

SUOMALAISET NUORET TIEDELÄHETILÄÄT - WORLD BIOTECH TOUR AMBASSADORS IN FINLAND

Fanni Leppänen, opiskelija Tampereen lyseon lukion IB-linjalta



I'm an 18-year-old IB student from Tampere, Finland. My hobbies include playing the piano, sports, baking, photographing and hanging out with friends. Biotechnology is a thrilling topic and I am intrigued by its widespread use and vast potential. Personally, I'm particularly interested in the medical and ecological aspects of the field. I have previously been part of an Erasmus project on which we worked together with other Europeans on topics such as sustainability and entrepreneurship. Due to many years of living abroad, I have learnt to appreciate international communication, and feel that it is especially important when talking about science. That is why I'm very keen on not only learning in depth about my biotechnology topic, but also sharing my experiences with others.

My project: Stem cells therapy

My World Biotechnology Tour topic relates to regeneration, or the possibility of growing new limbs or organs for the human body. Basically, the large question in my research is whether humans could be able to grow back needed body parts at the time of injury with the help of stem cells. However, since this topic is quite broad, I am planning to focus on what is needed for regeneration to occur, and one of these in addition to stem cells and some soluble factors are scaffolds. To narrow down my research, I decided to focus on what kind of biomaterial is best suitable to act as scaffolds. So my aim is to search for the most optimal material combinations that are biodegradable as well as something that cells can stick on. This material would then act as a structure that provides support as the new body part starts developing. I have yet to start experimenting, but am hoping to test different materials using bioreactors with the help of HUSLAB.

Katja Kuismanen, opiskelija Helsingin Suomalainen Yhteiskoulun IB-linjalta



I am constantly surrounded and amazed by the scientist in my family and therefore wish to try and contribute and learn about their professions. I joined the World Biotech tour for exactly that reason. In the future I hope to study to become a bioengineer or work in robotics. I am an avid reader and drawer. I play soccer, kantele, a traditional Finnish instrument (it looks and sounds a bit like a horizontal harp). I also attend graphics lessons once a week.

WBT topic:

My topic of research falls under bioluminescence and deals with green fluorescent protein (GFP), which gives off a slight glow. Originally, I chose this topic because I found it so wonderful and important to show that biotechnology can be beautiful and exciting to observe even without extensive knowledge. The spectacular glow in the dark feature of GFP isn't just pleasing to look at, it's also extremely practical and useful when

observing structures within cells. Although my primary objective was originally to showcase the use of the GFP technique in research, I will also be able to observe and partake in the making of GFP transfected cells together with my mentor Mikael Niku. Some of the ways in which these GFP infused cells (or even larger organisms) are useful in research are, for example, when examining cytoskeletal defects and diseases to figure out how the structure is compromised. Another extremely useful way to use GFP is during cell division, which allows the observation of rapidly dividing cancer cells and possibly the visualization of the formation of tumours, both of which are extremely important when devising future treatment methods.

Helmi Halme, opiskelija Tikkurilan lukion IB-linjalla



I am interested in all things related to biochemistry and chemistry as well as genetics. At the moment I'm interested in Finnish front row research into cellulose fibers, which could eventually offer an alternative to cotton. Also the genetical modification of perennial crops to adopt similar characteristics as annual ones is something that interests me. In the future I want to become a surgeon or work with pharmaceuticals. Outside of school and academics I like to bake and stay on top of all the newest trends in fashion.

WBT projektini oli cellulose-acetatin valmistaminen, mikä on jokseenkin yksinkerertainen prosessi. Projektissani käytän longcell-F prosessia esimerkkinä siitä millainen kaupallinen potentiaali synteettisillä selluloosapohjaisilla kuiduilla on.

Ronja Holopainen, opiskelija Helsingin Suomalaisen Yhteiskoulun International Baccalaureate-ohjelmasta



I am an IB student from Helsinki. I am enthusiastic about chemistry and medicine and hope to work in the field in the future. I have competed in several science and mathematics competitions and won the national science competition with my pair on the effects of anti-aging serums on the epithelial cells of the cornea. On my spare time I do track and field and volunteer in several organizations.

As the World Biotech Tour project, I am developing a menstrual pad, which is reusable, cheap, easily washable, ecological and comfortable to use. The menstrual pad will be delivered in to areas, where people do not have money to purchase single use items and where there is no organized waste disposal. Due to scarcity of money, girls may not be able to attend school during their periods, which can lead to severe consequences such as failing a class. I am not

interested in making a commercial product, but rather a product that can be passed out within communities by health care personnel, health centers and non-profit organizations.

Besides this silicone-made product, I will develop an app, which informs not only girls and women, but also men about normal puberty, menstruation and contraception. Consequently, I am aiming to improve the girls' and women's possibilities to attend school education and society and to improve equality. I consider sexual health education important for a healthier future.

Several people from Aalto have given me information on different materials that can be used for the pad . With the app I have received information on how to create it from University of Helsinki. Also I have discussed the project with Monash University, Australia.

Elina Tanskanen, opiskelija Helsingin Suomalainen Yhteiskoulun IB-linjalta



I'm a IB student aspiring to be a medical doctor. I believe that biotechnology will provide solutions to many problems in the future, and it is important to be able to communicate efficiently. I'm especially interested in genetic engineering, and the role of biotechnology in detecting and eradicating infectious diseases.

In my project, I am looking for alternatives to antibiotics. My aim is to increase information and understanding of antibiotic resistance, and what can be done to fight it. With the help of my mentor Jaakko Ekman I will be conducting a simple experiment with E.Coli. I am also thinking of making a small survey on how significant of a threat people see antibiotic resistance as.

Jialin Ni , opiskelija Helsingin Suomalainen Yhteiskoulun IB-linjalta



My topic for my WBT-project is biofiltration. Biofiltration is a pollution control technique used in eliminating air pollution and treating wastewater. My main research question is how does biofiltration benefit the world. Thus, the questions I will be examining are: What is biofiltration?, How does it work?, What are its advantages?, What are its disadvantages?, Why do people need to know? about biofiltration?

Basically, I will try to throughoutly introduce biofiltration to the masses. I'm still not so sure about the delivery method, but I'm thinking of making an animation about the topic, so that it will be easier to visualize the process of biofiltration. My mentor is Jaakko Ekman, and I hope that his expertise in wastewater treatment will be of help to me.

Lilian Luo, opiskelija Ressun lukion IB-linjalla

I believe the field of biochemistry is critical in engineering our future. It is also one of the most accessible of the sciences from an outsider's perspective, with large databases open to the public and a lot of tools available online.

Tomasz Bubiencyk, opiskelija Tikkurilan lukion IB-linjalla

Kiinnostukseni biotekniikkaan alkoi kiinnostuksestani kemiaan ja biologiaan koulussa. Aloittaessani näiden aineiden syvemmät opiskelut lukiossa, kiinnostukseni näihin aineisiin nousi entistä enemmän ja niiden soveltaminen käytäntöön vaikutti eniten mielenkiintoiselta. Kiinnostukseni biotekniikkaan ei rajoitu pelkästään biotekniikkaan tieteen haarana vaan se ulottuu myös biotekniikkaan teollisuuden alana, etenkin kun viime aikoina biotekniikassa on ollut niin paljon uusia kehityksiä. Alan monipuolisuus ja potentiaali uusille kehityksille ja ongelmien ratkaisulle on se mikä minua eniten miellyttää biotekniikassa biologian ja kemian kiinnostuksen kera.