LAB TOURS

Registration required: central info point at the MDC.C

Pick-up point for all lab tours: in front of the Max Delbrück Communications Center (MDC.C) (C83)

LECTURES

5:30 p.m.

When new blood vessels sprout

Our blood vessels form a widely branched network of tubes that can be as thick as a thumb or finer than a single hair. They supply all tissues with oxygen and nutrients. The inner lining of the blood vessels, the endothelium, can promote a long and healthy life or promote diseases because it plays a central role when new blood vessels sprout. During the laboratory tour, Holger Gerhardt's team will show visitors how new blood vessels sprout, how blood flow influences the vessels, and where the very first blood vessels come from using cell samples, 3D models, and zebrafish.
Gerhardt lab, Recommended from 12 years, Duration: 45 min
also 7:30 and 9:30 p.m.

Finding the mechanisms that cause cardiovascular diseases

The Klussman lab aims to elucidate the molecular mechanisms underlying cardiovascular diseases such as hypertension and water balance disorders. They study signal transduction mechanisms by analyzing proteins as well as gene expression in cell and in animal models. The lab tour provides background information and insights into experimental results, e.g. from microscopic studies.
Klussman lab, Recommended from 12 years, Duration: 45 min
also 6:30 and 7:30 p.m.

Remarkable: what animals can tell us about ourselves, the value of diversity, and saving the world

How can icefish live in frigid Arctic waters, or tardigrades survive in space? Or naked mole rats live for 18 minutes without oxygen? Remarkable, by Russ Hodge of the Max Delbrück Center and Berlin illustrator Kat Menschik, is a literary adventure about 14 fascinating animals and the remarkable scientists who study them. The event will include short readings in English and German by the author and publisher Wolfgang Hörner from Galiani Verlag, and a Q&A with researchers studying some of the animals. Copies of the book and other works from Galiani Verlag can be purchased at the event.
Russ Hodge, Max Delbrück Center; Venue: Dendrit 2/3, Max Delbrück Communications Center (MDC.C) (C83); **also 7:30 p.m.**

6:00 p.m.

How do heart and brain defects develop?

Why do the heart and brain sometimes develop incorrectly? This question is at the center of our research because malformations in these organs are among the most common causes of health problems in newborns. We investigate how cells organize, migrate, and specialize during early development—and how genetic control mechanisms influence these processes. To do this, we use state-of-the-art methods, including mouse models, studies of gene activity and cell functions, and mini-organs (organoids) grown from stem cells. Our goal is to better understand how the human body forms in health and disease—and to explore possible ways to repair damaged tissue in the future..
Hammes-Lewin & Bunina lab, Recommended from 12 years, Duration: 45 min, **also 7:30 p.m.**

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Neuromuscular mini-organs: Experience research first hand

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What are mini-organs (organoids) and why are ours so special? During the interactive lab tour, visitors will learn how we produce neuromuscular mini-organs and what significance they have for research into serious diseases. They will gain an insight into how we work at sterile benches, experience the production process with a robot, and be allowed to change the culture medium of the mini-organs themselves and compare their accuracy with robot's precision.
Diecke lab, Recommended from 16 years, Duration: 45 min

Unraveling beta cell biology to combat diabetes

How does diabetes develop and how can we better treat it? The Sander Lab investigates how insulin-producing pancreatic beta cells develop and function to uncover the causes of diabetes and pioneer new treatments. Using human stem cell-based organoid models, advanced genetic tools, and computational approaches, the team develops new models of the disease to explore the molecular mechanisms behind beta cell formation, maintenance, and dysfunction. Their research paves the way for innovative therapies to restore beta cell function and improve diabetes care.
Sander lab, Recommended from 12 years,
Duration: 45 min
also 8:00 and 9:30 p.m.

Democratizing science in Africa

In low-resource settings, it can be hard for scientists and clinicians to get access to advanced imaging equipment or specialized trainings on how to operate them. The West African Microscopy and Bio-Image Analysis Network (WAMBIAN) aims to democratize science. Peran Hayes, one of the co-founders, will talk about how their courses contribute to building an imaging infrastructure there – not only by building basic microscopes using off-the-shelf parts and 3D-printed components, but also by establishing a network for people to share their knowledge as well as resources and discuss ideas.
WAMBIAN
Recommended from 14 years, Duration: 25 min
Venue: Café Scientifique, Foyer MDC.C

7:00 p.m.

Proteins: More than just fuel for bodybuilders

Join us for a fascinating journey into the world of proteins! These tiny building blocks of life do far more than just keep our bodies running – they hold the key to understanding diseases and developing new treatments. In our proteomics labs, we use advanced technologies to study proteins with great precision. See how researchers are uncovering the molecular mechanisms of life and shaping the future of biomedical science. This is your chance to explore the exciting world of protein research up close!
Mertins lab, Recommended from 12 years, Duration: 45 min
also 17:00 (de) and 21:00 (de)

Misfolded is toxic for the brain

Huntington's, Alzheimer's and Parkinson's diseases all have one thing in common: misfolded proteins are deposited in the brain and poison the nerve cells there. We use the common vinegar fly as a model for neurodegenerative diseases to get to the molecular bottom of the causes and effects of misfolded proteins.
Wanker lab, Max Delbrück Center
Recommended from 12 years, Duration: 45 min.
also 17:00 (de) and 9:00 p.m. (en)

7:30 p.m.

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Duration: 45 min
also 6:30 and 9:30 p.m.

The good, the bad and the ugly: the "happy hormone" serotonin

Serotonin makes you happy. At least that's what most people think, since the neurotransmitter regulates emotions in the brain. Few people know that much more serotonin is produced in the gut, circulates in the blood platelets, and may be involved in the development of disease. We will answer the following questions:
How do we study what serotonin does in the brain and body?
Is serotonin in the brain really a "happy hormone"?
What diseases are triggered by too much serotonin in the body and what does this mean for their treatment?
Bader lab, Max Delbrück Center
Recommended from 12 years, Duration: 45 min.
also 17:00 (de) and 18:30 (de)

9:00 p.m.

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Duration: 45 min
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Naked mole-rats with a sense of tact

They are almost pain-free, social and yet authoritarian. They like to gossip and cuddle, get super old and have no problem finding their way around in complete darkness: naked mole-rats. We share with you, what we can learn from naked mole-rats about ourselves and for the therapy of human diseases. We'll also give you a glimpse into the gloomy world of these fascinating rodents from East Africa.
Lewin lab, Max Delbrück Center
Recommended from 12 years, Duration: 45 min.
also 18:30 (de) and 20:00 (de)

10:00 p.m.

Cellular Echo

An audiovisual live performance that breaks boundaries and dimensions!

At sunset, Cellular Echo projects microscopic images of cells onto the exterior wall of the Erwin Negelein House, transforming them into an arrangement of light and sound. Experience a tribute to the diversity and beauty of the building blocks of life.

Visuals: *Dr. Jochen Müller* is a neuroscientist and science communicator with a passion for microscopy and live events. In his work, he conveys the fascination of science through accessible language and aesthetic imagery.
Dr. Sumeet Rohilla is an interdisciplinary media artist who blends science, emerging technologies, and art in his work. His creations range from abstract data visualizations to interactive real-time light installations and audio-reactive immersive visual experiences.

Sound: *Manav Khadkiwala* is an artist, designer, and musician intrigued by the tension between structure and unpredictability. In his creative practice, he uses generative algorithms to navigate the delicate balance between control and chance, revealing patterns emerging from seemingly chaotic systems.

Duration: approx. 45 minutes
No registration required
Start: Lawn in front of the Erwin Negelein House