Where the magic happens

Our research takes place at Ulm University in Southern Germany. As Ulm is the birthplace of Albert Einstein, we chose the famous scientist in combination with our research subject T. molitor as our logo. Our lab space is located in the Institute for Microbiology and Biotechnology. Our instructors Dr. Frank Bengelsdorf and Teresa Schoch frequently support us. Both are very experienced in the fields of our research and therfore very auxiliary for our project.

On organisatory issues and questions about feasability and strategy we can count on our PIs, microbiologist Professor Dürre and Professor Johnsson, who is a geneticist.

Dr. Frank Bengelsdorf
Instructor

Teresa Schoch
Instructor

We are enthusiastic our project could finally come about and very grateful for the nice and competent assistance in everything we do. We would especially like to thank the four mentioned above, but also everyone else who was involved in the challenging process of making this project possible.

Thanks to all of you!

Get in touch with us:

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Degradation of Polystyrene

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What is iGEM?

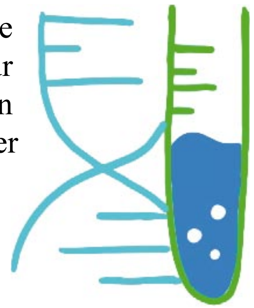
As a team of 14 students from Ulm University (Germany) we are participating in an international science contest called iGEM competition which is organized by the iGEM Foundation. The abbreviation iGEM stands for "international genetically engineered machine". The aim of the competition is to solve problems of humanity with the help of synthetic biology. The final competition takes place in Boston, USA, in form of the so-called Giant Jamboree, where all teams present the results of their research.

The aim of our research

Everyone has heard of the problems of plastic pollution. Especially in the oceans it causes severe damage to sea animals and the ecosystem as a whole.

The most common plastic is polyethylene terephthalate, better known as PET. It is found in plastic bottles and many other products of daily use. Methods of breaking down this type of plastic have already been developed by iGEM teams in the past. But is there a universal solution applicable to all the other types of plastic?

Unfortunately, no. Plastics are a very heterogeneous group of substances and their chemical structures differ a lot from each other, which is why one needs different approaches to attain their biological degradation. Our newly founded team has come up with a promising new idea of degrading polystyrene, abbreviated PS, which is the world's number three on the list of the most abundant plastics: the larvae of the beetle Tenebrio molitor, also called flour worm, are able to break down chunks of PS foam into further biodegradable material.



The aim of our project is to investigate which species of bacteria inside Tenebrio molitor's intestines enable it to do that. Furthermore, we plan to isolate the bacteria and improve their special ability by genetically equipping it with another skill that will supposedly make them even more efficient.