

The Ubiquitous Colonizer *Staphylococcus hominis* Protects Host Skin from Opportunistic Staphylococcal Pathogens by Blocking Quorum Sensing



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@Mac_brown01

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Poster
#87

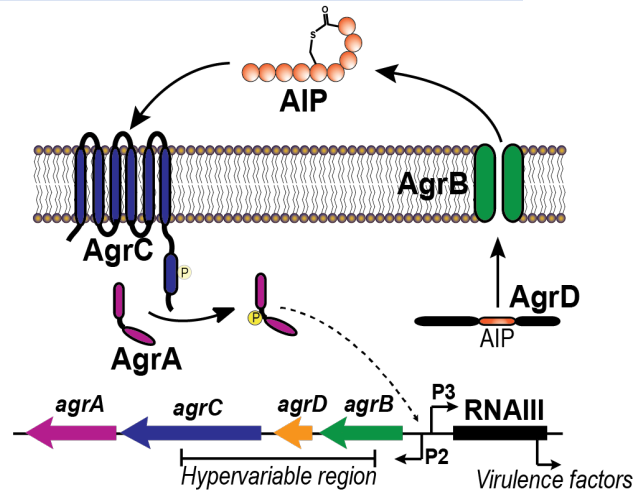
Staphylococci communicate via QS on the skin

Key Players:

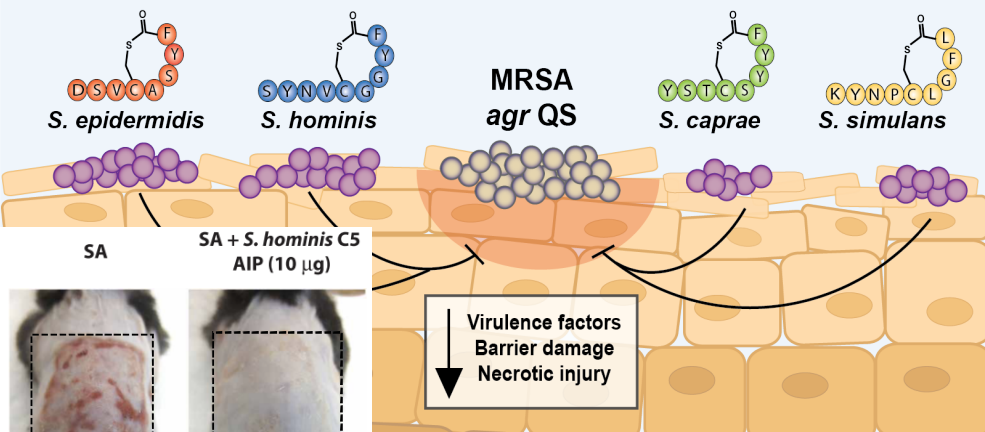
MRSA - #1 cause of SSTI's in USA

S. epidermidis – ubiquitous colonizer but can also hurt the skin

S. hominis – ubiquitous colonizer but understudied; more helpful?



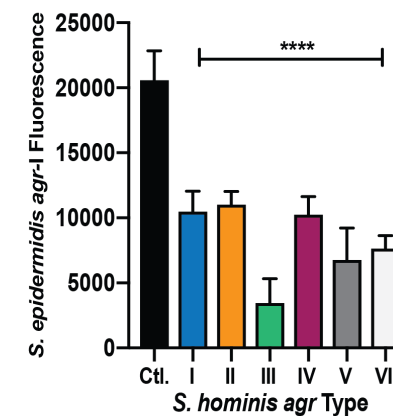
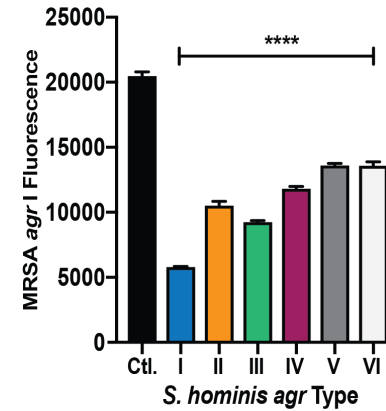
Interspecies cross-talk can protect host skin from damage



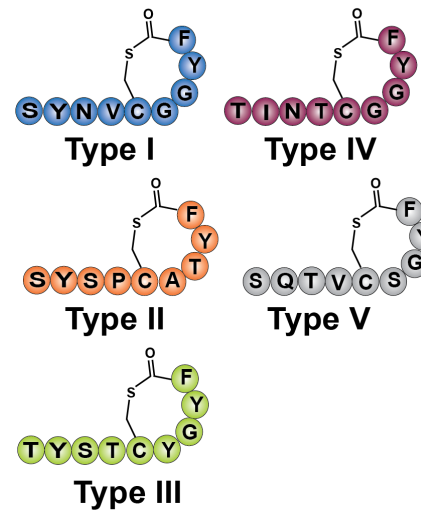
Williams et al. Sci Transl Med. 2019

Hypothesis: *S. hominis* and its *agr*-regulated factors protect host skin from challenge by opportunistic staphylococcal pathogens

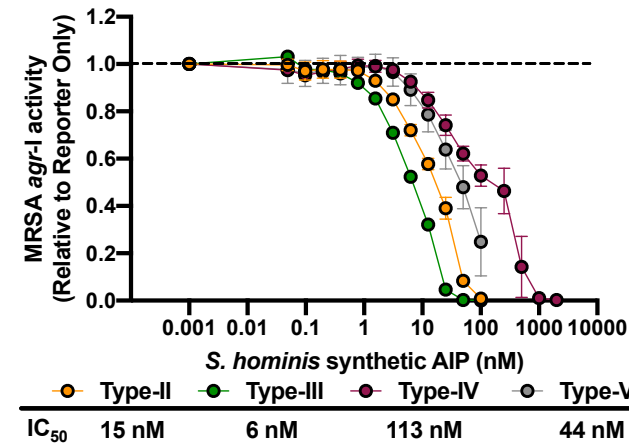
S. hominis spent media inhibits MRSA & *S. epidermidis* QS



S. hominis AIP variants



S. hominis AIPs inhibit MRSA QS



Conclusions

S. hominis makes the most AIP variants of any staphylococcal species

S. hominis AIPs inhibit pathogen QS *in vitro*

S. hominis AIP-1 inhibits MRSA-associated eczema in a mouse model

Future Directions

What is the *S. hominis* *agr* regulon?

Is *S. hominis* *agr* signaling necessary for skin colonization?

Could we use *S. hominis* as a probiotic therapy for eczema or other skin diseases?