolic functions important for *Yersinia pseudotuberculosis* virulence

Thilo Fuchs (Munich, Germany)

Metabolic requirements of intracellularly replicating *Listeria monocytogenes*

12:30 Lunch

14:00 Departure by Bus

15:00 Guided tour to Munich

Participants have the choice between the guided tours in Munich with the following thematic topics (with English guides)

- Stadtrundgang durch die historische Altstadt / Wallk through the old part of Munich
- Barock und Rokoko in München/ Baroque and Rococo in Munich
- München zur Zeit des Nationalsozialismus / 'Third Reich' Tour
- Judentum in München – „Aber deine Mauern ruhn in mir" / Jewish history in Munich
- Königliches München – Residenz / Royal Munich – The Palace

19:00 Conference Dinner at Augustiner, Munich

7. 4. 09, Tuesday

8:30 – 10:30, Session 9: From parasitic to endosymbiotic lifestyles

Chair: Michael Wagner

Richard H. ffrench-Constant (Exeter, UK)

Photorhabdus: life in a symbiosis of pathogens

Roy Gross (Würzburg, Germany)

Nutritional upgrading for omnivorous carpenter ants by the endosymbiont *Blochmannia*

Andres Moya (Valencia, Spain)

Stages of metabolic adaptation of endosymbiotic bacteria

Wolfgang Eisenreich (Munich, Germany)

Isotopologue profiling of the metabolism and communication in *Ignicoccus hospitalis* and *Nanoarchaeum equitans*

10:30 Coffee Break

11:00 - 12:30, Session 10: Biofilms and bacterial communication

Chair: Steven Lory

Vanessa Sperandio (Dallas, USA)

Inter-kingdom chemical signaling in bacterial pathogenesis

Marco Oggioni (Sienna, Italy)

Local concentration of sialic acid as a signal for pneumococcal biofilm

Michael Hogard (Munich, Germany)

Metabolic marker genes of *Pseudomonas aeruginosa* adaptation during cystic fibrosis lung infection

Dirk Hofreuter (Yale, USA)

Metabolic diversity and tissue tropism of *Campylobacter jejuni*

Concluding remarks

12:30 Lunch

Departure