

Awareness

My name is *Staphylococcus aureus*, a member of the “Gram positive bacteria” team and leader of the most feared community “Methicillin-Resistant *S. aureus* (MRSA)”. My mission is to organize, protect and lead my community against the attacks of our enemies: humans. Survive and defeat them. It is simple.

We live in special cluster-like houses located either in the human upper respiratory tract and on the skin. To live in a community, developing a daily routine is extremely important. In our case, discipline is the key ingredient. The alarm clock rings at 6 o'clock in the morning. First of all, we duplicate ourselves with the state-of-the-art machine called “Binary fission”. Thanks to our protein autolysin, our daughters become independent. Maintaining the number of members in our community is highly relevant. Unfortunately, some of us die during the war. New members of the community receive theoretical lessons about self-defense, survival, weapons, new human strategies against MRSA among others. Old members go for a morning hike to collect some food in the long slides of the blood stream. Stealing some nutrients and gaining some energy make our enemies weak.

10 am. It's time to fight. Our equipment consists of a helmet and a combat jacket, which includes a fancy small device to select the desired weapon for an attack. We have a wide battery of weapons, termed as “virulence factors”, that play a noteworthy role: coagulase, beta-lactamase, superantigens, alpha, beta and delta toxins, wall-associated teichoic acids...

— Leader, watch out! Penicillin antibiotic coming from your right — warned me the 091st member of the MRSA community.

Easy. Beta-lactamase is ready to be launched. Oh no! What are these molecules coming at me? They are like the DNA/RNA but with a peptide backbone. Probably, again, one of those fancy new human weapons... They are labelled: peptide nucleic acids (PNA). I look around and I cannot believe what it is happening. Hundreds of MRSA members dying. It is by far one of the most powerful and efficient human weapons I have ever seen. Congratulations to the enemies but giving up is not an option. Remember your mission: to protect the MRSA community. I press the emergency bottom. All weapons working at the same time. This never fails. PNAs are being broken.

We return home. We defeated our enemy.

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Antibiotic resistance is one of the leading causes of death worldwide. Millions of people die every year and these threatening numbers are expected to increase. The excessive and inappropriate use of antibiotics, combined with social and economic factors, has accelerated the spread of antibiotic-resistant bacteria. *S. aureus* is a major public health concern due to the emergence of new strains resistant to commonly used antibiotics such as methicillin, vancomycin or quinolone, making treatment ineffective. Therefore, novel approaches and new antimicrobials are needed immediately. However, raise awareness among the society is the first step in overcoming this global problem.