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Short presentation

Understanding bacteria and the viruses that infect them

My research interests lie in understanding the interactions between bacteria and their bacteriophages - viruses that only infect bacteria. These 'phages' can either kill their bacterial hosts or change them by facilitating horizontal transfer of genes to nearby bacteria. Some recent projects have focused on new routes of horizontal gene transfer by staphylococcal phages (phages that only infect staphylococci) and how lytic phages can overcome anti-phage defense systems like CRISPR-Cas in *S. aureus*.

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Research outputs

An Endogenous *Staphylococcus aureus* CRISPR-Cas System Limits Phage Proliferation and Is Efficiently Excised from the Genome as Part of the SCCmec Cassette

Mikkelsen, K., Bowring, Janine Zara, Ng, Y. K., Svanberg Frisinger, Frida, Maglegaard, J. K., Li, Q., Sieber, R. N., Petersen, A., Andersen, P. S., Rostøl, J. T., Høyland-Kroghsbo, Nina Molin & Ingmer, Hanne, 2023, In: *Microbiology Spectrum*. 11, 4, e01277-23.

Cross-species communication via agr controls phage susceptibility in *Staphylococcus aureus*

Yang, Jingxian, Bowring, Janine Zara, Krusche, J., Lehmann, Esther, Bejder, Benjamin Svejidal, Fulaz Silva, Stephanie, Bojer, Martin Saxtorph, Grunert, T., Peschel, A. & Ingmer, Hanne, 2023, In: *Cell Reports*. 42, 9, 113154.

Screening for Highly Transduced Genes in *Staphylococcus aureus* Revealed Both Lateral and Specialized Transduction

Bowring, Janine Zara, Su, Y., Alsaadi, Ahlam Musaibeh M, Svenningsen, Sine Lo, Parkhill, J. & Ingmer, Hanne, 2022, In: *Microbiology Spectrum*. 10, 1, e02423-21.

The structure of a polygamous repressor reveals how phage-inducible chromosomal islands spread in nature

Ciges Tomas, Jose Rafael, Alite, C., Humphrey, S., Donderis, J., Bowring, Janine Zara, Salvatella, X., Penadés, J. R. & Marina, A., 2019, In: *Nature Communications*. 10, 1, p. 3676

Convergent evolution involving dimeric and trimeric dUTPases in pathogenicity island mobilization

Donderis, J., Bowring, Janine Zara, Maiques, E., Ciges Tomas, Jose Rafael, Alite, C., Mehmedov, I., Tormo-Mas, M. A., Penadés, J. R. & Marina, A., Sep 2017, In: *PLoS Pathogens*. 13, 9, p. e1006581

Pirating conserved phage mechanisms promotes promiscuous staphylococcal pathogenicity island transfer

Bowring, Janine Zara, Neamah, M. M., Donderis, J., Mir-Sanchis, I., Alite, C., Ciges Tomas, Jose Rafael, Maiques, E., Mehmedov, I., Marina, A. & Penadés, J. R., 8 Aug 2017, In: *eLife*. 6

Bacteriophage Moonlighting Proteins in the Control of Bacterial Pathogenicity

Bowring, Janine Zara, Marina, A., Penadés, J. R. & Quiles-Puchalt, N., 3 Oct 2016, *Moonlighting Proteins: Novel Virulence Factors in Bacterial Infections*. Wiley-Blackwell, p. 387-412 26 p.

Another look at the mechanism involving trimeric dUTPases in *Staphylococcus aureus* pathogenicity island induction involves novel players in the party

Maiques, E., Quiles-Puchalt, N., Donderis, J., Ciges Tomas, Jose Rafael, Alite, C., Bowring, Janine Zara, Humphrey, S., Penadés, J. R. & Marina, A., 20 Jun 2016, In: *Nucleic Acids Research*. 44, 11, p. 5457-69 13 p.