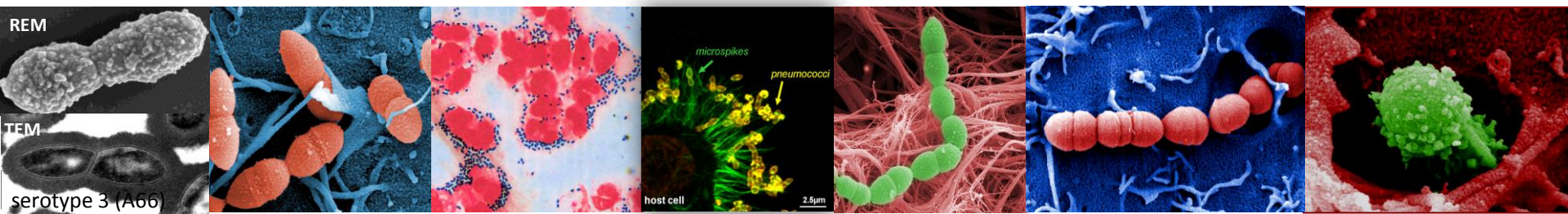




Pathogenesemechanismen bakterieller Erreger

Sven Hammerschmidt



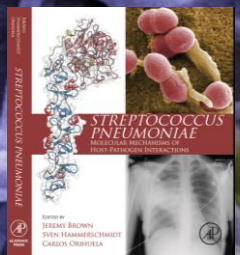
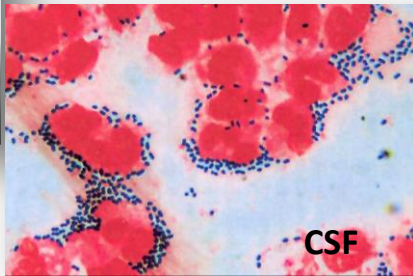
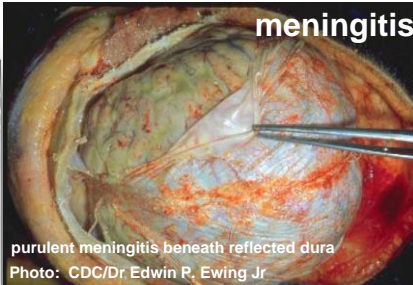
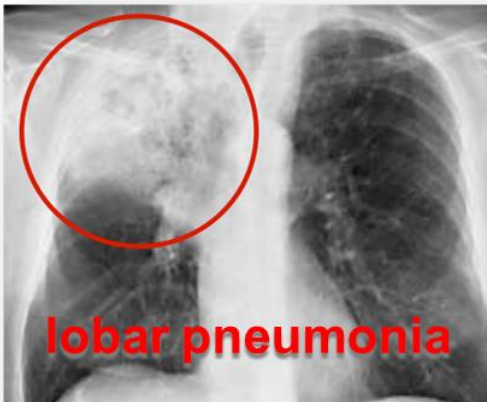
Erreger-Wirt-Interaktionen

Pneumokokken, Staphylokokken u.a.



Erreger-Wirt-Interaktionen

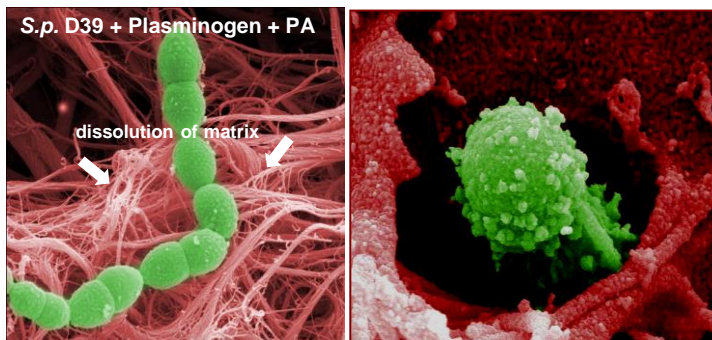
Pneumokokken



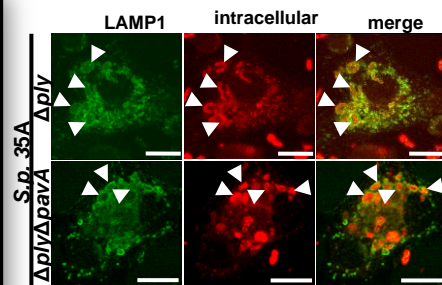
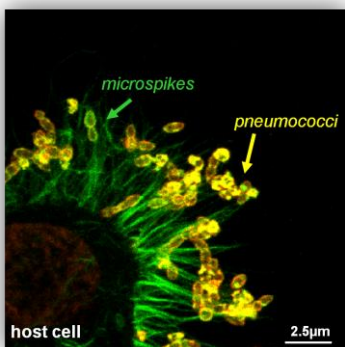
FORSCHUNGSSCHWERPUNKTE



Kolonisierung und Adaptation



Interaktionen mit der ECM bzw. Serumproteinen und Internalisierung Phagozytose durch Wirtszellen

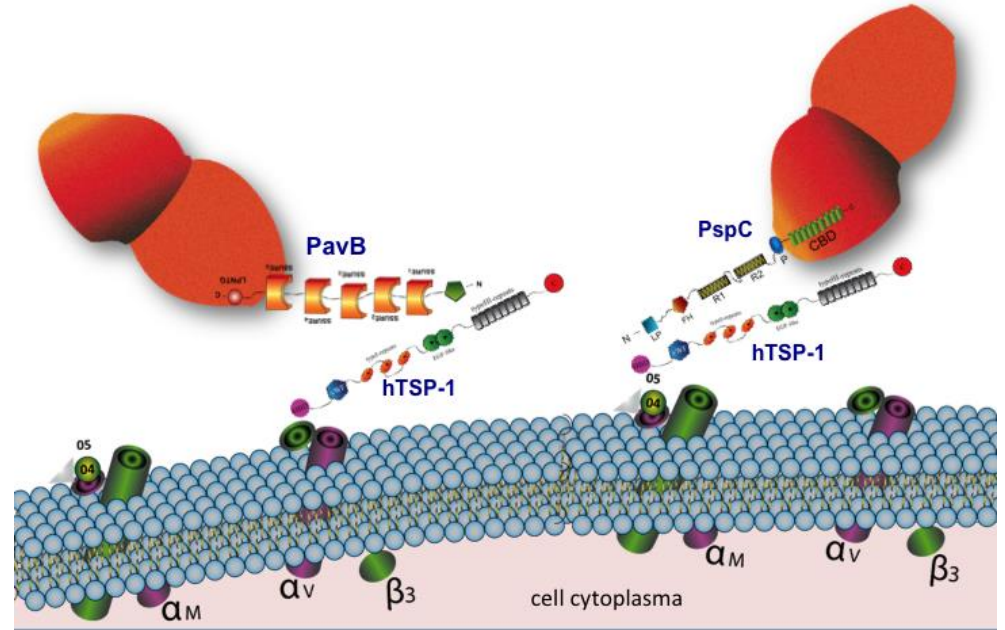
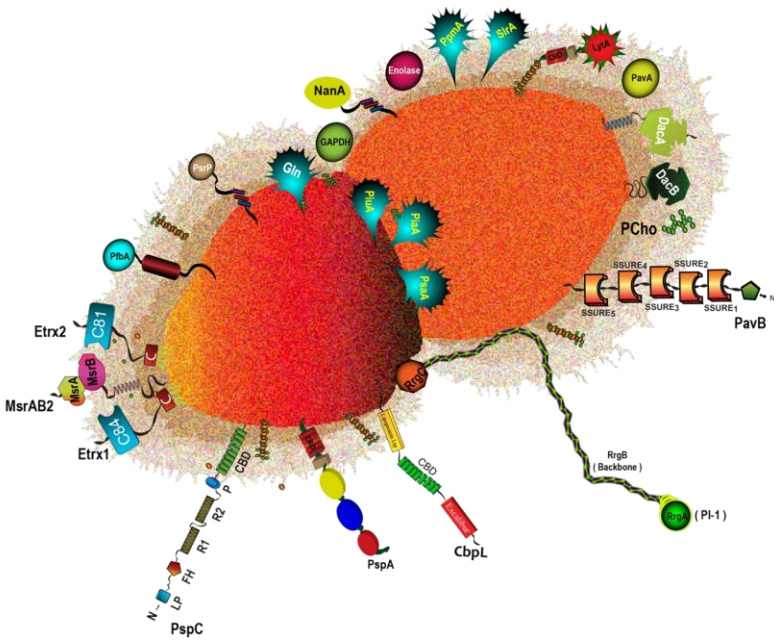


Dendritic cells and pneumococci

Signaling und Immunevasion

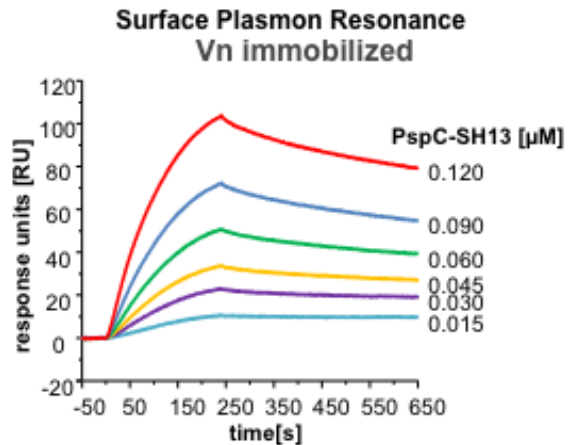
ERREGER-WIRT-INTERAKTIONEN

adapted from Gámez and Hammerschmidt (2012) *Curr Drug Target* 13: 323-337

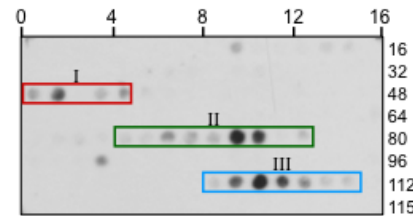


Ulrike Binsker *et al.*, (2015) *J Biol Chem* 290: 14542-14555

Protein-Protein-Interaktionen



SCR8-11
Factor H



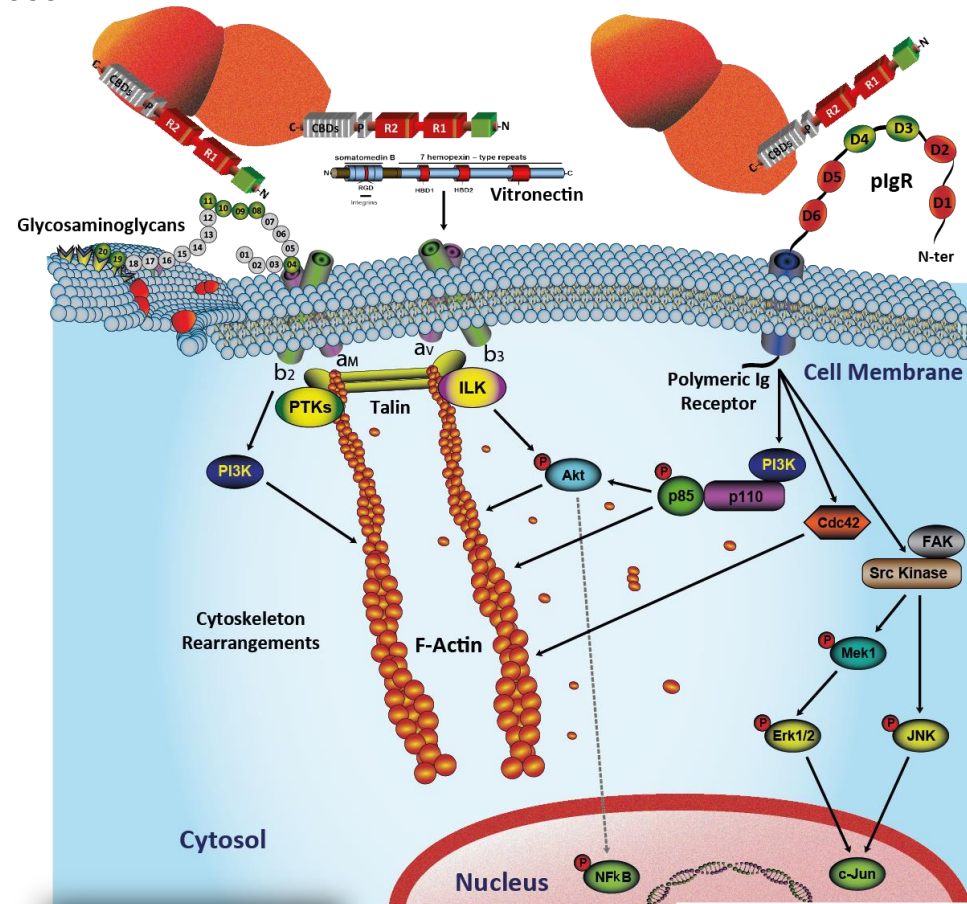
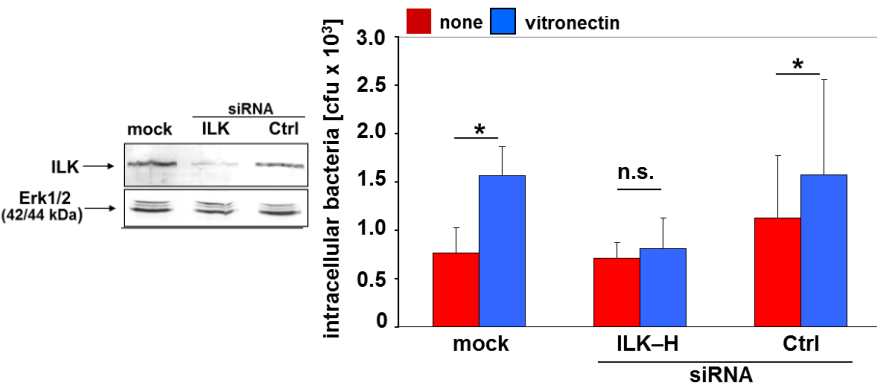
region	spots	sequence	SCR
I	33 – 37	510 – DIPVFMNARTKNDFTWFKLN – 529	SCR9
II	69 – 77	582 – RKKDQYKVGELVKFSQKPGFTIVGPNV – 609	SCR10
III	106 – 112	656 – EYYC_NPRFLMKGPNKIQCVDGEWT – 679	SCR11

Hammerschmidt *et al.* (20007) *J Immunology* 178: 5848 –5858.

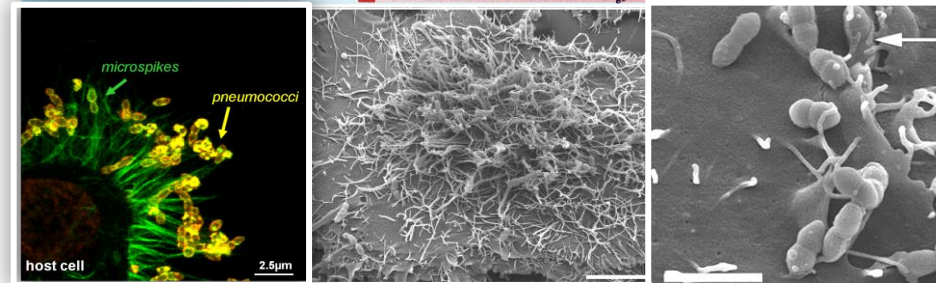
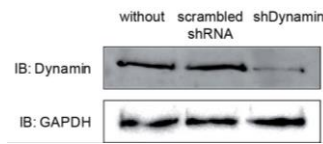
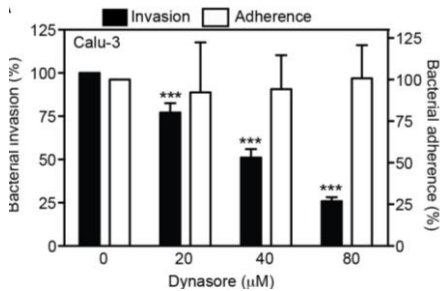
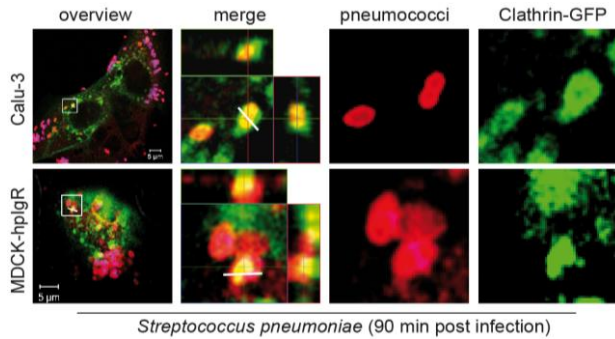
Sylvia Voß *et al.*, (2013) *J Biol Chem* 288:15614-15627.

SIGNALING UND INTERNALISIERUNG

Signaling induced in A549 lung epithelial cells via pneumococci

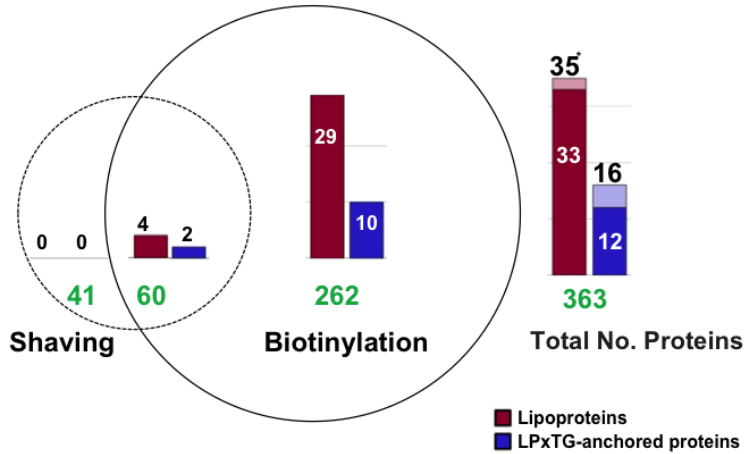


Endocytosis of pneumococci

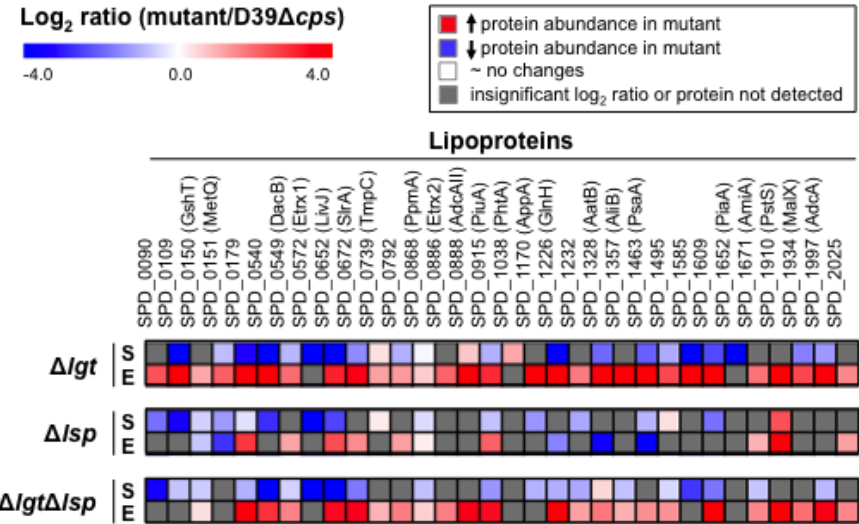


PROTEOMANALYSE PNEUMOKOKKEN

Surface proteome



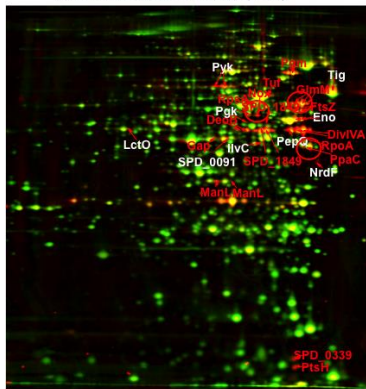
Surface proteome of Lipoprotein maturation mutants



Pribyl et al., 2014 J Proteome Res

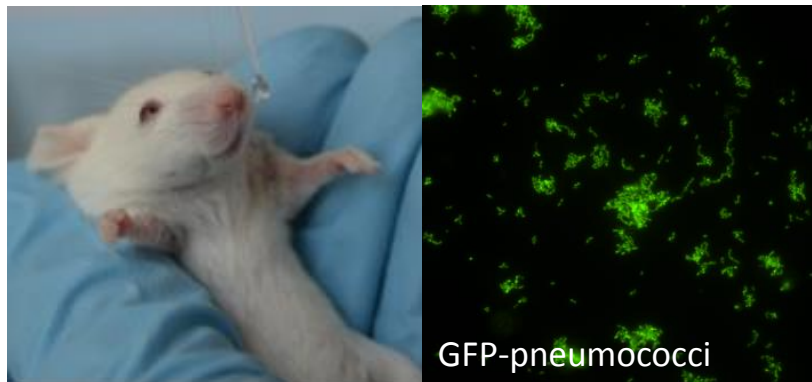
Phosphoproteome

WT in chemical defined media (CDM)



Hentschker, .., Hammerschmidt, Becher (in preparation)

In vivo proteome



Kooperationen:

AG Dörte Becher

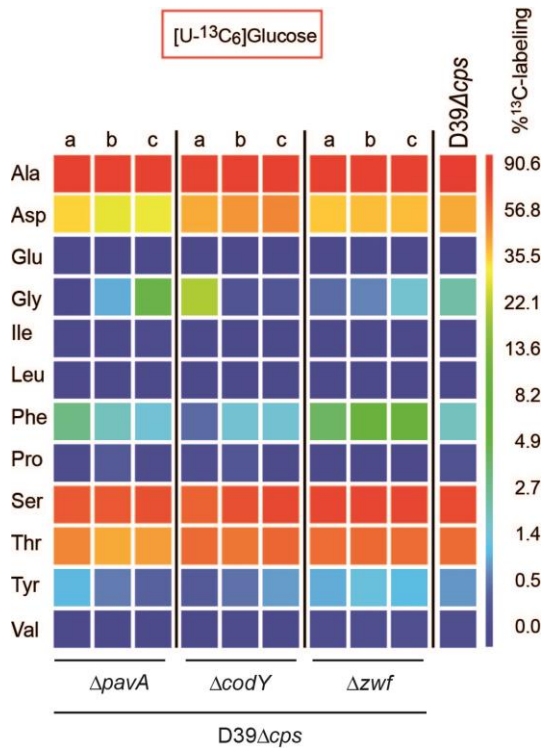
AG Uwe Völker

Frank Schmidt

METABOLOMICS, REGULATION UND VIRULENZ

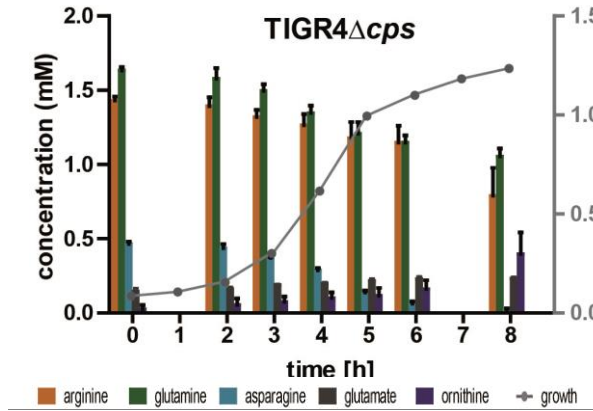
Isotopologomics

[U-¹³C₆]Glucose

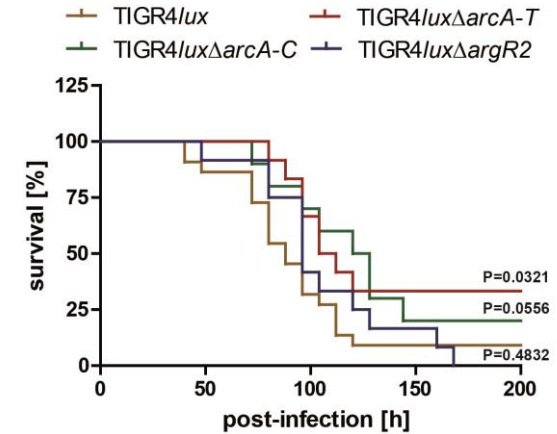


Härtel et al., 2012 JBC

Regulation Arginin-Deiminase System



Schulz et al., 2014 mBio



Kooperationen:

AG Michael Lalk

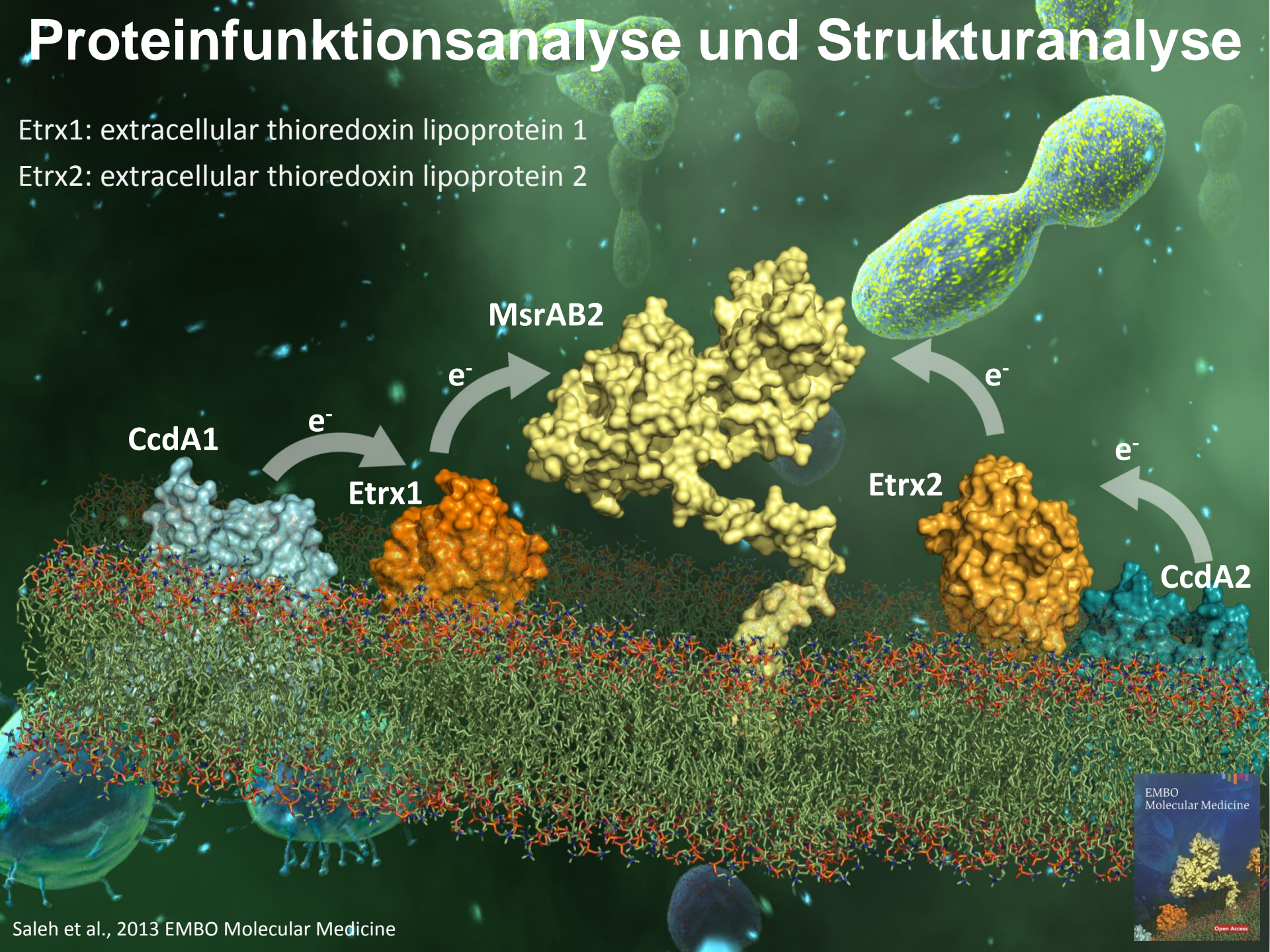
AG Uwe Völker

Ulrike Mäder

Proteinfunktionsanalyse und Strukturanalyse

Etrx1: extracellular thioredoxin lipoprotein 1

Etrx2: extracellular thioredoxin lipoprotein 2

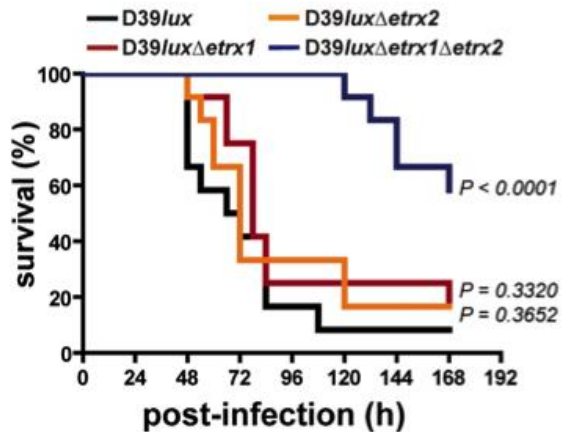


EMBO
Molecular Medicine

Open Access

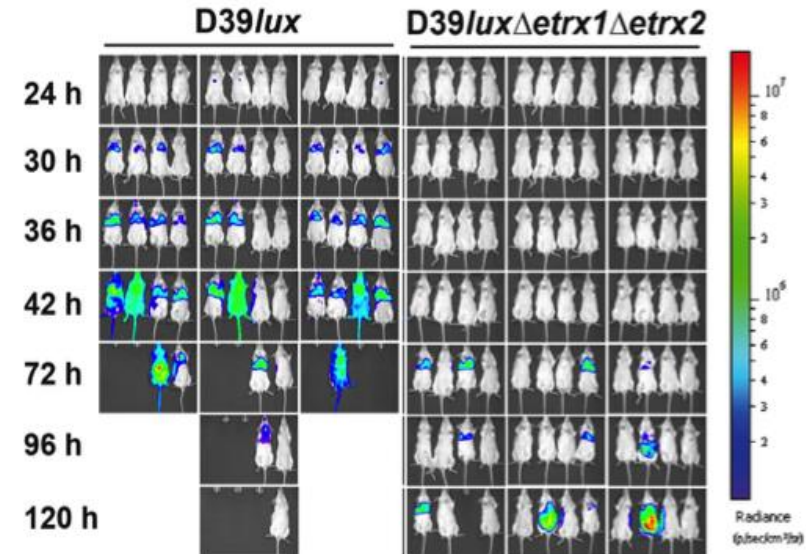
Das Pneumokokken – Pneumonie Modell

Etrx1: SPD_0572; Etrx2: SPD_0886



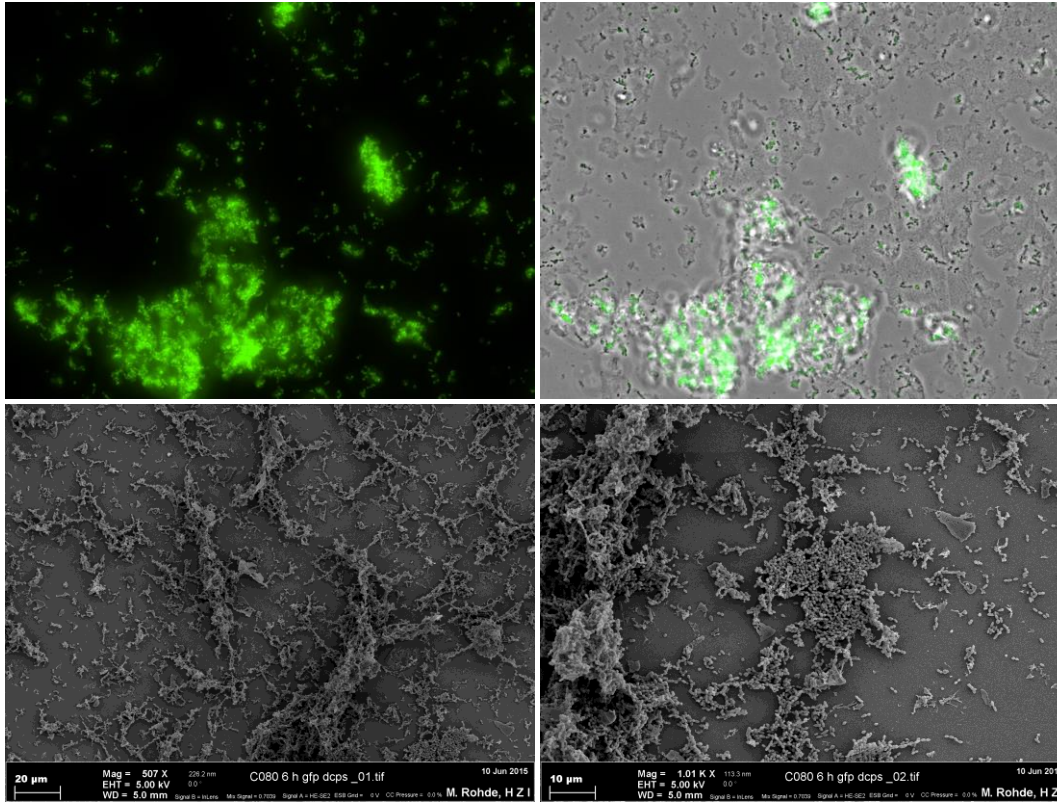
Welche Rolle spielen Oberflächenproteine in der Pathogenese der Pneumokokken

Bioimaging



- Kolonisierungsmodell(e)
- Pneumonie-Modell (*S. pneumoniae* und *S. aureus*)
- Skin-Infection model (*S. aureus*)
- Sepsis-Modelle
- Meningitis-Modell (in Kooperation)

S. pneumoniae C080gfp

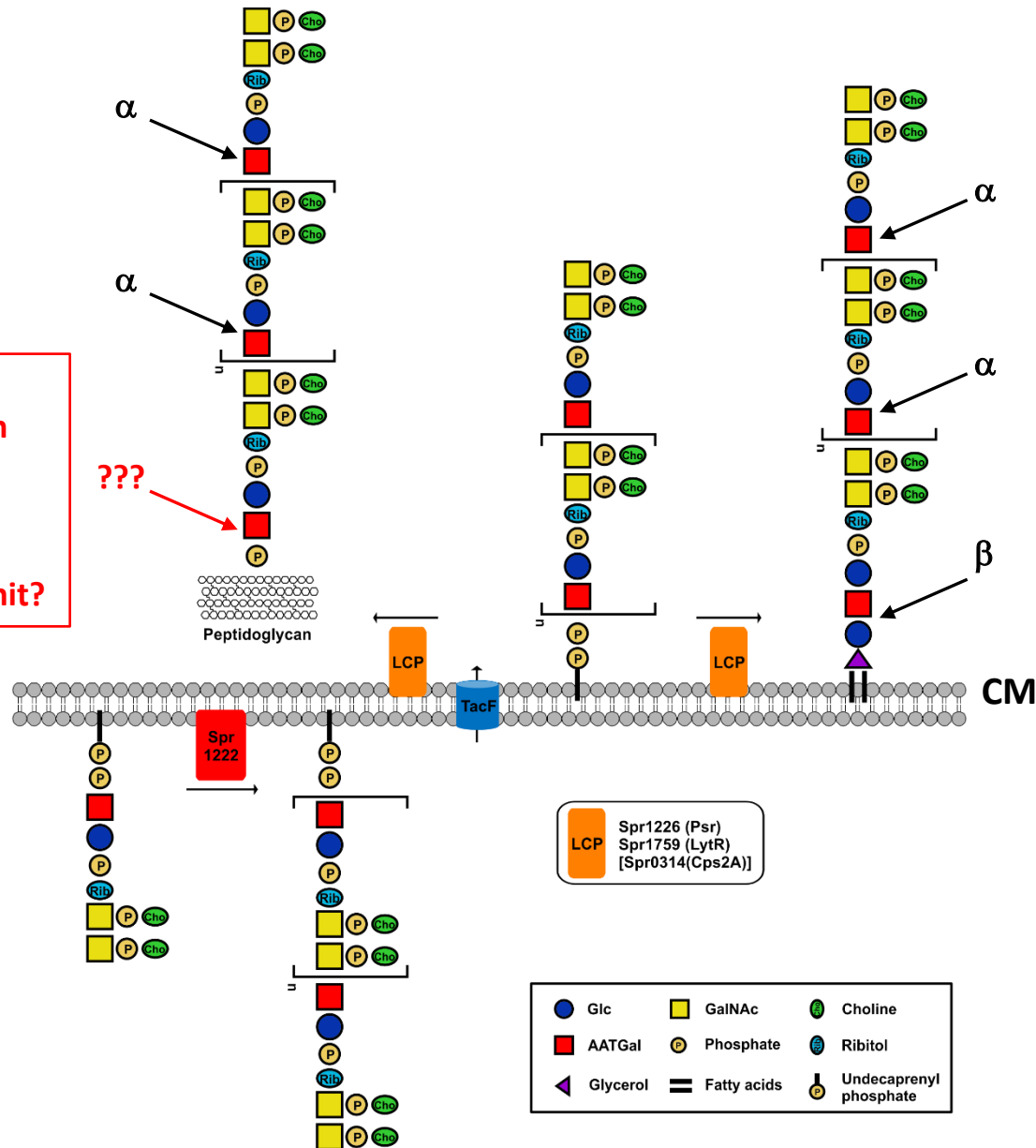


- **Statisch**
- **Dynamisch im Flusssystem**

Teichonsäure-Biosynthese und Verankerung WTA bzw. LTA in *Streptococcus pneumoniae*

WTA
 α - or β -configuration
of AATGal?

Direct linkage or
additional linkage unit?

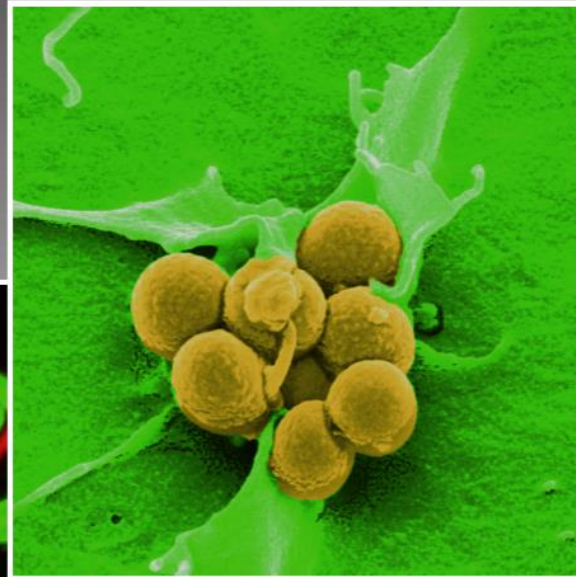
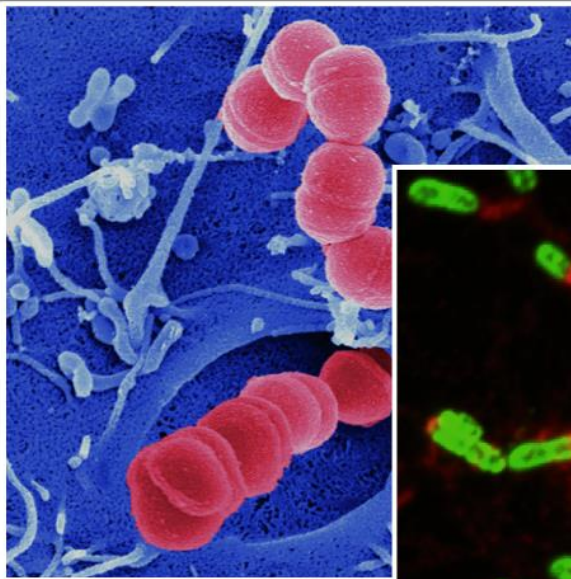


Kooperation mit
Dr. Nicolas Gisch

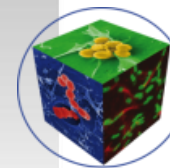


RTG 1870

Bacterial Respiratory Infections - Common and Specific Mechanisms of Pathogen Adaptation and Immune Defence



Sprecher: S. Hammerschmidt



GRK 1870
Bacterial Respiratory Infections

Deutsche
Forschungsgemeinschaft

DFG