

Das Mikrobiom der Atemwege bei CF

Chronische Pseudomonasinfektionen bei CF

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Allergologie und Neonatologie

Medizinische Hochschule Hannover

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THE HUMAN

Bacteria, fungi, and viruses outnumber human cells in the body by a factor of 10 to one. The microbes synthesize key nutrients, fend off pathogens and impact everything from weight gain to perhaps even brain development. The Human Microbiome Project is doing a census of the microbes and sequencing the genomes of many. The total body count is not in but it's believed over 1,000 different species live in and on the body.

25 SPECIES

in the **stomach** include:

- *Helicobacter pylori*
- *Streptococcus thermophilus*

500-1,000 SPECIES

in the **intestines** include:

- *Lactobacillus casei*
- *Lactobacillus reuteri*
- *Lactobacillus gasseri*
- *Escherichia coli*
- *Bacteroides fragilis*
- *Bacteroides thetaiotaomicron*
- *Lactobacillus rhamnosus*
- *Clostridium difficile*

MICROBIOME

600+ SPECIES

in the **mouth, pharynx and respiratory system** include:

- *Streptococcus viridans*
- *Neisseria sicca*
- *Candida albicans*
- *Streptococcus salivarius*

1,000 SPECIES

in the **skin** include:

- *Pityrosporum ovale*
- *Staphylococcus epidermidis*
- *Corynebacterium jeikeium*
- *Trichosporon*
- *Staphylococcus haemolyticus*

60 SPECIES

in the **urogenital tract** include:

- *Ureaplasma parvum*
- *Corynebacterium aurimucosum*

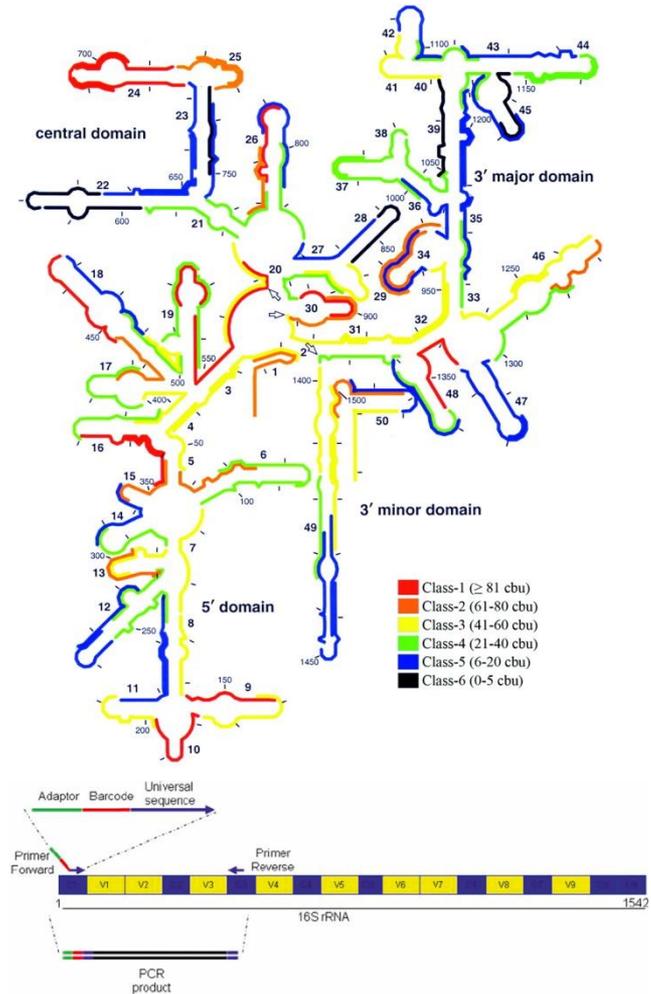
Kulturabhängige Diagnostik



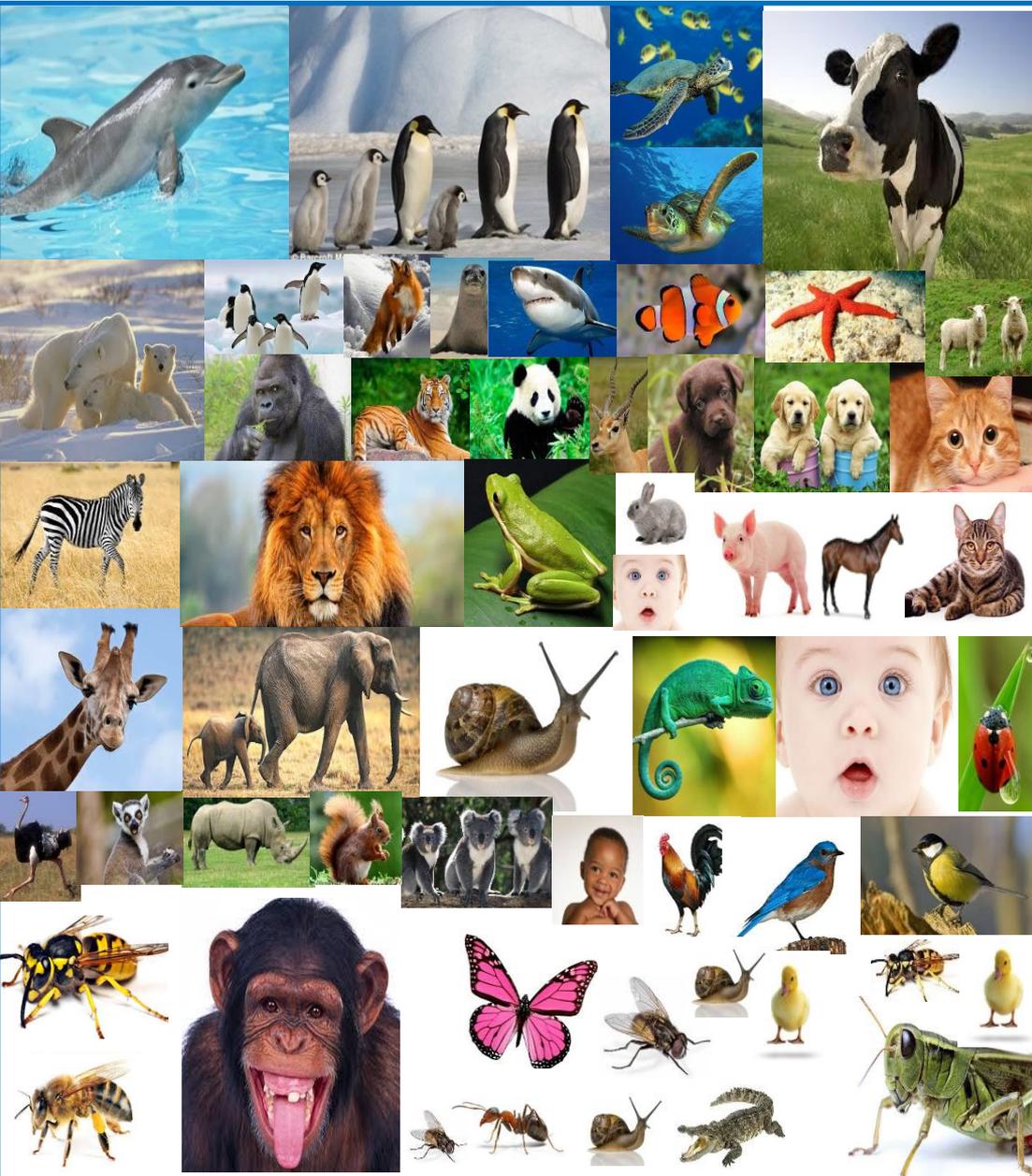
Kulturunabhängige Diagnostik



16S rRNA Sequenzierung:
Nachweis von Bakterien



Kulturunabhängige Diagnostik



Metagenomik:

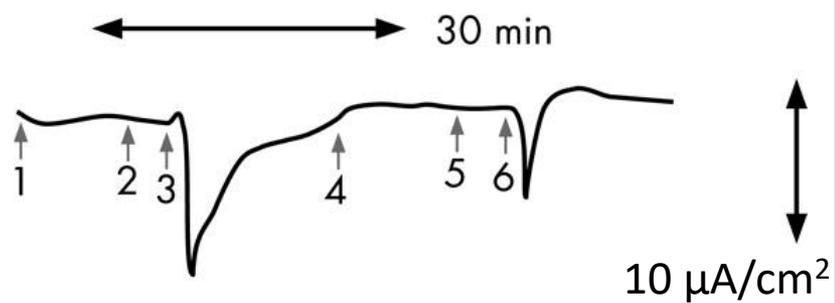
Hochdurchsatz-

Genomsequenzierung:

Nachweis von Viren,

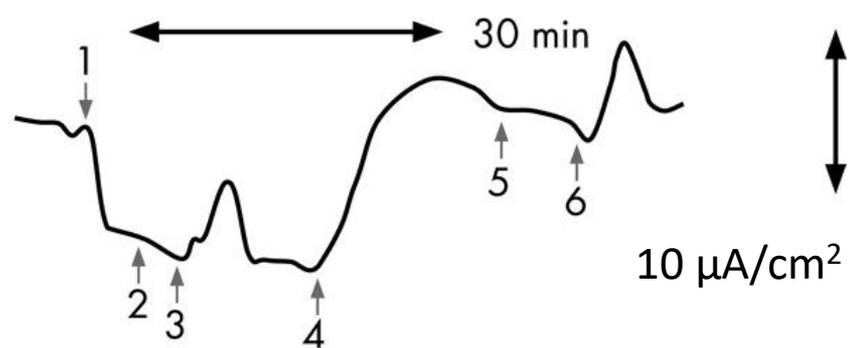
Bakterien, Pilzen

F508del/F508del



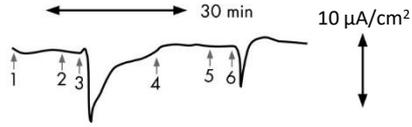
ICM: 0 μA/cm²

1898+3 A-G/1898+3 A-G



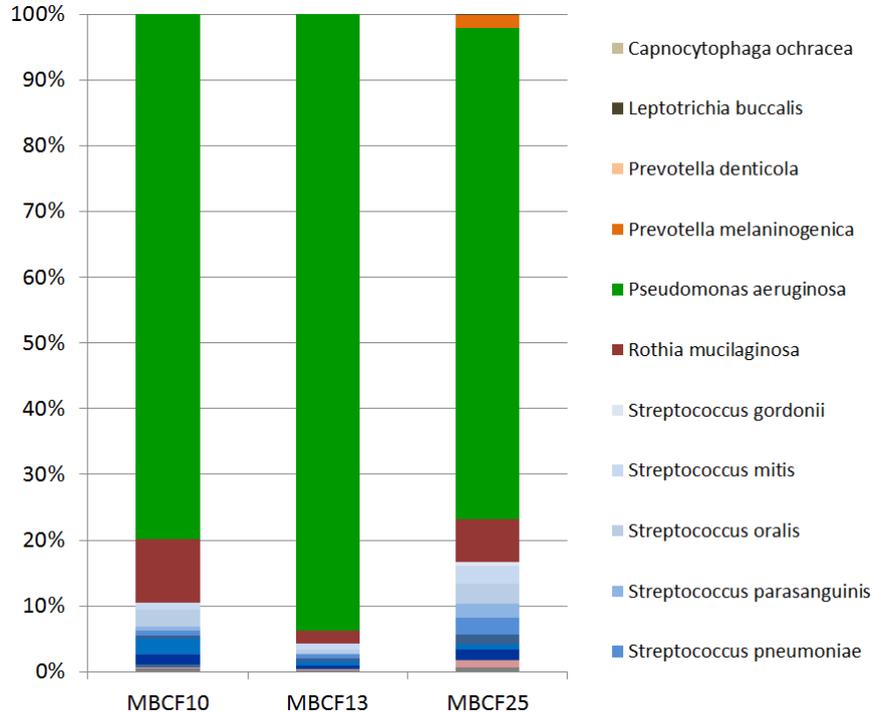
ICM: 24 μA/cm²

F508del/F508del

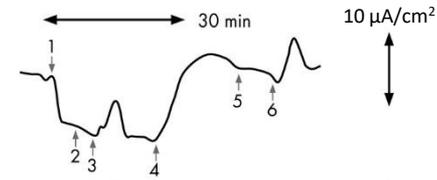


ICM: 0 $\mu\text{A}/\text{cm}^2$

Bacterial microbiome:

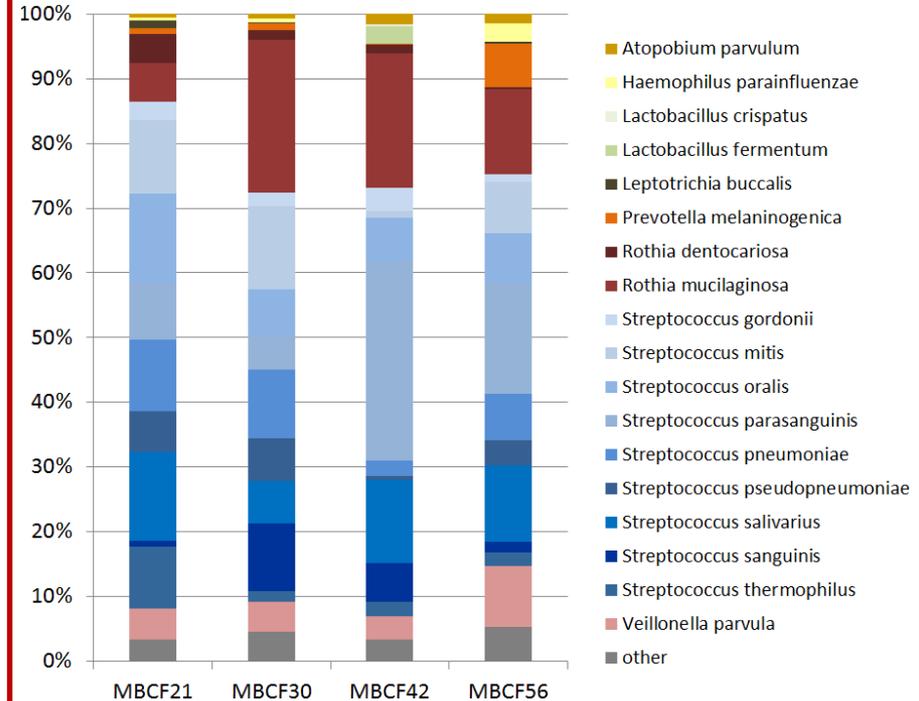


1898+3 A-G/1898+3 A-G

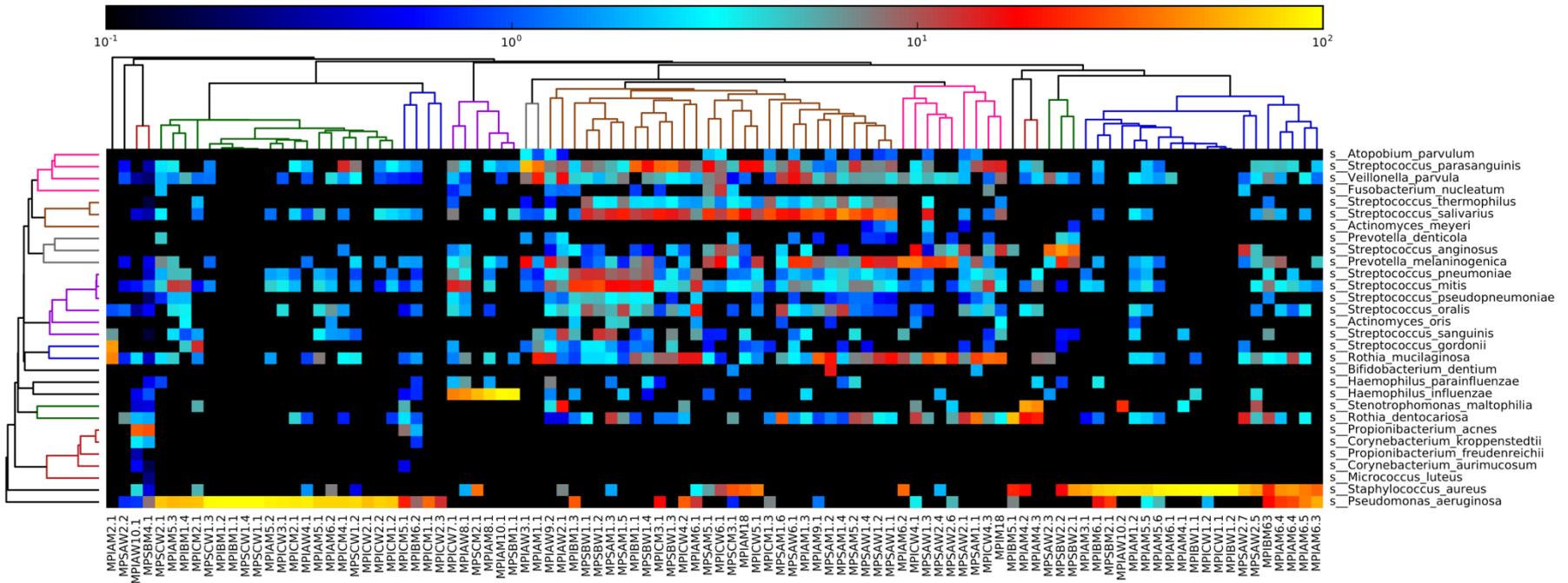


ICM: 24 $\mu\text{A}/\text{cm}^2$

Bacterial microbiome:

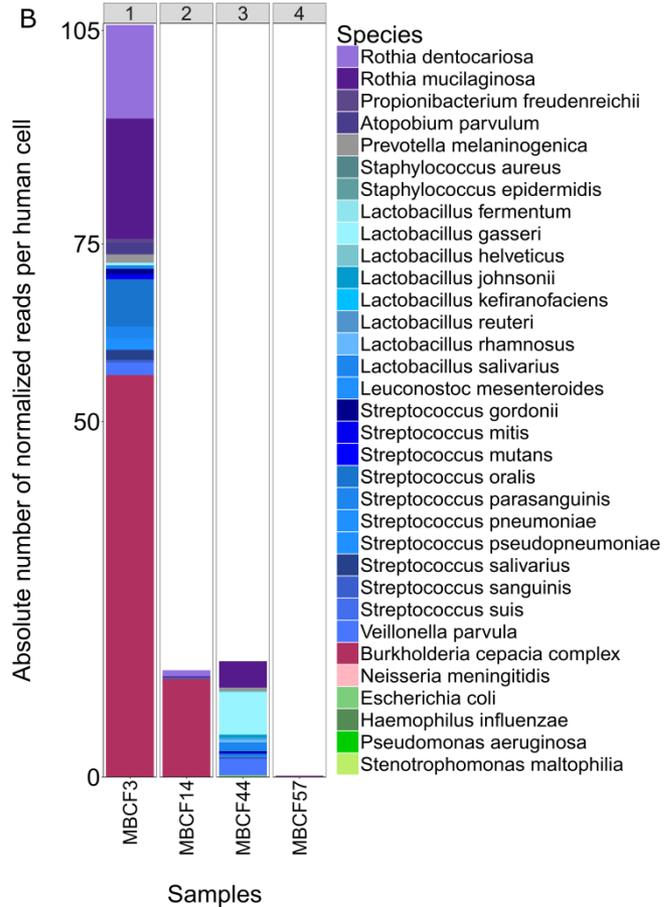
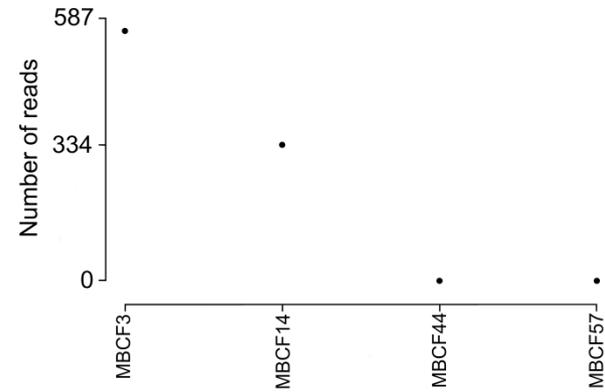


Das bakterielle Atemwegsmetagenom von CF Patienten (6 – 60 Jahre)

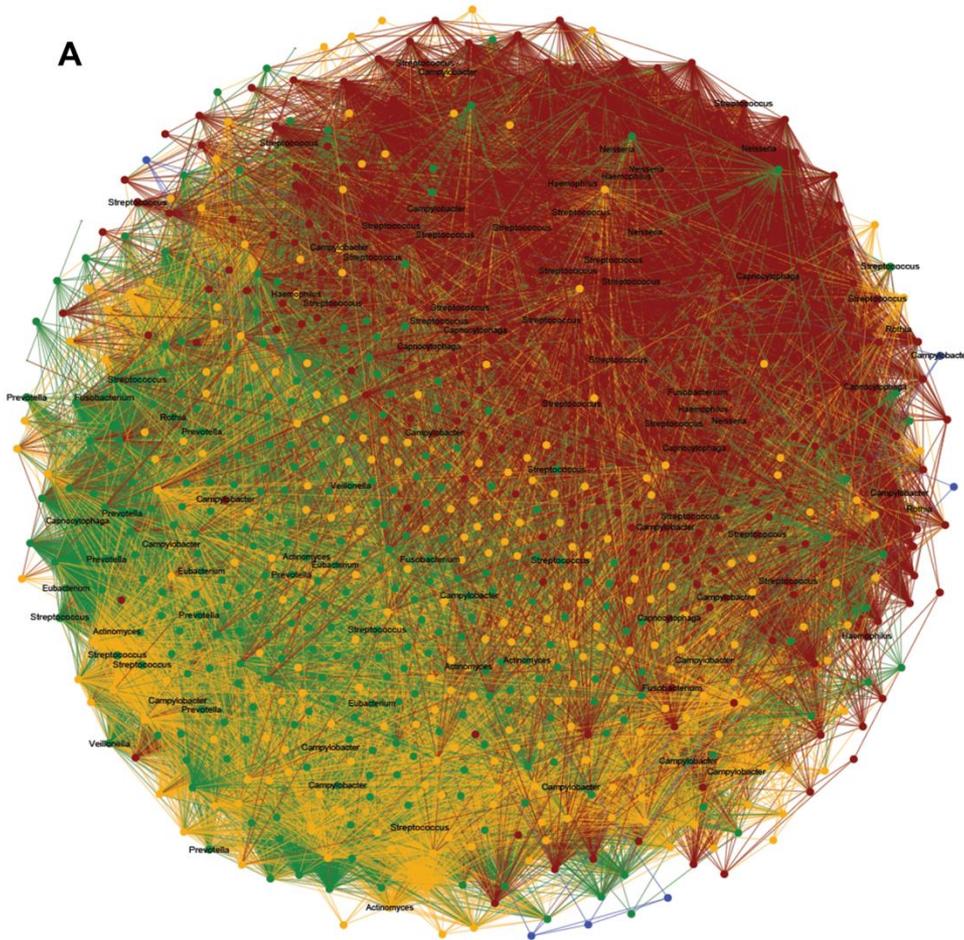


Fallbericht: Erfolgreiche Eradikation einer Infektion mit *Burkholderia multivorans*

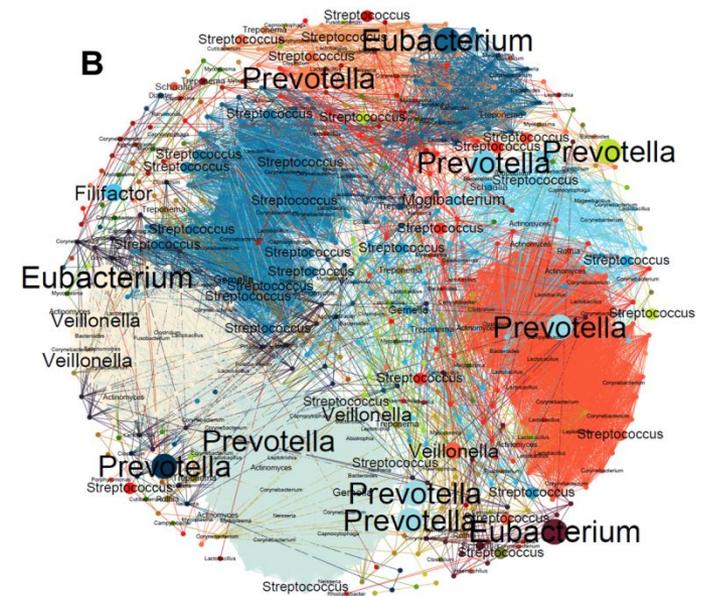
A *Burkholderia cepacia* complex phage



Das gesunde Atemwegsmikrobiom

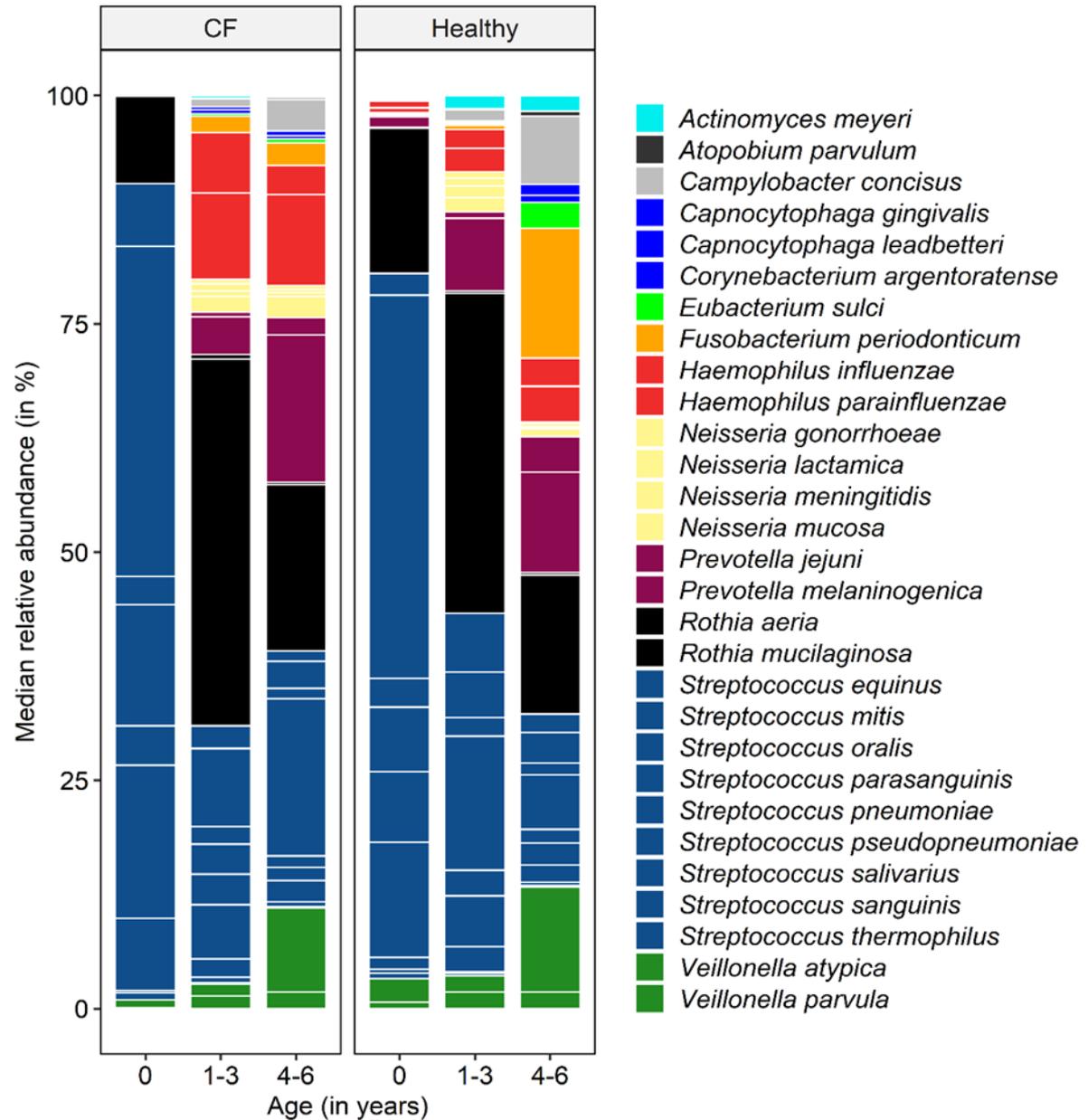


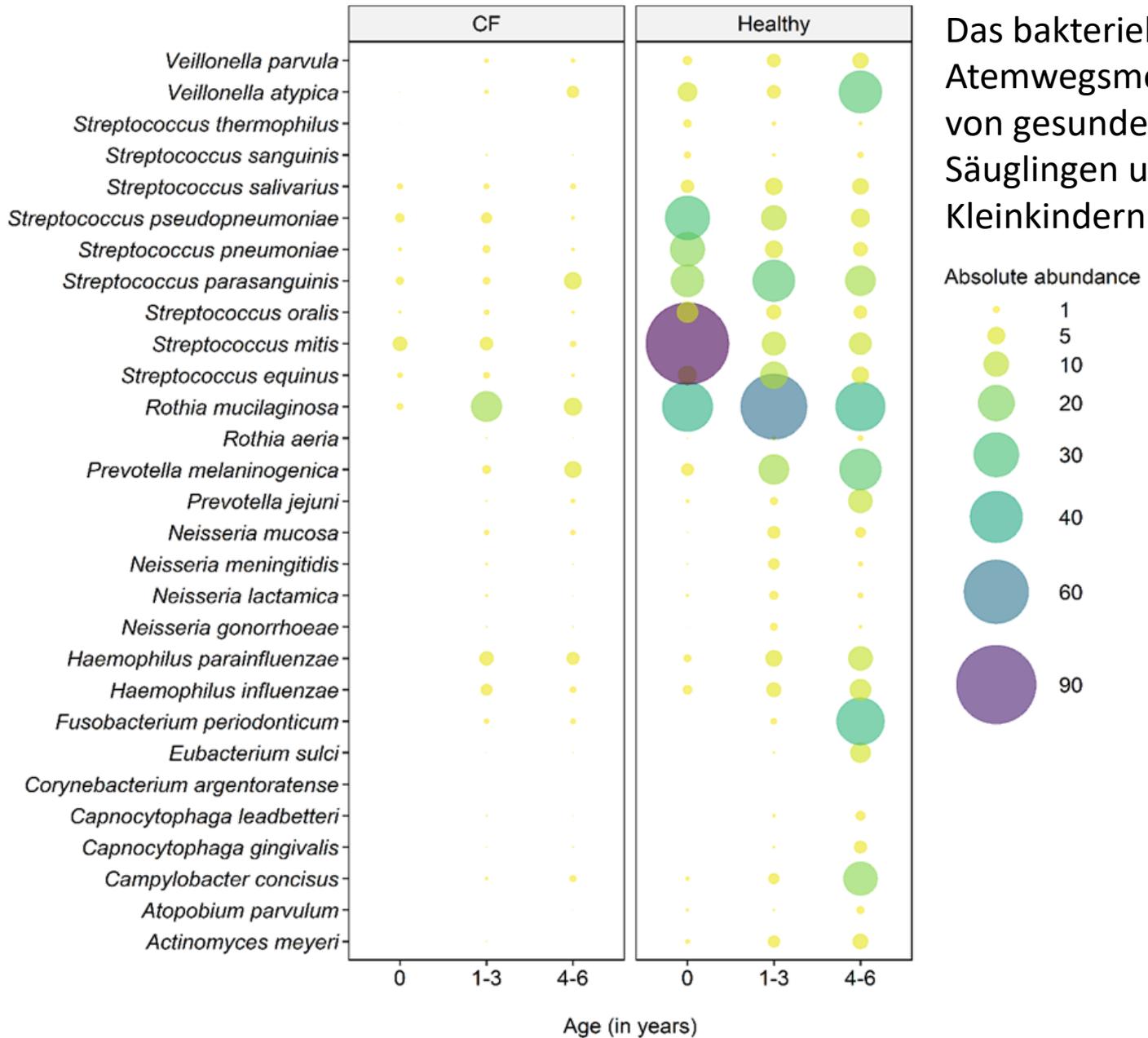
A: Kleinkinder



B: Erwachsene

Das bakterielle Atemwegsmetagenom von gesunden und CF Säuglingen und Kleinkindern





Das bakterielle Atemwegsmetagenom von gesunden und CF Säuglingen und Kleinkindern

