Conclusion. While rates of treatment failure in children diagnosed with CAP in the outpatient setting were low, macrolides were associated with a lower failure rate than treatment with β-lactams. This may be due to residual confounding by indication or changing epidemiology of outpatient pneumonia.

Disclosures. **T. Zaoutis**, Astellas: Consultant, Consulting fee; Merck: Grant Investigator, Research grant; nabriva: Consultant, Consulting fee.

85. Comprehensive Detection of Pathogens in Immunocompromised Children with Bloodstream Infections by Next-generation Sequencing

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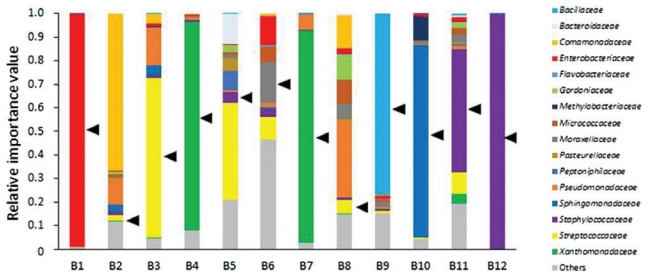
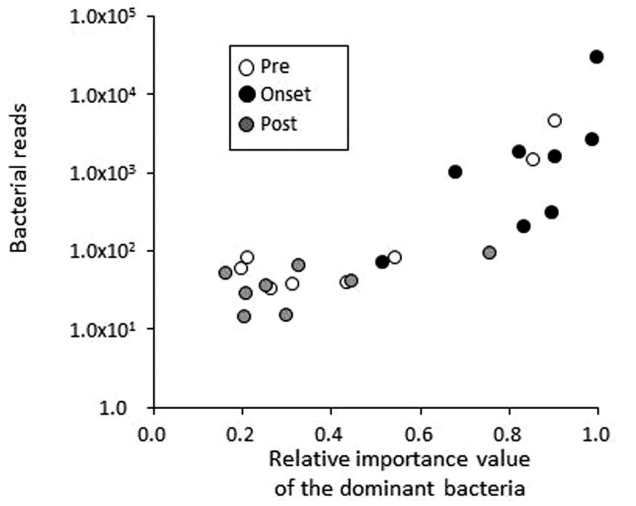
Background. Bloodstream infection (BSI) is a severe complication in immunocompromised patients. Prompt identification of causative microorganisms would improve the outcome of BSI due to optimization of antimicrobial treatment. Next-generation sequencing (NGS) allows us to analyze comprehensively and quantitatively all microorganisms present in a clinical sample in comparison with blood culture. However, there are currently no established methods to identify causative pathogens by NGS.

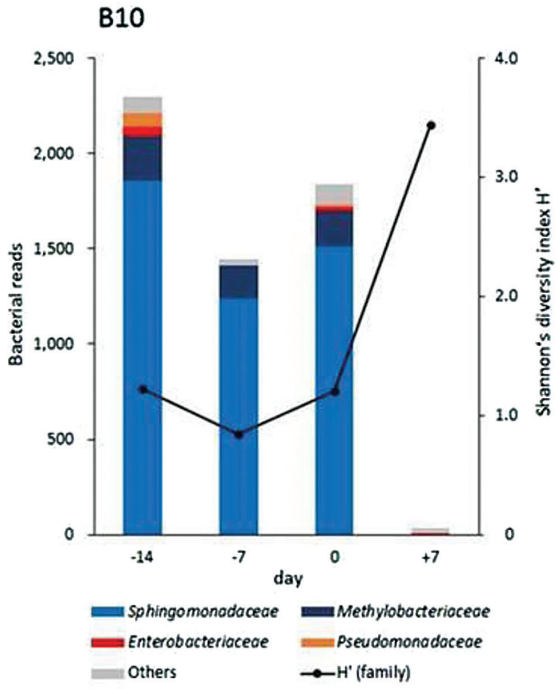
Methods. BSI was defined by the following criteria: (i) pathogen isolated from blood culture and (ii) fever ≥38.0°C or C-reactive protein >1.0 mg/dl. Thirty-five pediatric patients (12 with BSI and 23 with suspected BSI/negative blood culture) were enrolled. Plasma/serum samples were used for sequencing and the results were compared with those from blood culture. The bacterial reads per million reads of the sequence depth (BR) and relative importance values of the dominant bacteria (P1) were applied to identify causative pathogens.

Results. Sequencing reads of bacteria isolated in blood culture were identified by NGS in all plasma/serum samples at the onset of BSI. Additionally, bacteria isolated in blood culture were identical to the dominant bacteria by NGS in 8 of 12 patients with BSI. Causative microorganisms were detected when the NGS results fulfilled the criteria of BR >200 and P1 >0.5. In two patients with catheter-related BSI, causative bacteria were detected in the plasma/serum at 7 days before disease onset. Causative pathogens (*Tatlockia micdadei*, *Escherichia coli*, and *human adenovirus 2*) were identified in three of 23 patients in the suspected BSI group. A total of 62 resistance genes were detected in nine patients with sequences covering 5–100% of references.

Conclusion. An NGS-based approach has great potential for analysis of causative microorganisms in BSI and may help to diagnose a disease before disease onset. Antimicrobial resistance genes can also be found through sequence data processing.







Disclosures. **All authors:** No reported disclosures.

86. Passive Immunization with Anti-Pertussis Toxin Humanized Monoclonal Antibody Mitigates Clinical Signs of Pertussis Infection in Newborn Baboons

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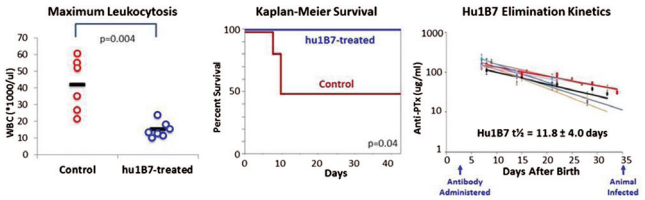
Background. Pertussis is a significant mortality risk in the developing world, killing up to 200,000 infants annually. Maternal vaccination as a strategy to protect newborns has shown some success, but is unlikely to capture all eligible mothers. Hu1B7 is a monoclonal antibody (mAb) that potently neutralizes pertussis toxin. Hu1B7, when administered as part of a binary mAb cocktail, demonstrated therapeutic efficacy in pertussis-infected weanling baboons. Here, the prophylactic potential of hu1B7 to protect infants during their first few months, when mortality risk is highest, was evaluated.

Methods. Neonatal baboons of normal gestational age (180 days ± 10), normal birth weight (~1.0 kg), and anti-Fha titer < 5 IU/ml (verifying no prior exposure to *Bordetella* species) were recruited into the study. At 2 days of age, treated baboons received hu1B7 (40 mg/kg, IV), while control animals were untreated. Serum levels of hu1B7 were followed for 5 weeks, at which time the animals were infected with 10^8 cfu of *B. pertussis* strain D420. Animals were monitored for clinical signs of disease.

Results. Six controls and seven treated animals were evaluated. All animals were heavily colonized with *B. pertussis* during the first week after infection. Controls developed significant leukocytosis, most coughed, and three required euthanasia. In contrast, white blood cell counts for all treated animals remained within the normal range, coughing was virtually absent, and all animals maintained normal activity. As expected for a humanized mAb in a nonhuman primate, hu1B7 had an elimination half-life of 11.8 ± 3.4 days.

Conclusion. Protection of newborn baboons from pertussis was achieved by mAb administration 5 weeks prior to pertussis infection. Hu1B7, when systemically present, mitigated the clinical signs of pertussis, including leukocytosis and coughing, but did not prevent bacterial colonization. Assuming a half-life in humans of 3 weeks, mAb administration at birth could potentially provide 4 months of prophylaxis and is a viable strategy to complement maternal vaccination. Moreover, strategies that extend the mAb half-life and lower the dose could further support developing world application.



Disclosures. **J. Maynard**, Synthetic Biologics, Inc.: Collaborator, Research support; **A. Nguyen**, Synthetic Biologics, Inc.: Collaborator, Research support; **R. Wolf**, Synthetic