

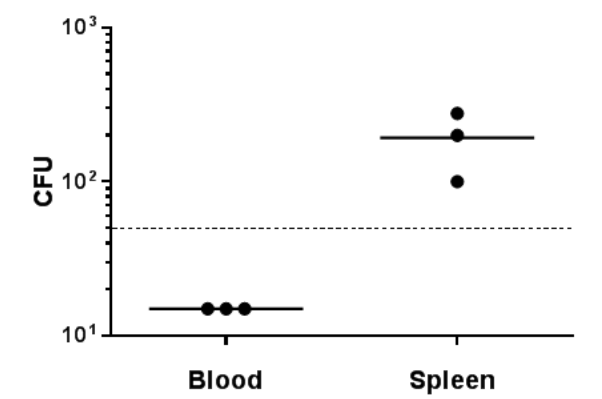
An intracellular phase at the initiation of sepsis for an extracellular pathogen - the pneumococcus

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Previous observations:

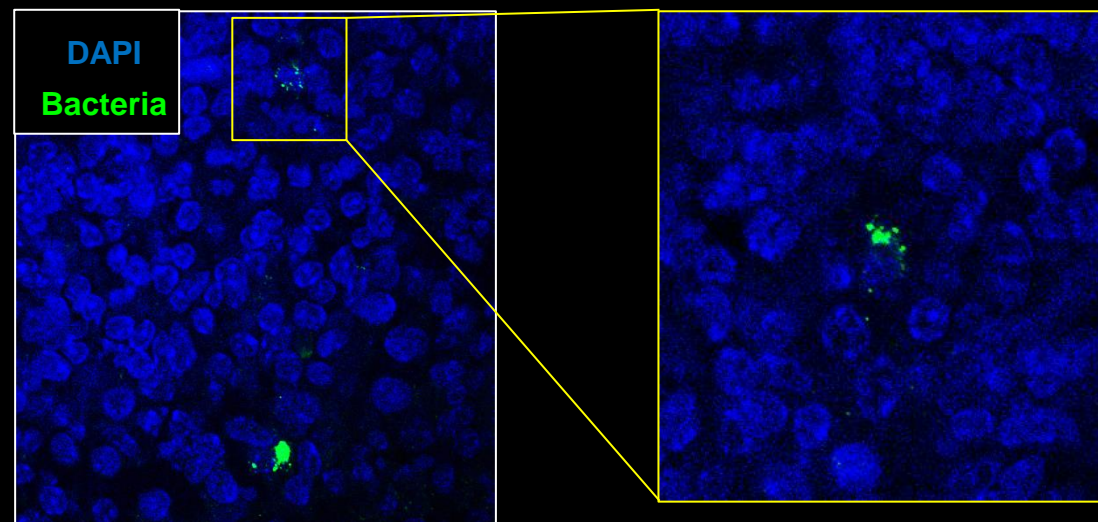
- A few hours after iv challenge of mice all bacteria are cleared from blood: the eclipse phase
- A few bacterial cells remain viable in the spleen a potential source for the subsequent bacteraemic phase



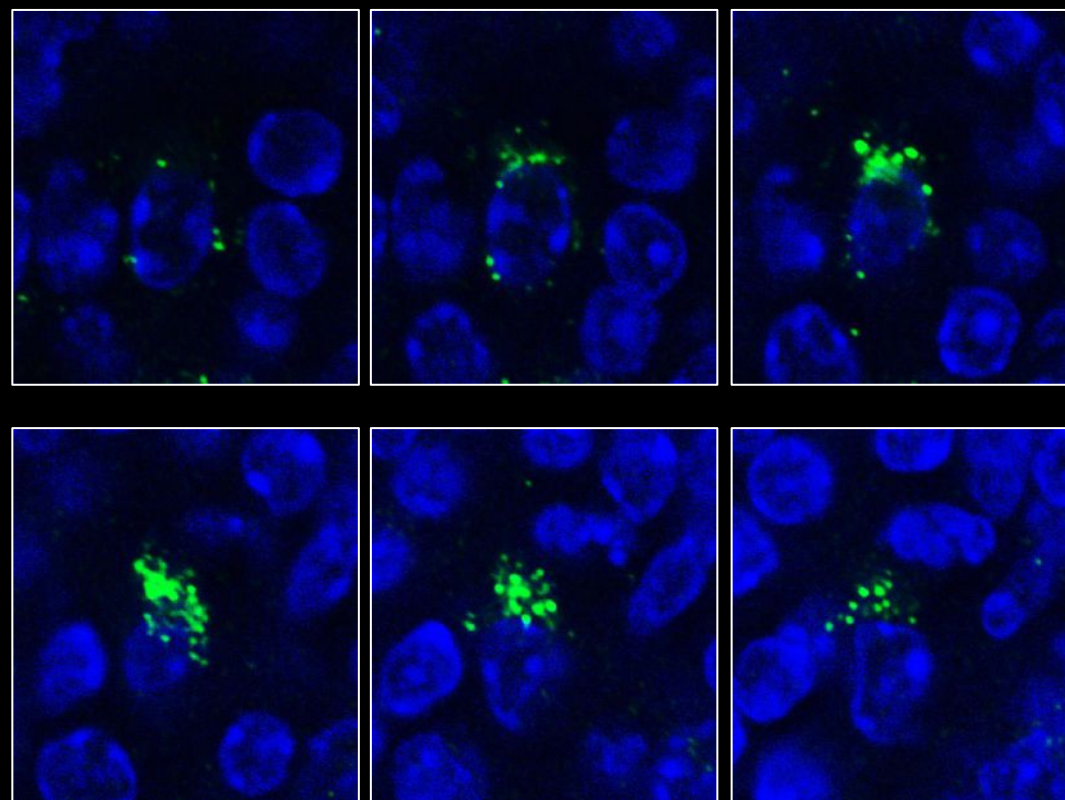
What are the events that underpin the pathogenesis of monoclonal pneumococcal bacteraemia?
Hypothesis: There is a privileged reservoir of pneumococci in the spleen

During the eclipse phase the spleen contains multiple foci of pneumococci

Intravenous infection with one million pneumococci in CD1 mice. Spleen samples were collected after 6 h.

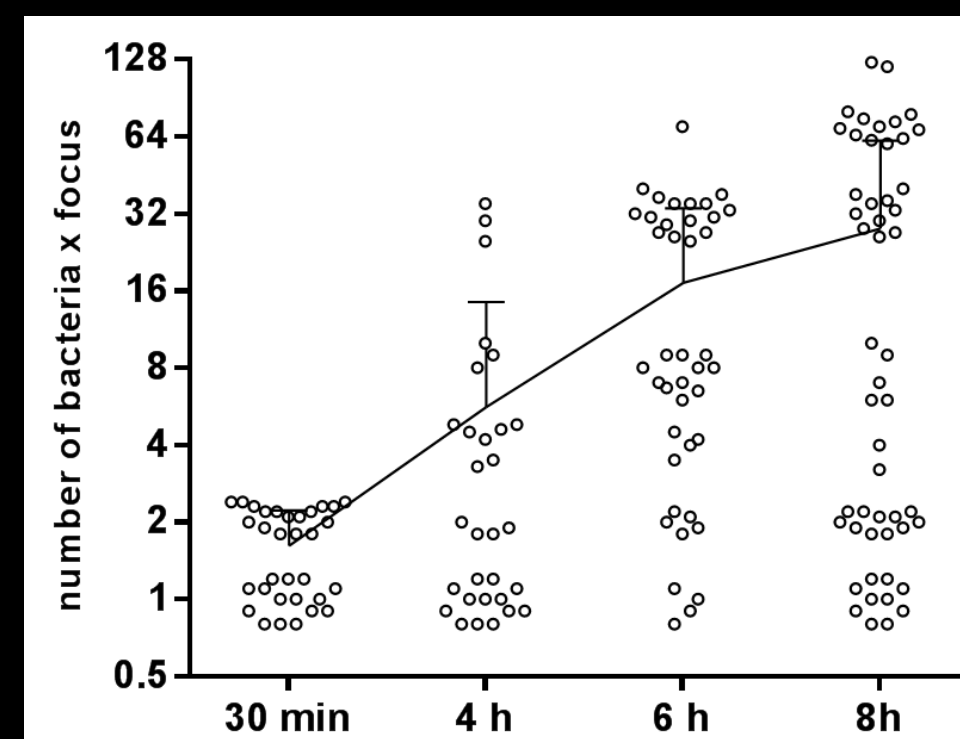
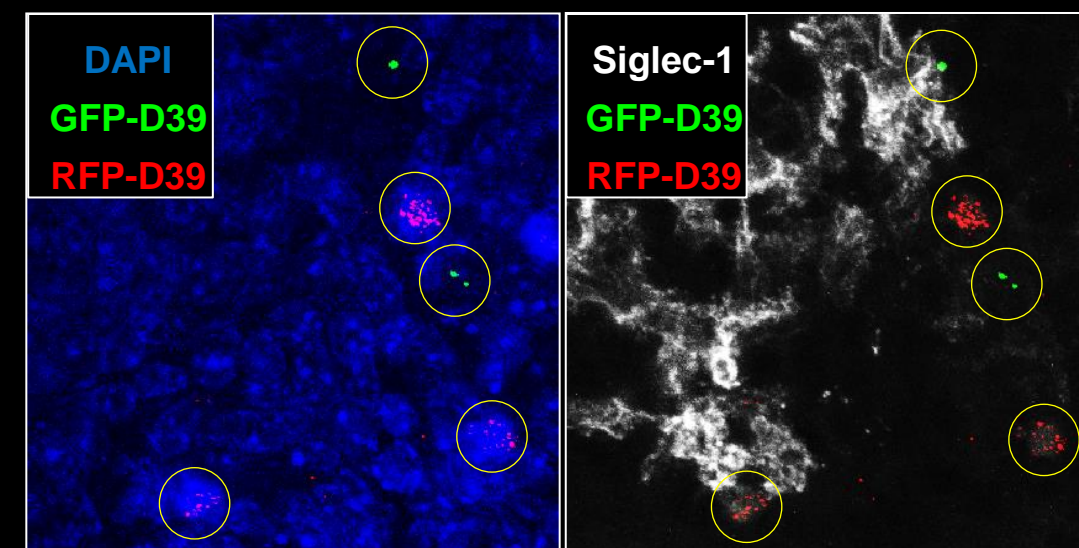


Z-stack images

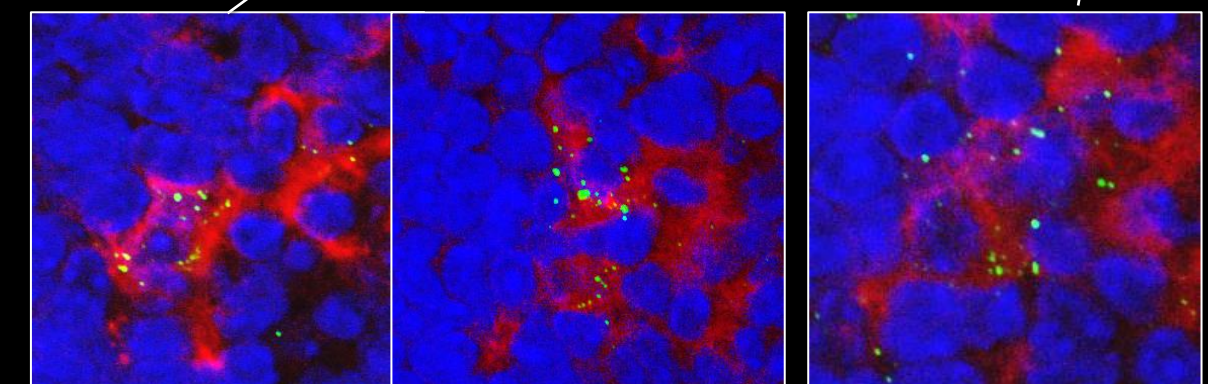
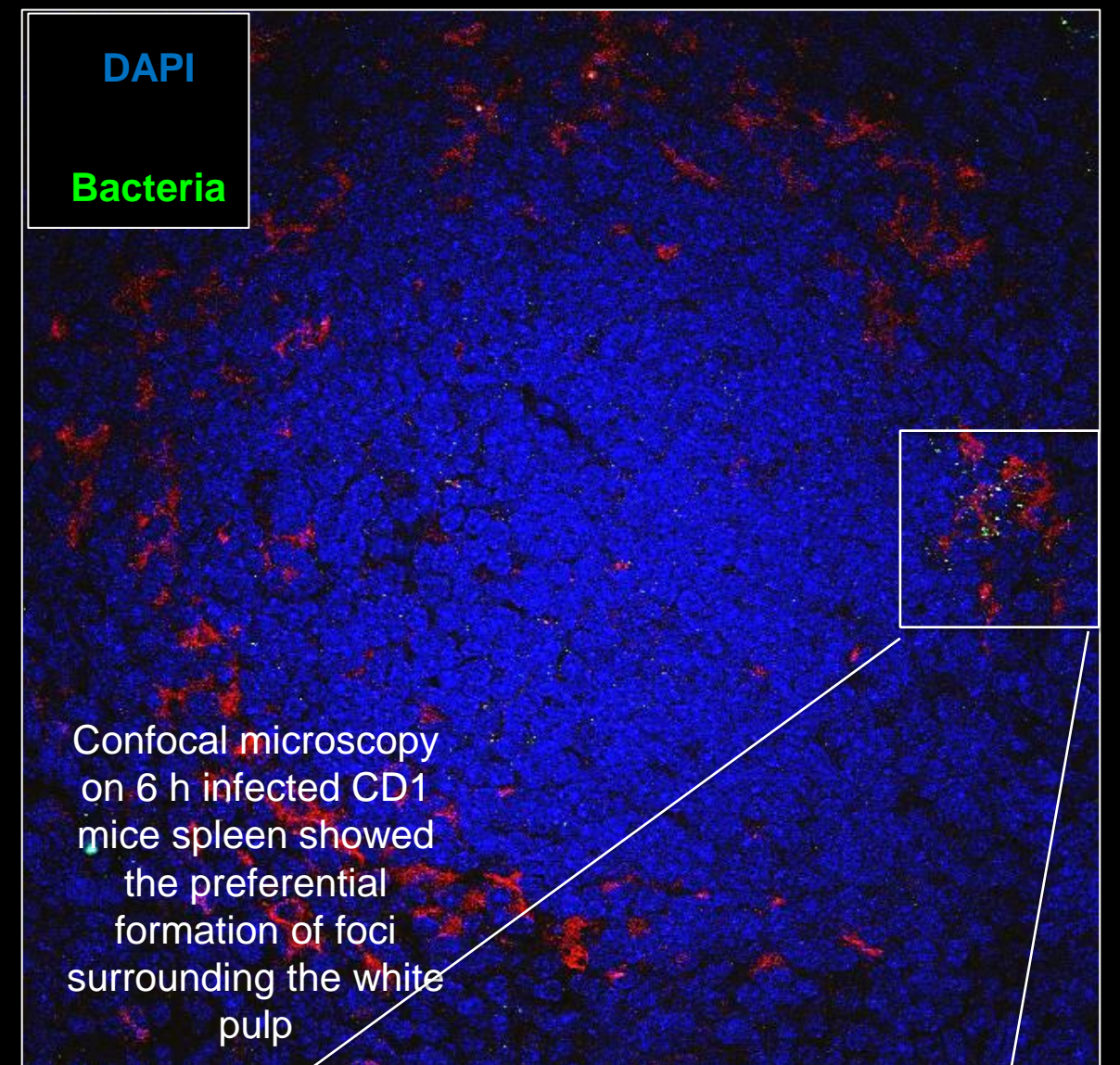


In each focus the pneumococci are derived from a founder bacterium

Multiple independent foci of infection develop either from GFP or from RFP bacteria in spleen after 6 h of infection.



The pneumococci are predominantly located within a subset of splenic macrophages



CONCLUSIONS

During this eclipse phase preceding bacteraemia and sepsis, foci of replicating pneumococci occur within a defined subset of splenic macrophages; each focus is founded by a single bacterial cell

References:

- Gerlini et al., 2014 PLoS Pathog. 10:e1004026.
- Kjosja et al., 2015 J Bacteriol, 197:807-818.